



United Utilities

Final Water Resources Management Plan 2019: Water Framework Directive Assessment



Report for

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Executive summary

Introduction

This report presents the Water Framework Directive (WFD) assessment for resource management and Manchester and Pennine Resilience options that have been considered for inclusion in United Utilities' Water Resources Management Plan (WRMP) 2019. The aim of the report is to demonstrate the potential level of WFD impact associated with each WRMP option and, if necessary, the level of further assessment that may be required in order to fully demonstrate WFD compliance. It also includes a review of United Utilities' (UU's) proposals for how it will operate its existing abstractions to determine whether they meet the criteria for sustainable catchments and comply with the WFD.

The WFD sets a default objective for all rivers, lakes, estuaries, groundwater and coastal water bodies to achieve good status or potential by 2027 at the latest. Where it is not possible to achieve this (e.g. through disproportionate costs), alternative water body objectives can be set. The current (baseline) status (2015 classification), and the measures required to achieve the 2027 status objective are set out for each water body in the relevant River Basin Management Plans (RBMPs), prepared by the Environment Agency (EA) every six years.

The final WRMP must be able to demonstrate that it would not cause a deterioration in respect of these baseline conditions. Furthermore, for those water bodies that are not currently attaining good status, the WRMP must be able to demonstrate that it would not preclude the delivery of measures to facilitate the improvements needed to attain good status.

Review of Existing Abstractions

The EA provided guidance that UU should consider the changes to current abstractions to avoid the risk of deterioration under the WFD. For this, UU worked closely with EA representatives to complete a Sustainable Catchments spreadsheet, submitted to the EA on 28 February 2017 which highlighted the abstractions that needed reviewing.

A review of how UU will operate its existing abstractions to determine whether they meet the criteria for sustainable catchments and comply with the WFD has been undertaken on 35 abstraction licences. The 35 abstraction licences have been assessed by the EA to fall within category 1, 2, or 3 as described below:

- Category 1: based on recent actual abstraction rates causing serious damage now;
- Category 2: based on recent actual rates deterioration likely by 2027;
- Category 3: based on full use of the abstraction licence deterioration likely after 2027 and by 2040: and
- Category 4: based on full use of the abstraction licence no likelihood of deterioration before 2040.

The aim of the review was to highlight where existing abstractions could impact on WFD objectives and would therefore need mitigation.

The review indicates that when accounting for recommended levels of abstraction licence reduction, confirmed or potential AMP6 (2015-2020 investment period) measures, and an assumption of continuation of current operational activities or abstraction levels, most licences are unlikely to have a significant impact on the WFD objectives of the relevant water bodies. One of UU's groundwater abstractions at Mouldsworth could potentially have a medium impact on a surface water, the Salters Brook. Further work may be required in this water body to either undertake further assessment to reduce the level of impact, or to establish what mitigation should be implemented.

Approach to the WFD Assessment of WRMP Feasible Options and Manchester and Pennine Resilience Options

The WFD assessment has considered the following key questions in respect of the construction and operational phase of each WRMP option:

- At the water body scale, would the option result in a deterioration of any of the WFD classification components from one status class to the next, (e.g. from good to moderate), irrespective of whether or not it results in the lowering of overall status?
- Would the option prevent any water bodies from achieving good overall status or, where relevant, an alternate objective?

Following the assessment of each WRMP option, an assessment was made of the following for each of the Preferred Plan options:

- Would the cumulative effects of multiple WRMP options impact on the objectives of individual WFD water bodies?
- Would the cumulative effects of multiple WRMP options impact on the objectives of multiple water bodies that are hydrologically linked (i.e. operational catchments)?
- Would the cumulative effects of multiple WRMP options affect protected areas and their associated objectives?

If the answer to all of the above five questions is 'no' then the option can be considered to be WFD compliant.

The possible future decommissioning of WRMP options is beyond the scope of this assessment, but impacts arising from decommissioning are likely to be similar to those associated with construction.

WFD Assessment Process

The WFD assessment has been undertaken on 115 confirmed options (81 supply-demand feasible options and 34 Manchester and Pennine resilience options). The assessment for each option was based on the engineering scope information provided by UU. The assessment for each option comprised two stages, a 'Level 1' screening, followed by a more detailed 'Level 2' assessment for those water bodies that may be subject to medium or high impacts. The results of both levels of assessment are then combined to create a final impact assessment for all options. Both levels of assessment use the definitions of impacts described in **Table 1**.

Table 1 Impact Classification Categories

Level of impact	Description of impact
No or minimal impacts	No measurable change in the quality of the water environment or the ability for target WFD objectives to be achieved.
Minor level of impact	Impacts from the option when taken on their own have the potential to lead to a minor localised, short-term and fully reversible effect on the quality of the water environment that would not result in the lowering of WFD status.
	Impacts would be very unlikely to prevent any target WFD objectives from being achieved.
Medium level of impact	Impacts when taken on their own have the potential to lead to a widespread or prolonged effect on the quality of the water environment that may result in the temporary lowering of WFD status.
	Impacts have the potential to prevent target WFD objectives from being achieved.
High level of impact	Impacts when taken on their own have the potential to lead to a significant effect and permanent deterioration of WFD status.
	Impacts have a high risk of preventing target WFD objectives from being achieved.

The assessments were based on available data and evidence as far as possible. However, due to the limited engineering and baseline information available, expert opinion and a number of assumptions have been employed in most cases (refer to **Section 3.3**). Where there was uncertainty over an option (e.g. the exact route of a pipeline is not known) a worst-case scenario approach has been used (e.g. the assessments have assumed that the pipeline has watercourse crossings rather than not).

A confidence rating has been given to the Level 2 assessments, according to the confidence categories in **Table 2**. The confidence rating assigned to each assessment is a reflection on the amount of uncertainty in the option design (e.g. uncertainty over the location and quantity of a new groundwater abstraction would lower the level of confidence in the assessment), and the amount and quality of evidence upon which the impact level has been based (e.g. existing investigations into the impacts of reservoirs by UU and the EA increase the confidence level in the assessment). All the assessments that have only been subject to a Level 1 assessment are assigned a high confidence by default.

Table 2 Confidence Level Categories

Confidence category	Description of confidence
Low	Very limited evidence, high risk activity or assessment solely based on expert judgement.
Medium	Reasonable levels of evidence for some aspects of the assessment. Some assumptions and expert opinion required.
High	Good level of evidence with minimal assumptions required or low risk activity.

Where two or more Preferred Plan options are located in the same water body or operational catchment, a high level cumulative assessment has been undertaken to determine the potential for combined effects on WFD objectives, should all the options be implemented. Assessments have also been undertaken on protected areas related to the protection of habitats and species that are identified in the EA's Catchment Data Explorer as being linked to a water body that may be impacted by a Preferred Plan option. The cumulative and protected area assessments followed the same approach as the Level 1 and Level 2 assessments for the individual options.

Results of the WFD Assessment of WRMP Supply-Demand Feasible Options

The Level 1 screening identified 328 WFD water bodies that may be impacted by the 81 supply-demand¹ feasible options. Many of these water bodies could be impacted by more than one option, resulting in a total number of 584 option-water body combinations.

The Level 1 screening exercise was undertaken for each option and its related water bodies. This identified 69 options that may have a medium or high level of impact on one or more water bodies and these were subjected to the more detailed Level 2 assessment.

The results of the Level 2 assessment were combined with the results of the Level 1 assessment to produce a combined assessment result which is summarised in **Table 3** and presented in full in **Appendix B**. The individual Level 2 assessment spreadsheets are presented in **Appendix C**.

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¹ These are options to meet dry year supply-demand drivers, as opposed to improve water supply resilience to non-drought hazards

Table 3 Summary of Combined Assessment Results for Feasible Options

	No of option– water body combinations	No of water bodies	No of options
Total	584	328	81
High level of impact	4	4	4
Medium level of impact	53	39	35
Minor level of impact	336	198	68
No or minimal impact	191	134	38

Note that a water body may have varying levels of impact from different options, and an option may have differing levels of impact on different water bodies. This means that some water bodies and options are counted more than once in the values in this table.

Results of the WFD Assessment of WRMP Resilience Options and Solutions

The results of the assessment for the water supply resilience solutions² are presented for each individual resilience option, and then for each resilience solution. The results of the assessment for each solution are based on a consideration of the impacts for each of the individual options within that solution.

The results of the Level 1 and Level 2 assessments indicate that:

- ▶ 22 resilience options have a no or minimal level of potential impact;
- 7 resilience options have a minor level of potential impact; and
- 5 resilience options have a medium level of potential impact.

Further details on the results are summarised in **Table 6.1**, and described by solution in Sections 6.3 to 6.7. The assessments are presented in full in Appendices D and E.

The five resilience options that have been assigned a medium level of potential impact are:

- ▶ 37-38: Manchester and Pennine Aqueduct section T05 to T06;
- 37-42: Manchester and Pennine sections T01 to T06:
- ▶ 215: Alternative Supply: Raw water transfer and water treatment works (WTW) at Martholme bulk supply point (BSP);
- 296: T05 targeted repair 2025; and
- 297: T06 targeted repair 2025.

The five resilience options with a medium level of impact occur in four out of the five resilience solutions (**Table 3**) and pose a potential risk of widespread or prolonged impacts on the status of WFD water bodies.

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² This relates to resilience to hazards other than drought

Table 3 Summary of Resilience Option and Solutions Assessment

		Number of options (and water bodies in brackets) at each impact level					
Solution	Total No. of Options	No or Minimal	Minor	Medium	High	Overall Impact	Confidence
Α	6	3	1	2 (2)	0	Medium level of impact	Low
В	16	15	0	1 (8)	0	Medium level of impact	Low
С	8	4	4	0	0	Minor level of impact	High
D	2	1	0	1 (21)	0	Medium level of impact	Low
E	6	1	3	2 (22)	0	Medium level of impact	Low

Note:

Some resilience options are included in more than one resilience solution.

For options assigned a no or minimal or minor level of impact in the Level 1 screening, individual water bodies were not identified.

Results of the WFD Assessment of the Final WRMP 'Preferred Plan'

The Preferred Plan includes one resilience solution, Solution D, which comprises two resilience options. The Level 1 screening identified 21 WFD water bodies that may be impacted by the two options that are included in Solution D. It should be noted that the supply-demand preferred options that comprise the Preferred Plan do not include resource management measures (i.e. they comprise of demand management measures including leakage reduction and water efficiency only) and are therefore not expected to have impacts on WFD water bodies.

The Level 1 screening exercise was undertaken for each option and its related water bodies. This identified a single option that may have a medium level of impact on one or more water bodies, and this was subjected to the more detailed Level 2 assessment.

The results of the Level 2 assessment were combined with the results of the Level 1 assessment to produce a combined assessment result which is summarised in **Table 4** and presented in full in **Appendix J**. The individual Level 2 assessment spreadsheets are presented in **Appendix E**.

Table 4 Summary of Combined Assessment Results for Options that form the Preferred Plan

	No of option– water body combinations	No of water bodies	No of options
Total	21	21	2
High level of impact	0	0	0
Medium level of impact	21	21	1
Minor level of impact	0	0	0
No or minimal impact	0	0	0

Following the individual option assessments, the Preferred Plan options were subject to cumulative and protected area assessments. The combined results of all three assessments are summarised in **Table 5**.

Table 5 Summary of Assessment Results for the Preferred Plan Options

	Result of Individual assessment	Result of cumulative assessment	Result of Protected Area assessment	Overall result	Confidence level
Option 112: Manchester and Pennine Aqueduct Outage	No or minimal impact	n/a	n/a	No or minimal impact	High
Option 37 – 42 (Manchester and Pennine Aqueduct)	Medium level of impact	Medium level of impact	Medium level of impact	Medium level of impact	Low

One of the two resilience options has been assigned a medium level of potential impact on account of the risk to the quantitative and chemical status of groundwater bodies and changes to the hydrological regime (and therefore ecological status) of rivers.

In this case, further WFD assessment is required to be provide greater clarity and confidence in respect of requirements, if relevant, for bespoke mitigation in order to ensure that WFD objectives are not compromised. In reality, on consideration of further information and dialogue with the EA on proposed bespoke mitigation measures, this option is unlikely to result in significant or long-term potential impacts. Therefore, WFD compliance is unlikely to be an issue in respect of regulatory permitting once the further assessment provides the appropriate level of confidence for presentation to the regulator.

The assessments typically have a low level of confidence, which reflects the high-level nature of the WFD assessments undertaken at this time. The lack of detailed design or environmental baseline information has necessitated a precautionary approach to the assessments, which relies on assumptions (e.g. that changes to the groundwater flow regime will impact on surface water courses), and results in a worst-case level of impact. Further assessment and dialogue with the EA during the consultation and project stages would likely result in a reduction of the level of impact, and an increase in the level of confidence.

Further project-stage detailed WFD assessment should therefore be undertaken in respect of Option 37 - 42 as this option has been assigned a medium level of impact in the individual, cumulative and protected area assessments. Further assessment should include consideration of more detailed design information, investigation of the water environment associated with the option (in particular links between the groundwater and surface water environments), detailed impact assessments, and more detailed review of WFD objectives to ensure that the impacts highlighted in this report are appropriately accounted for.

Statement of Compliance with the WFD

The assessments of the data provided by the EA and UU regarding current abstraction licences indicate that although there is some residual risk, overall the operation of the licences, the reductions noted by the EA and the schemes identified for AMP6 should be enough to mitigate against any significant risks to the WFD water bodies and they are **therefore compliant with the requirements of the WFD**.

The assessments for the preferred options that comprise the Preferred Plan for WRMP19 indicate that one option (Option 37 - 42) could have a medium level of impact against WFD objectives. Further WFD assessment is therefore required at the project stage to be more conclusive in respect of requirements, or otherwise, for bespoke mitigation in order to ensure that WFD objectives are not compromised.

In reality, on consideration of further information and dialogue with the EA on proposed bespoke mitigation measures, this option is unlikely to result in significant or long-term potential impacts. Therefore, WFD compliance is unlikely to be an issue in respect of regulatory permitting once the further assessment provides the appropriate level of confidence for presentation to the regulator.

Based on the assessments in this report, there is currently no requirement to implement Article 4.7 for either current abstractions or the preferred options. However, this is based on the assumptions detailed in this report, the need to implement reductions on some of the current licences, and the assumption that additional investigations and mitigation will be implemented for the preferred options.

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1. Introduction

1.1 Overview

- United Utilities (UU) has finalised its Water Resources Management 2019 (WRMP19). The WRMP sets out the strategy for water resource and demand management to ensure supplies of safe, clean drinking water are maintained to customers throughout the company's region over the period 2020 to 2045 and beyond.
- As part of the preparation of WRMP19, UU published its Draft Water Resources Management Plan (Draft WRMP) for consultation between 2nd March and 25th May 2018, following submission to Defra in December 2017. The Draft WRMP set out UU's Preferred Plan for WRMP19, including preferred resource and demand management options designed to enhance leakage reduction; improve levels of service for drought permits and orders; and to support water trading with other water companies. The Preferred Plan also sought to address resilience issues associated with the regional aqueduct system that supplies water from the Lake District to the Greater Manchester and Pennine areas including parts of Lancashire and south Cumbria (known as 'Manchester and Pennine Resilience' solution) by providing a number of options.
- In developing the Preferred Plan for the Draft WRMP, UU undertook a comprehensive assessment of future available water supplies and the demand for water, extensive stakeholder engagement and a rigorous process of options identification and appraisal. In this context, Amec Foster Wheeler Environment and Infrastructure UK Ltd (Amec Foster Wheeler, now Wood) was commissioned by UU to undertake a Water Framework Directive (WFD) assessment of the Draft WRMP, the findings of which were presented in a report³ that was published alongside the plan for consultation. A further report⁴ presenting an assessment of potential Manchester and Pennine Resilience solutions was also prepared.
- UU subsequently selected its preferred Manchester and Pennine Resilience Solution and modified the Preferred Plan for WRMP19, taking into account the consultation responses from regulators, stakeholders and the public on the Draft WRMP, as well as further engagement and environmental assessment. A 'Revised Draft WRMP' was subsequently prepared and, along with the Statement of Response to the consultation, was submitted to the Secretary of State for approval in August 2018. The Revised Draft WRMP included further increases to the leakage reductions contained within the Draft WRMP.
- Following a review of the Statement of Response to the consultation and the changes made in the Revised Draft WRMP, Defra requested more information on the plan. United Utilities responded to this request in April 2019. Following the receipt of direction to publish the Final WRMP from the Secretary of State for Environment, Food and Rural Affairs, United Utilities has published the Final WRMP.
- The Final WRMP is unchanged from the Revised Draft WRMP, except that the timing of some of the leakage options has altered, bringing forward the leakage savings in order to achieve a 20% leakage reduction by 2025 instead of 15% as set out in the Revised Draft WRMP. Water trading has not been included in the Final WRMP as potential importing companies did not selected imports from the north west in their preferred WRMPs during the core 25-year period of the planning horizon. However, whilst, water trading does not form part of UU's Final Plan, it remains the company's preference to continue to work with others on water trading beyond WRMP19 and into the WRMP24 planning round. The strategy to facilitate a potential future trade has therefore been retained within an adaptive pathway, which could form a future preferred plan if water trading was subsequently required in future.

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³ Amec Foster Wheeler (2017) Draft Water Resources Management Plan 2019: Water Framework Directive Assessment. Final Report.

⁴ Amec Foster Wheeler (2018) Water Framework Directive Assessment of the Draft Water Resources Management Plan 2019: Supplementary Information – Draft Resilience Options.

To ensure that the Preferred Plan as proposed has been fully assessed in terms of its potential impacts on WFD water bodies, the WFD assessment of the Final WRMP has been reviewed and updated. This report presents the findings of this assessment.

1.2 Purpose of this Report

- This report has been produced for the purpose of presenting the WFD assessment for resource management and Manchester and Pennine Resilience options that have been considered for inclusion in WRMP19. The aim of the report is to demonstrate the potential level of WFD impact associated with each WRMP option and, if necessary, the level of further assessment that may be required in order to fully demonstrate WFD compliance. It also includes a review of UU's proposals for how it will operate its existing abstractions to determine whether they meet the criteria for sustainable catchments and comply with the WFD.
- In England and Wales, whilst the responsibility for ensuring that the WFD is implemented lies with the Secretary of State for Environment, Food and Rural Affairs, the Environment Agency (EA) and Natural Resources Wales (NRW), as well as other public bodies, have a duty to 'have regard' to the objectives of the WFD in exercising their functions.
- Failure to take account of WFD requirements could provide grounds for a challenge to regulatory decisions on any options that progress into the final WRMP. Therefore, assessment of the relative levels of WFD compliance risk amongst the suite of potential options is a necessary part of WRMP optioneering that should facilitate effective and efficient regulatory decision making.

1.3 Development of the United Utilities' Water Resources Management Plan 2019

Draft Water Resources Management Plan 2019

- In developing the Draft WRMP, UU forecast the future demand for water and available supply (the supply-demand balance) for the 25-year period from 2020 to 2045. The baseline demand forecast was calculated using the latest data, tools and methods including the current population and local authority growth forecasts, and accounted for the potential impacts of climate change. Taking into account this baseline demand forecast, alongside water availability, dry weather demand and target headroom, UU determined that there would be a surplus in all three of the company's water resource zones (WRZs) in a dry year over the planning horizon of WRMP19 (the Strategic Zone, North Eden Zone, and Carlisle Zone).
- Whilst there was forecast to be enough water to meet demand over the period of WRMP19, following the Water Resources Planning Guideline⁵, consideration was given to using the forecast surplus, with possible new source or demand management investment, to explore strategic choices for the WRMP.
- UU's Preferred Plan for WRMP19 set out in the Draft WRMP incorporated four strategic choices, as follows:
 - ► Enhance leakage reduction by a total of 80 megalitres per day (MI/d) over the planning period;
 - Improve levels of service for drought permits and orders from 1 in 20 years to 1 in 40 years (moving from 5% to 2.5% annual risk);
 - Increase resilience, through the Manchester and Pennine Resilience solution; and
 - Commitment to continue to explore national water trading.

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⁵ Environment Agency and Natural Resources Wales (2018) *Water Resources Planning Guideline*. Available at: https://cdn.naturalresources.wales/media/686174/interim-wrpg-update-july18-final-changes-highlighted.pdf [Accessed August 2018]

The Draft WRMP Preferred Plan comprised a combination of resource management and demand 1.3.4 management options designed to achieve these four strategic choices and maintain and enhance the supply-demand balance. To identify these measures, UU first considered an unconstrained list of options. These options were deliberately selected to cover as wide a range of option types as possible and represented all of the ways in which UU could manage supply and demand. These unconstrained options were subject to preliminary (Primary) screening to identify a list of feasible options, i.e. options that could realistically be implemented in the next 25 years. The feasible options were then assessed in terms of their financial, environmental and social costs. These costs were compared using a standard water industry method that allows quantified information about environmental and social effects of options to be compared with financial data. The feasible options were then ranked based on their combined costs. Informed by this assessment, ongoing discussion with stakeholders, and the outcomes of the Strategic Environmental Assessment (SEA), Habitats Regulations Assessment (HRA) and WFD assessment, this list was refined through an additional round of (secondary) screening from which the Preferred Plan options that comprised the Draft WRMP were identified.

Revised Draft Water Resources Management Plan 2019

- As set out in **Section 1.1**, following consultation on the Draft WRMP, UU has reviewed its Preferred Plan for WRMP19 and as a result, the Preferred Plan contained in the Draft WRMP has been modified. In particular, in response to consultation responses, additional customer research, further exploration of leakage options and innovations, and a tightening of the supply-demand balance (showing a very small deficit forecast in the Strategic Resources Zone at the end of the planning horizon), United Utilities has further enhanced its leakage reduction aspirations. United Utilities has also confirmed the proposed solution for water supply resilience to non-drought hazards. UU has also confirmed the proposed solution for water supply resilience.
- 1.3.6 The revised Preferred Plan includes the following strategic choices:
 - Adopt an enhanced leakage reduction comprising a total of 190 Ml/d over the planning period, a reduction of just over 40% from the baseline position of 448Ml/d. By the end of 2024/25 UU plans to reduce leakage by at least 67 Ml/d, or 15%;
 - Improve level of service for drought permits and orders to augment supply from 1 in 20 years to 1 in 40 years (moving from 5% to 2.5% annual average risk);
 - Increase resilience to others hazards, specifically for the regional aqueduct system associated with Manchester and Pennines Resilience. This involves completing Solution D, which involves rebuilding all single line sections of the relevant aqueduct.
- It should be noted that the revised Preferred Plan does not include a water trading component. This is because a water trade from the North West is not included in the preferred plans of other water companies at this stage. However, water trading remains UU's preference and the company will continue to work with others on water trading beyond WRMP19 towards the WRMP24 planning round.
- This WFD assessment considers all the feasible resource management and Manchester and Pennine Resilience options. The demand management options identified for WRMP19 have not been assessed because either they do not directly impact on the water environment (demand management and network metering options) or are not possible to assess within the framework of the WFD (leakage reduction).
- The options identification and appraisal process is described further in the Revised Draft WRMP and supporting documentation^{6,7}.

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⁶ United Utilities (2018) Revised Draft Water Resources Management Plan 2019 Technical Report - Options identification.

⁷ United Utilities (2018) Revised Draft Water Resources Management Plan 2019 Technical Report – Options appraisal.

Final Water Resources Management Plan 2019

- The Final WRMP is unchanged from the Revised Draft WRMP, except that the timing of some of the leakage options has altered, bringing forward the leakage savings in order to achieve a 20% leakage reduction by 2025 instead of 15% as set out in the Revised Draft WRMP. It contains the following strategic choices:
 - Adopt an enhanced leakage reduction comprising a total of 190 MI/d over the planning period, a reduction of just over 40% from the baseline position of 448MI/d. By the end of 2024/25 UU plans to reduce leakage by at least 91 MI/d, or 20%.
 - Improve level of service for drought permits and orders to augment supply from 1 in 20 years to 1 in 40 years (moving from 5% to 2.5% annual average risk).
 - Increase resilience to other hazards, specifically for the regional aqueduct system associated with Manchester and Pennines Resilience. This involves completing Solution D, which involves rebuilding all single line sections of the relevant aqueduct.
- Whilst, water trading does not form part of UU's Final WRMP, it remains the company's preference to continue to work with others on water trading beyond WRMP19 and into the WRMP24 planning round. The strategy to facilitate a potential future trade has therefore been retained within an adaptive pathway, which could form a future preferred plan if water trading was subsequently required in future.

1.4 The Legislative Context – Water Framework Directive

- The WFD⁸ came into force in 2000 in the European Union (EU) and was transposed into UK law in 2003 with the principal aims of protecting and improving the water environment and promoting the sustainable use of water. Environmental Quality Standards (EQSs) for priority substances have been set by so-called 'daughter' directives to the WFD, in the form of the EQS Directive⁹ and subsequent amendments (EQSD)¹⁰ and the Groundwater Directive (GWD)¹¹. The environmental objectives of the WFD and its daughter directives are to:
 - Prevent deterioration of aquatic ecosystems;
 - Protect, enhance and restore water bodies to good status; which is based on ecology (with its supporting hydromorphological and physico-chemical factors) and chemical factors for surface water, and water quantity and chemical status for groundwater;
 - Comply with water related standards and objectives for environmentally protected areas established under other EU legislation, e.g. The Habitats Directive 92/43/EEC;
 - Progressively reduce pollution from priority substances and cease or phase out discharges from priority hazardous substances; and
 - Prevent or limit input of pollutants into groundwater and reverse any significant or sustained upward trends in the concentration of any groundwater pollutant.
- The WFD sets a default objective for all rivers, lakes, estuaries, groundwater and coastal water bodies to achieve good status or potential by 2027 at the latest. Where it is not possible to achieve this (e.g. through disproportionate costs), alternative water body objectives can be set. The current (baseline) status (e.g. 2015 classification), and the measures required to achieve the 2027 status

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⁸ Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (the Water Framework Directive).

⁹ Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council (the Priority Substances Directive).

¹⁰ Directive 2013/39/EU of the European Parliament and of the Council of 12 August 2013 amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy.

¹¹ Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration (the Groundwater Directive) including Commission Directive 2014/80/EU which amends Annex II of the original Directive 2006/118/EC

- objective are set out for each water body in the relevant River Basin Management Plans (RBMPs), prepared by the EA every six years.
- The WRMP options assessed in this report are primarily located within the RBMP for the North West River Basin District, but some options extend into the Solway Tweed, Northumbria, Humber, Severn and Dee River Basin Districts. The current RBMPs (known as the 'Cycle 2 plans') were published in February 2016 and they provide the baseline condition of the water environment for the assessment presented in this report.
- The WRMP must be able to demonstrate that it would not cause a deterioration in respect of these baseline conditions. Furthermore, for those water bodies that are not currently attaining good status, the WRMP must be able to demonstrate that it would not preclude the delivery of measures to facilitate the improvements needed to attain good status.

1.5 Surface Waters

- For surface waters (river, lake, transitional/estuarine and coastal water bodies), overall water body status has an ecological and a chemical component. Ecological status is measured on the scale of high, good, moderate, poor, and bad. Chemical status is measured as good or fail, based on the presence or absence of priority substances which present a risk to the environment.
- Good ecological status is defined as a slight variation from undisturbed natural conditions, with minimal distortion arising from human activity. The ecological status of water bodies is determined by examining biological elements (e.g. fish, invertebrates, plants) and a number of supporting elements and conditions, including physico-chemical (e.g. metals and organic compounds), and hydromorphological (e.g. depth, width, flow, and 'structure') factors. These elements are summarised in Table 1.1.

Table 1.1 WFD Classification Elements for Rivers, Lakes, Transitional and Coastal WFD Water Bodies

Water body type	Biological	Physico-chemical and chemical	Hydromorphological
Rivers	Macrophytes Phytobenthos Benthic invertebrates Fish	Thermal conditions Dissolved oxygen Acidification Nutrients Salinity Organic pollutants Pollution by substances being discharged (e.g. phosphate or ammonia) Chemicals e.g. metals, pesticides	Hydrological regime - quantity and dynamics of water flow connection to groundwater bodies River continuity Morphological conditions - river depth and width variation structure and substrate of the river bed Structure of the riparian zone.
Lakes	Macrophytes Phytoplankton Benthic invertebrates Fish	Transparency Thermal conditions Dissolved oxygen Acidification Nutrients Salinity Pollution by substances being discharged Chemicals e.g. metals, pesticides	Hydrological regime - quantity and dynamics of inflows and outflows, residence time, connection to groundwater bodies Morphological conditions - lake depth variation, quantity, structure and substrate of the lake bed, structure of the lake shore.
Transitional waters	Phytoplankton Other aquatic flora Benthic invertebrates Fish	Transparency Thermal conditions Dissolved oxygen Nutrients Salinity Pollution by substances being discharged Chemicals e.g. metals, pesticides	Tidal regime - freshwater flow, wave exposure Morphological conditions - depth variation, quantity, structure and substrate of the bed, structure of the intertidal zone

Water body type	Biological	Physico-chemical and chemical	Hydromorphological
Coastal waters	Phytoplankton	Transparency	Tidal regime -
	Other aquatic flora	Thermal conditions	direction of dominant currents
	Benthic invertebrates	Dissolved oxygen	wave exposure
		Nutrients	•
		Salinity	Morphological conditions - depth variation, structure and
		Pollution by substances being discharged Chemicals e.g. metals, pesticides	substrate of the bed, structure of the intertidal zone

1.6 Groundwater

- For groundwater bodies, good status has both quantitative and chemical components that are assessed via a series of 'tests'. Both components are assessed providing outcomes of good or poor for each test, and a confidence rating is assigned to the status assessment of high or low. Together, these provide a single overall classification of either good or poor status, reflecting the lowest outcome of these tests to be precautionary.
- There is also a trend objective set for groundwater bodies where environmentally significant and sustained rising trends in pollutant concentrations need to be identified and, where necessary, reversed.
- Both the WFD and the GWD also require the prevention of any input of priority substances and limiting (or control) of the input of all other substances to groundwater to prevent the deterioration of groundwater body status.

1.7 Protected Areas

- Assessment against WFD objectives may include consideration of additional or more stringent standards applied to protected areas if these are present, including standards set by other relevant EU legislation. Protected areas are defined in Annex IV of the WFD as:
 - Areas designated for the abstraction of water intended for human consumption;
 - Areas designated for the protection of economically significant aquatic species;
 - Bodies of water designated as recreational waters, including areas designated as bathing waters:
 - Nutrient-sensitive areas, including areas designated as vulnerable zones and areas designated as sensitive areas; and
 - Areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant Natura 2000 sites (Special Areas of Conservation (SAC) and Special Protection Areas (SPA)).
- A WRMP option would not be considered to be compliant with the WFD if it would have an adverse effect on the conservation objectives of a Natura 2000 protected area unless the tests for overriding public interest under Article 6.4 of the Habitats Directive are met.

1.8 Stages in the WFD Assessment and Structure of this Report

- In late 2017/early 2018, Amec Foster Wheeler undertook the WFD assessment of 115 feasible options to inform the Draft WRMP. The assessment was undertaken in two stages as follows:
 - ▶ Stage 1: assessment of 81 feasible options to support national water trading and reported on in the 'main' WFD assessment report⁴. This report also included a more detailed assessment of nine feasible options that had been identified at that time as preferred options.



- ▶ Stage 2: assessment of 34 feasible resilience options associated with the Manchester and Pennine Resilience solution and reported on in the WFD supplementary report⁴. At that time, none of the resilience options/solutions had been identified as a being preferred.
- For the Revised Draft WRMP, the two assessments were combined into a single report¹². The list of preferred options for the Revised Draft WRMP was different to that for the Draft WRMP and comprised just one resilience solution (with two composite options) and no resource management options. For context, the assessment of the Draft WRMP preferred options is included in Appendices F, G, H and I.
- For the Final WRMP the WFD assessment report (this report) has been updated. The list of preferred options has not changed from the Revised Draft WRMP, and as a result the update comprises no material changes to the results of the WFD assessment, rather focuses on terminology and context.
- 1.8.4 The structure of the remainder of this report is as follows:
 - Section 2 describes the review of UU's proposals for how it will operate its existing abstractions to determine whether they meet the criteria for sustainable catchments and comply with the WFD;
 - Section 3 describes the methodology that has been adopted in order to undertake the WFD assessment of WRMP options;
 - Section 4 presents an overview of the WRMP feasible options, and outlines how each type of option has been treated in the assessment process;
 - Section 5 presents the results of the assessment of the supply-demand WRMP feasible options;
 - Section 6 presents the results of the assessment of the Manchester and Pennine Resilience WRMP feasible options and solutions;
 - Section 7 presents the results of the assessment of the Final WRMP Preferred Plan, including the cumulative and protected area assessments;
 - ▶ Section 8 provides a summary of the key outcomes, and the requirements for further work; and
 - **Section 9** is the statement of compliance with the WFD.

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¹² Amec Foster Wheeler (2018) Revised Draft Water Resources Management Plan 2019: Water Framework Directive Assessment. Final Report.

2. Review of Existing Abstractions

2.1 Introduction

- This section presents the review of UU's proposals for how it will operate its existing abstractions to determine whether they meet the criteria for sustainable catchments and comply with the WFD.
- As part of the preparation for WRMP19, and working towards sustainable catchments, the EA assessed WFD water bodies against four categories of risk from surface water and groundwater abstractions, as follows:
 - ▶ Category 1: based on recent actual abstraction rates causing serious damage now;
 - Category 2: based on recent actual rates deterioration likely by 2027;
 - Category 3: based on full use of the abstraction licence deterioration likely after 2027 and by 2040; and
 - Category 4: based on full use of the abstraction licence no likelihood of deterioration before 2040.
- The aim of the assessment was to highlight where existing abstractions could impact on WFD objectives and would therefore need mitigation. The initial assessments for the existing abstractions as currently operated and operating at 'licence full' was undertaken by UU. This report provides a review of UU's assessment work in the light of compliance with the WFD.

2.2 Licences Under Review

- An assessment by the EA and UU of all the abstraction licences against the categories above identified¹³:
 - Five licences in Category 1. However, these are all being dealt with in AMP6 so they are not included in this WFD assessment;
 - No licences in Category 2;
 - ► Thirty licences impacting on surface waters and 18 licences impacting on groundwater were in Category 3.
- For impacts on surface water bodies, the EA identified the "tipping point" (i.e. abstraction volume) below which UU abstractions would no longer cause a risk of deterioration. The tipping point assessment was used to establish five year abstraction limits for the associated licences in order to ensure that long-term abstraction does not cause deterioration. For impacts on groundwater bodies, not included in the EA's "tipping point" assessment, UU assessed the impact of constraining future abstraction to the recent actual as a worst-case.
- This review includes a review of the water bodies highlighted by the EA and UU to be affected by a Category 1, 2, or 3 abstraction and takes a precautionary approach.

2.3 WFD Assessment of Licence Reviews

The assessment of licences against WFD water bodies has indicated that when accounting for recommended levels of reduction, confirmed or potential AMP6 measures (either sustainability reductions or new/increased prescribed flows), and an assumption of continuation of current operational activities or abstraction levels, most licences are unlikely to have a significant impact on

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¹³ Noted in United Utilities WRMP Methodology WFD no deterioration document – 2 August 2017 and Tipping Points spreadsheet – 2 August 2017.

- WFD objectives of the relevant water bodies (e.g. impact levels are either no or minimal impact or minor impact).
- This excludes the water bodies GB112074070010 (Ehen (upper including Liza)), GB31231398 (Ogden Reservoir Rochdale), and GB112068060300 (Salters Brook), where the relevant licences and activities could potentially lead to medium levels of impact. Further work may be required in these water bodies to either undertake further assessment to reduce the level of impact, or to establish what mitigation should be implemented.
- The results of the WFD assessments are presented in **Table 2.1**.

Table 2.1 WFD Water Bodies Impacted by Current Abstraction

Water body ID	Water body name	Licences	WFD screening result	Comment
GB102076070690	Lowther (Upper)	NW/076/0005/003	Minor level of impact	The fully licensed assessment indicates impacts at Q30, Q50 and Q70. There is spare capacity in the licences that is greater than the reductions required. However, there is still some residual capacity that could impact on fish and invertebrates which are at high status.
GB112071065210	Colne Water (Laneshaw)	2671321024, 2671321040, 2671321023	Minor level of impact	The fully licensed assessment indicates impacts at Q50, Q70 and Q95. Additionally data is incorrect for Corn Close No.2 borehole. Therefore, even though the spare capacity in the licence is greater than the necessary reductions, there is the potential for an impact on WFD status and objectives.
GB112071065370	Langden Brook	2671315006, 2671315001, 2671315003, 2671315004, 2671315002, 2671315005,	Minor level of impact	The fully licensed assessment indicates impacts at all river flows. However, an assessment matching low flows calculations to flow protection indicates that four of the licences need reductions in order to protect river flows. If measures are implemented in AMP6, this will be mitigated and only minor impacts might be expected. However, if no measures are put in place, the risk would increase to medium.
GB112071065500	Ribble – conf Calder to tidal		No or minimal impact	The flows in this water body currently support good status.
GB112071065700	Duddel Brook	2671338012	No or minimal impact	The fully licensed assessment indicates impacts at Q50, Q70 and Q95. However, an assessment matching low flows calculations to flow protection indicates a potential issue with flow. If measures are implemented in AMP6 this will be mitigated and no impacts would be expected (particularly in light of abstraction being less than target). However, if no measures are put in place the risk would increase to medium.
GB112072066250	Wyre – conf R Brock to tidal	2672405006, 2672405010, 2672406022, 2672408015, 2672408020, 2672408021, 2672409004, 2672410001, 2672411002, 2672405009, 2672405015, 2672406012	Minor level of impact	The fully licensed assessment indicates impacts at Q50, Q70 and Q95. If measures are employed in AMP6 to implement the prescribed flows the impacts will be minor at most (particularly in light of abstraction being less than target). However, if no measures are put in place, the risk would increase to medium.

Water body ID	Water body name	Licences	WFD screening result	Comment
GB112072065770	Lords Brook		No or minimal impact	No impact is predicted for this water body based on the abstractions reviewed for GB112072066250.
GB112072066220	Calder (Wyre)	2672406022, 2672408021, 2672406012	Minor level of impact	The fully licensed assessment indicates impacts at all river flows and the abstraction data indicates that the deficit is greater than the spare capacity. However, if measures identified in AMP6 are implemented, this resolves the issue so there should be only a minor impact.
GB112072066240	Tarnbrook Wyre	2672401001	No or minimal impact	The fully licensed assessments indicates impacts at all river flows. However, the reductions required are lower than the target rate and additional measures are being implemented in AMP6.
GB112074070010	Ehen (upper including Liza)		No or minimal impact	Information provided by UU shows that this water body is impacted by the Ennerdale abstraction licence 2774003008, which will be revoked in 2022. As such the impact for this water body is set as no or minimal impact. If the licence is not revoked the impact would be medium.
GB112071065160	Trawden Brook	2671321022	No or minimal impact	The fully licensed assessment indicates impacts at Q50, Q70 and Q95. However, assessment indicates that deployable output is currently below the target abstraction to prevent deterioration. As such, no impact is expected.
GB112068060550	Crowton Brook	2568001159	No or minimal impact	The current abstraction is below the target set by the EA. Assuming abstraction does not increase and remains below target levels, particularly those relevant to Q70 and Q95 flows, no impact is expected.
GB112068060180	Dane (Clough Brook to Cow Brook)	2568002156, 2568002138	Minor level of impact	The spare capacity in the licence is greater than the necessary reductions and the hydrological regime supports good. Therefore, there should be no impact on WFD status as long as the abstraction stays at its current levels. However, assessments indicate a minor impact at Q95 so a minor impact is possible.
GB112068060300	Salters Brook	2568006082	Medium level of impact	Fully licenced scenarios indicate that the abstraction would have an impact at all river flows (i.e. Q30 to Q95). As the hydrological regime currently supports good, this could have an impact on WFD objectives.
GB112068060320	Ashton Brook	2568006082, 2568006088	No or minimal impact	Fully licenced scenarios indicate that the abstraction would have an impact at all river flows (i.e. Q30 to Q95). However, the abstraction is not used and therefore as long as this remains the case, no impact is expected. If the abstraction was to recommence a medium level of impact would be predicted.
GB112069064690	Beal	2569002206	Minor level of impact	The current abstraction is below the target. However, data indicates that at fully licenced quantities there could be impacts at Q50, Q70 and Q95. Therefore, there could be some minor impacts against WFD objectives.

Water body ID	Water body name	Licences	WFD screening result	Comment
GB31231398	Ogden Reservoir Rochdale	2569002206	No or minimal impact	Fully licenced scenarios indicate that the abstraction would have an impact at all river flows (i.e. Q30 to Q95). As the hydrological regime currently supports good ecological status, this could have an impact on WFD objectives. However, UU data indicates that current borehole DO constraint of 5.7 Ml/d is lower than the target abstraction volume of 13.6 Ml/d. Therefore the current system constraint protects against the risk of deterioration.
GB112069061210	Hardshaw (Windle) Brook	2569025037	No or minimal impact	Fully licenced scenarios indicate that the abstraction would have an impact at all river flows (i.e. Q30 to Q95). However, the abstraction is not used and therefore as long as this remains the case, no impact is expected. If the abstraction was to recommence, a medium level of impact would be predicted.
GB212069061524	Relief channel		No or minimal impact	This water body is not directly at risk therefore no impact is expected.
GB112068060330	Peckmill Brook, Hoolpool Gutter at Ince Marshes		No or minimal impact	This water body is not directly at risk therefore no impact is expected.
GB112068060350	Rivacre Brook	2568007014	No or minimal impact	Full licence scenarios indicates that the abstraction would have an impact at Q95. However, the abstraction is not used and therefore as long as this remains the case no impact is expected. If the abstraction was to recommence, a medium level of impact would be predicted.
GB112068060270	Dibbinsdale Brook and Clatter Brook	2568007014	No or minimal impact	Fully licenced scenarios indicate that the abstraction would have an impact at Q95. However, the abstraction is not used and therefore as long as this remains the case no impact is expected. If the abstraction was to recommence, a medium level of impact would be predicted.
GB112068060450	Darley Brook	256001158, 256001184, 256001153, 256001180, 256001155, 256001156	Minor level of impact	Fully licenced scenarios indicate that the abstraction would have an impact at Q70 and Q95. However, if the abstraction remains below targets then no or minimal impact would be expected.
GB112068060500	Weaver (Dane to Frodsham)	2568001154, 2568002138, 2568003124, 2568003124, 2568003091, 2568002156, 2568001159, 2568001153, 2568001184, 2568001180, 2568001155, 2568001156, 2568001156, 2568002146, 2568002138,	No or minimal impact	Fully licenced scenarios indicate that the abstraction would have an impact at Q95. However, several abstractions are limited and one is not used. So system restraints prevent a fully licensed scenario.

Water body ID	Water body name	Licences	WFD screening result	Comment
GB212069061523	Relief Channel		No or minimal impact	GW risk assessments indicates that there is no risk of deterioration.

- In addition to the assessments above, further investigations have been identified as being required for the following groundwater licences:
 - Thorncliffe Road (2674811009);
 - Schneider Road (2674811008);
 - Foxhill (2568005009);
 - Manley Quarry (2568005011);
 - Manley Common (2568006087);
 - Newton Hollows (2568003076);
 - Grizedale Dock reservoir (2672404001),
 - Bearstone (18/54/04/0119);
 - Dean Brook, Langden/Hareden system (2671338013); and
 - Helsby (2568005008).
- For all these licences, an assumption of medium level of impact has been assumed until the investigations have been completed. However, it is expected that in line with the assessments in **Table 2.1**, the risk levels will be reduced to minor impacts based on improved knowledge and through mitigation. As such, no options for this WRMP, specific to these licences, are expected to be required, although this will have to be reviewed upon completion of the investigations.

3. Approach to the WFD Assessment of WRMP Feasible Options

3.1 Overview

Approach to the Assessment

- 3.1.1 The WFD assessment has considered the following key questions in respect of the construction and operational phase of each feasible WRMP option:
 - At the water body scale, would the option result in a deterioration of any of the WFD classification components from one status class to the next, (e.g. from good to moderate), irrespective of whether or not it results in the lowering of overall status?
 - Would the option prevent any water bodies from achieving good overall status or, where relevant, an alternate objective?
- Following the assessment of each feasible WRMP option, an assessment was made of the following for each of the preferred options:
 - Would the cumulative effects of multiple WRMP options impact on the objectives of individual WFD water bodies?
 - Would the cumulative effects of multiple WRMP options impact on the objectives of multiple water bodies that are hydrologically linked (i.e. operational catchments)?
 - Would the cumulative effects of multiple WRMP options affect protected areas and their associated objectives?
- If the answer to all of the above five questions is 'no' then the option can be considered to be WFD compliant.
- Whilst some guidance is available to help answer the above questions, the overall assignment of WFD impact was based on expert judgement.
- The possible future decommissioning of WRMP options is beyond the scope of this assessment, but impacts arising from decommissioning are likely to be similar to those arising from construction.

Available Guidance to Support Expert Judgement Decision Making

- The principal source of relevant guidance on WFD Compliance Assessment in England is the EA. At present, the only publically available guidance is *Clearing the Waters for All*¹⁴, which relates specifically to activities in estuarine and coastal water bodies up to one nautical mile out to sea. This guidance interprets the 'no deterioration criterion' as applying to each supporting WFD element as well as the overall status classification of the water body. So, for example, a deterioration in the quality of macrophytes in a river water body from good to moderate status would be classed as deterioration irrespective of whether this caused the overall water body status to be lowered. This approach was reinforced by a ruling from European Court of Justice¹⁵ on the WFD assessment of dredging activities in Germany, and has been adopted as a general principal for the impact screening of WRMP options presented in this report.
- Furthermore, the Cycle 2 RBMPs¹⁶ indicate that within class deterioration of any constituent element (e.g. a lowering of the quality of macrophytes in a river water body that does not result in a lowering of the status of macrophytes e.g. from good to moderate) is permissible, but should be

¹⁴ Environment Agency (2016) Clearing the waters for All – available at: <a href="https://www.gov.uk/guidance/water-framework-directive-concentrative-conc

¹⁵ Court ruling available at curia.europa.eu

^{16 2015} River Basin Management Plans - available at https://www.gov.uk/government/collections/river-basin-management-plans-2015

limited as far as practicable. There are two exceptions to this: first, where the water body is at the lowest possible class (e.g. bad ecological status) where no within class deterioration is allowed; and, second, elements that are at high status (with the exception of morphology), which may be allowed to deteriorate to good status provided a number of additional conditions are met.

- The EA has also made available their position statement on WFD assessment of new physical 3.1.8 works in rivers (position 488 1017) which has been used, as appropriate, to guide the assessment of levels of impact to the construction and operation phase of each WRMP option.
- The EA has not published any guidance on WFD compliance assessments of lake or groundwater 3.1.9 bodies.

3.2 WFD Assessment Process

- The WFD assessment has been undertaken on 11518 confirmed feasible options (inclusive of the 321 Manchester and Pennine Resilience options). The option reference numbers and names are listed in Appendix A. The assessment steps are listed below and then described in more detail in the following sections.
- WFD assessment steps: 3.2.2
 - Feasible Options
 - Step 1: Data collection;
 - ▶ Step 2: Level 1 screening of options;
 - Step 3: Level 2 detailed assessment of potential impacts.
 - Preferred Options
 - Step 4: Cumulative assessment; and
 - Step 5: Protected areas assessment.

Step 1: Collation of Baseline WFD and Option Data

- The WFD assessments for each option were based on the engineering scope information provided 3.2.3 by UU. Information was provided on likely option 'activities' (e.g. new groundwater abstraction, new pumping stations etc.) as well as small scale maps of preferred routes for any new pipelines that would be required. The engineering scopes are typically high-level documents, to enable desk top assessment, and do not contain information on construction methods, or the exact locations or designs of the new infrastructure.
- All relevant water bodies that the option could impact on were identified by comparing the 3.2.4 engineering pro forma to the spatial extent of WFD water bodies obtained from the EA's Catchment Data Explorer website¹⁹ and NRW Water Watch website²⁰. These websites were also used to collate baseline WFD data for each water body for the Level 2 assessments. The Level 1 and Level 2 assessments were based on the 2015 classifications, in line with the 2015 Cycle 2 RBMPs.

Step 2: Level 1 Screening of Options

Each option was broken down into its main constituent parts ('activities') based on construction and 325 operational phases. This included activities such as:

¹⁷ Environment Agency (2015) Position 488_10 Protecting and improving the water environment: WFD compliance of physical works in

¹⁸ This includes the enabling works for the trading option, given the option ID 'B2' for the purposes of this assessment, and 34 resilience

options.

19 EA Catchment data explorer, available at: http://environment.data.gov.uk/catchment-planning/

²⁰ NRW Water Watch website, available at: http://waterwatchwales.naturalresourceswales.gov.uk/en/

- Construction phase; trenching and laying of pipe lines, building new abstraction infrastructure (e.g. river intakes, pumping stations), refurbishment of current infrastructure; and
- **Operational phase**: abstractions, discharges, maintenance of pipe lines.
- For the supply-demand options, each water body that the option intersects was considered against 326 each activity which would occur in that water body. For the resilience options, the Level 1 screening was undertaken at the option level and individual water bodies were not identified until the Level 2 detailed assessment. The likely impact assigned based on the definitions of impacts described in Table 3.1.

Table 3.1 Impact Classification Categories

Level of impact	Description of impact
No or minimal impact	No measurable change in the quality of the water environment or the ability for target WFD objectives to be achieved.
Minor level of impact	Impacts from the option when taken on their own have the potential to lead to a minor localised, short-term and fully reversible effect on the quality of the water environment that would not result in the lowering of WFD status. Impacts would be very unlikely to prevent any target WFD objectives from being achieved.
Medium level of impact	Impacts when taken on their own have the potential to lead to a widespread or prolonged effect on
modium foroi or impuot	the quality of the water environment that may result in the temporary lowering of WFD status.
	Impacts have the potential to prevent target WFD objectives from being achieved.
High level of impact	Impacts when taken on their own have the potential to lead to a significant effect and permanent deterioration of WFD status.
	Impacts have a high risk of preventing target WFD objectives from being achieved.

- 327 Some activities (e.g. pipe line construction) are highly unlikely to have more than a minor level of impact on a water body, no matter what the status of the water body is. This is because the activities are limited in spatial extent, will occur for a short duration in time, and/or have limited scope for interaction with the water environment. The Level 1 screening assessment assumed that all construction activities will be undertaken in line with best practice construction and pollution control measures, and that all relevant consents would be secured and complied with (refer to Section 3.3). For the supply-demand options, where the Level 1 screening identified that a water body would only be subjected to a minimal or minor level of impact from all activities arising from an option, the water body was screened out from the Level 2 detailed assessment and considered to be WFD compliant (note that the same water body may be screened in as a result of activities on other WRMP options). For the resilience options, those options that would only result in a minimal or minor level of impact, from one or more activities, was screened out from the Level 2 detailed assessment.
- Other activities have the potential for a medium or high level of impact on a water body. These 328 include activities that could have long term impact on water resources (e.g. a new surface water or groundwater abstraction, significant changes to the groundwater flow regime, or construction of a new reservoir), or involve large scale construction activities within a small water body (e.g. embankment raising of a reservoir which is a WFD water body in its own right). For the supplydemand options, where the Level 1 screening identified that a water body could be subject to a medium or high level of impact from one or more activities, the water body was screened in for Level 2 detailed assessment. For the resilience options, where the Level 1 screening identified an activity that has the potential for a medium of high level of impact, the resilience option was screened in for Level 2 detailed assessment.
- Note that feasible options were initially assessed as though they will be the only option to be put in 329 place within a water body.

3.2.10 **Table 3.2** summarises the Level 1 screening impacts from the activities that make up the options.

Table 3.2 Level 1 Screening Impacts from Option Activities

Level of impact	Construction activities	Operation activities	Level 1 screening result
No or minimal impact	 Trenching and laying of pipe lines within the interfluves of a catchment (no watercourse crossings); Modification of an existing water treatment works; Construction of a new water treatment (set back from a watercourse); Construction of new abstraction borehole headworks and associated surface infrastructure; Construction of a new storage reservoir (e.g. small or set back from watercourse). 	 Maintenance of pipe lines; Maintenance and use of pumping stations and water treatment works; Maintenance and use of river intakes/outfalls; Maintenance and use of abstraction borehole headworks and surface infrastructure. 	Screened out of Level 2 detailed assessment
Minor level of impact	 Trenching and laying of pipe lines involving watercourse crossings; Construction or modification of a new pumping station and/or river intake; Construction of new outfall structure to a watercourse or reservoir; Refurbishment of existing abstraction boreholes or drilling of new abstraction boreholes. 	 Transfer of water via a river, canal or aqueduct; Use of existing surface water and groundwater abstraction licences, within existing licence conditions and recent actual abstraction patterns. 	Screened out of Level 2 detailed assessment
Medium level of impact	Construction/repair of new tunnels and conduits.	 New or increased surface water abstraction; New or increased groundwater abstraction; Cessation of an existing discharge to a watercourse; Change to reservoir compensation release; Presence of new underground structures such as tunnels and shafts. 	Screened in for Level 2 detailed assessment
High level of impact	 Construction of new impounding reservoir (e.g. next to or in line with a watercourse or large compared to water body); Modification to existing reservoir (e.g. embankment raising). 	Presence of new reservoir or modified existing reservoir.	Screened in for Level 2 detailed assessment

For most of the feasible options, all the water bodies affected by an activity that may cause a medium or high level of impact were screened in. For example, due to connections between the surface water and groundwater environment, changes to one may affect the other (e.g. a new groundwater abstraction may reduce baseflow in a surface watercourse). Where new abstractions from a lake or canal that is a WFD water body in its own right are proposed, the river body in which it is situated was also included, as the abstraction may affect the wider water body.

- The exception to this was for Options WR159 (Group 1 Improved reservoir compensation release control) and WR160 (Group 2 Improved reservoir compensation release control) which involve changes to compensation releases from reservoirs. In this case, only the downstream river water bodies were screened in, groundwater bodies and lake water bodies were screened out. This is because it was clear from the engineering scope for these options that there would be no significant construction or operational changes to the reservoirs themselves, and it was assumed that there would be no change in wetted area of downstream watercourses which may affect groundwater surface water interactions.
- In Steps 2 and 3, only the river water body in which the option is situated was considered; downstream river water bodies were not considered at this stage. There is the potential for an option such as a new surface water abstraction to impact on downstream water bodies, and this is considered in the Step 4 cumulative assessment, where impacts on both individual water bodies and operational catchments as a whole are considered.

Step 3: Level 2 Detailed Assessment of Potential Impacts

- Where the Level 1 screening of options indicated that an activity may have a medium or high level of impact, further assessment of the potential impacts was undertaken. This was recorded in an impact assessment worksheet for each water body that may be subject to a medium or high level of impact.
- Additional baseline data for the Level 2 assessments was collected from the EA's Abstraction Licensing Strategies (ALS)²¹. The ALS compare flow in rivers and water levels in aquifers to the recent actual abstraction patterns, the fully licensed abstraction quantity, and the resource allocation for the environment. All surface water catchments and groundwater management units are assigned a resource availability as follows:
 - ▶ Water available: there is more water than required to meet the needs of the environment, therefore new abstraction may be possible without having an effect on the environment;
 - Restricted water available: recent river flows or levels of groundwater are enough to meet the needs of the environment, but if all abstractions abstract at their licenced quantities, river flows or levels of groundwater would be lower than required to meet the needs of the environment;
 - Water not available: recent river flows or levels of groundwater are below those needed to meet the needs of the environment. River flows or groundwater levels are below the requirements to help support WFD good ecological status.
- The water availability was used to estimate the likely effects of new or changed abstractions and discharges. This was supported by aquifer designation data²² and the location of the abstraction compared to surface water courses where required.
- As for the Level 1 screening, each option was broken down into its main constituent activities. Each activity was considered separately against each WFD element and the WFD baseline that has been collated. However, where feasible, assessments against elements were grouped if the scale and level of impacts were expected to be similar.
- The assessments were based on available data and evidence as far as possible. However, due to the limited engineering and baseline information available, expert opinion was employed in most cases. Where there was uncertainty over an option (e.g. the exact route of a pipe line is not known), a worst case scenario approach was used (e.g. the assessments have assumed that the pipe line has watercourse crossings rather than not).

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²¹ Abstraction Licencing Strategies, accessed October 2017: https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process

²² Aquifer designation data, accessed October 2017: http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx

- The same level of impact categories were used as in the Level 1 screening (**Table 3.1**). The final impact category identified for each part of an option assumes that generic construction best practice and pollution prevention measures would be put in place (see **Section 3.3**).
- A confidence rating was given to the Level 2 assessments, according to the confidence categories in **Table 3.3**. The confidence rating assigned to each assessment is a reflection on the amount of uncertainty in the option design (e.g. uncertainty over the location and quantity of a new groundwater abstraction would lower the level of confidence in the assessment), and the amount and quality of evidence upon which the impact level has been based (e.g. existing investigations into the impacts of reservoirs by UU and the EA increase the confidence level in the assessment). All the assessments that have only been subject to a Level 1 assessment are assigned a high confidence by default.

Table 3.3 Confidence Level Categories

Confidence category	Description of confidence	
Low	Very limited evidence, high risk activity or assessment solely based on expert judgement.	
Medium	Reasonable levels of evidence for some aspects of the assessment. Some assumptions and expert opinion required.	
High	Good level of evidence with minimal assumptions required or low risk activity.	

The overall WFD impact of the options was based on the 'one out, all out' methodology used for the WFD. For example, this would mean that if the construction phase of an option has a final level of impact of 'no or minimal' but the operational phase has a level of impact of 'medium', the overall impact to WFD objectives from the option would be identified as 'medium level of impact'.

Step 4: Cumulative Assessment

- Where two or more Preferred Plan options are located in the same water body or operational catchment²³, a high level assessment has been undertaken to determine the potential for cumulative effects on WFD objectives, should all the options be implemented.
- The cumulative impact reflects the greatest impact that could occur in either an individual water body within the operational catchment, or on the catchment as a whole. For example, if an operational catchment includes a single water body with a medium level of impact and several water bodies with a minor level of impact, the cumulative impact on the catchment will be at least medium impact. The cumulative impact may be increased to a high level of impact if the options could combine to create a greater impact than they would individually (e.g. the level of impact on the fish classification status could increase if two new abstractions started on the same river but in different water bodies). The same impact classification system has been used for the cumulative assessments as for the Level 1 and Level 2 assessments (**Table 3.1**).

Step 5: Protected Areas Assessment

Assessments have been undertaken on protected areas related to the protection of habitats and species that are identified in the EA's Catchment Data Explorer²⁴ as being linked to a water body that may be impacted by a Preferred Plan option. The habitats present in each protected area²⁵ have been reviewed, and only protected areas with habitats which may be water dependent (e.g.

²³ An operational catchment may comprise a number of river water bodies that combine to form a drainage catchment, or a regional groundwater body.

²⁴ Downloaded from the EA's Catchment Data Explorer website October 2017: http://environment.data.gov.uk/catchment-planning/RiverBasinDistrict/12

²⁵ Habitat data for protected areas downloaded from the Joint Nature Conservation Committee website October 2017: http://jncc.defra.gov.uk/page-4

inland water bodies, bogs, marshes, water fringed vegetation and fens) have been included in the assessment.

- The assessment considers if a hydrological pathway is present between the protected area and the options. Options located downstream of a protected area are generally not considered to have an impact on a protected area unless the reason for designation could be impacted by new structures or reductions in stream flow (e.g. migratory fish). A single assessment has been undertaken for each protected area regardless of how many options could affect it.
- The assessment has been informed by expert judgement and detailed evidence where it is available (e.g. hydrological assessments and EA investigations). The same impact classification system has been used for the cumulative assessments as for the screening assessments (Table 3.1). However, an overall combined assessment of construction and operational phase impacts has been provided rather than separate assessments.
- Other protected areas (e.g. nutrient sensitive areas, bathing waters, shellfish waters and drinking water protection areas) have been assessed as being at low risk of being impacted by the WRMP options (e.g. shellfish waters and bathing waters are related to transitional and coastal waters and so the link between an WRMP is limited). As such, these protected areas are not part of the scope of this WFD assessment.

3.3 Assumptions

- The WFD assessment is based on available data, primarily spatial data on the EA's Catchment Data Explorer website and NRW Water Watch website, and the engineering scopes provided for each option. However, in all cases the information had insufficient detail and so the use of assumptions in the assessment of construction and operational impact was required. The assumptions used were as follows:
 - Construction best practice will be used at all construction sites. As no detailed plans or construction methods were available for the assessments, they are based on the assumption that measures will be implemented that are consistent with the suite of Guidance for Pollution Prevention²⁶, and that all relevant consents would be secured and complied with. This is especially crucial in respect of in-channel works and works that take place in proximity to river channels (e.g. within 8 metres);
 - ▶ All new transfer pipe line river watercourse crossings would be installed via trenchless techniques or via a trench and cover technique within a dry working area. Trench and cover techniques would require temporary over pumping of water or temporary diversion of the river channel, and a reinstatement of bed and bank material, and flow, once works are complete. Such works would require consent from the EA or Lead Local Flood Authority, which would ensure WFD compliance;
 - ▶ All new transfer pipe line crossings of estuaries or coastal waters would be installed via horizontal directional drilling or an alternative technique that would minimise disturbance of the bed. Works would be undertaken in line with Marine Management Organisation licence requirements, ensuring WFD compliance;
 - Ground investigations would be undertaken prior to construction activities. These will identify any contaminated land and mitigation that may be required;
 - Extensions, modifications, or new pumping stations, water treatment works, etc. would be consented either via permitted development rights, or via planning consent from the Local Planning Authority. Construction of these would involve a relatively small footprint in the context of any WFD water body catchment, would not be laterally extensive (compared to, for example, a new transfer main), and would not involve the requirement for in-channel works.

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²⁶ http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-apps-full-list/

Where planning consent is required, such developments would need to demonstrate that they are compliant with the objectives of the WFD in order to gain planning consent;

- Dewatering of excavations would not require a permit from the EA/NRW. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. However it is assumed that the dewatering permit would limit any impacts to a minor level (localised and temporary). Dewatering would be of uncontaminated water, and water would be discharged within the same water body. This assumption does not include dewatering activities associated with the new tunnel and tunnel refurbishment Manchester and Pennine resilience options, which would require further detailed assessment to establish the risks posed by dewatering;
- The relatively shallow and localised excavations associated with laying new transfer pipe lines, and constructing new pumping stations, water treatment works etc. would not present a risk to overall WFD status of groundwater bodies;
- Construction, refurbishment, and testing of groundwater abstraction boreholes would be undertaken under consent from the EA/NRW. Boreholes would be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.
- WRMP options that involve a new transfer of water into the water environment (e.g. new outfalls into rivers, canals or reservoirs) would be consented by an appropriate discharge activity permit that stipulates an appropriate standard for water quality in line with the requirements of the WFD standards;
- For WRMP options that involve the transfer of water via canals, it is assumed this would be undertaken with due consideration to WFD status and objectives and that any water transfer option would be agreed in principle with the canal owner.

4. Overview of Feasible Options

The 115 WRMP feasible options (comprising of 81 supply-demand options and 34 Manchester and Pennine Resilience options) were assessed to identify if they presented a risk to the delivery of WFD objectives. The following sub-sections describe the activity categories associated with the options and outline how each activity has been dealt with during the Level 1 screening and the Level 2 detailed assessment.

Construction Phase Activities

In-channel Construction Activities

- A total of 64 WRMP feasible options include the need for the construction of in-channel structures (e.g. new surface water abstractions requiring the construction of intake structures), or the construction of pipe lines with watercourse crossings. In-channel (or in-lake) construction may have the following impact on surface water bodies:
 - Reduction in the chemical status due to deterioration in water quality due to disturbance of soils and sediments, particularly if contaminated;
 - Reduction in the chemical status due to deterioration in water quality due to accidental spillage or leakage of fuels, oils and other chemicals associated with construction machinery;
 - Reduction in the ecological status due to deterioration in chemical status;
 - Reduction in the ecological status due to smothering of habitats or reduction in light due to release of sediments: and
 - Reduction in the ecological status due to changes in hydrological regime, river continuity or morphological conditions as a result of impoundments or changes to the structure of the channel.
- For the purposes of the WFD assessment, it has been assumed that construction best practice would be used, including pollution prevention measures (see **Section 3.3**). As such, any effects that do occur would be temporary and localised. In channel construction has therefore been flagged as a minor impact in the Level 1 screening and is not subject to a detailed Level 2 assessment.

Surface Catchment Construction Activities

- A total of 105 WRMP feasible options include the construction or modification of raw water transfer pipe lines, water treatment works, booster stations and other infrastructure in the near surface environment, but away from watercourse channels.
- These structures typically have a very small footprint compared to the WFD water bodies as a whole, and only involve relatively shallow excavations. Assuming that construction best practice is implemented (see **Section 3.3**), these activities are unlikely to have a negative impact on the status of the water bodies. As such, construction activities away from watercourses have been assigned a no or minimal impact in the Level 1 screening are not subject to a detailed Level 2 assessment.

Abstraction Borehole Construction or Refurbishment

A total of 32 WRMP feasible options associated with new groundwater abstractions include the construction of new abstraction boreholes (drilling, borehole development, pumping tests, installation of pumps, head works construction), or the refurbishment of existing boreholes (borehole development, installation of new pumps, new headworks), which may have the following impact on water bodies:

- Reduction in the chemical status of the groundwater body due to release of drilling chemicals into the aquifer, or migration of near surface contamination to ground;
- Reduction in the quantitative status of the groundwater body due to changes in groundwater levels and flows during test pumping. This could also affect the chemical status if changes in flows cause migration of contaminated or saline groundwater;
- Reduction in the quantitative status of the aquifer due to deterioration in a dependent surface water body or groundwater dependent terrestrial ecosystem test as a result of changes in the supply of baseflow to surface water environments during pumping tests;
- Reduction in the chemical or ecological status of surface water bodies due to reductions in baseflow causing changes to the hydrological regime or reduction in dilution of pollutants.
- For the purposes of the WFD assessment, it has been assumed that drilling and test pumping would be undertaken in line with permits from the EA or NRW, and any at surface construction works would be undertaken according to construction best practice and pollution prevention measures (see **Section 3.3**). As such, any effects that do occur would be at worst, temporary and localised. Abstraction borehole drilling and refurbishment has therefore been flagged as a minor impact in the Level 1 screening and is not subject to a detailed Level 2 assessment.

Construction or Modification of Reservoirs

- Four feasible options propose the construction of new reservoirs (WR004 Longsleddale Reservoir and WR012 Borrow Beck Reservoir) or raising the embankment structure of a reservoir (WR037a and WR037b Haweswater Reservoir).
- The construction of a new reservoir could have a widespread impact on the river water body in which it is located due to the following:
 - Reduction in the chemical status due to a deterioration in water quality as a result of disturbance of soils and sediments, particularly if contaminated;
 - Reduction in the chemical status due to deterioration in water quality as a result of accidental spillage or leakage of fuels, oils and other chemicals associated with construction machinery;
 - Reduction in the ecological status due to smothering of habitats or reduction in light as a result of release of sediments; and
 - Reduction in the ecological status due to changes in hydrological regime, river continuity or morphological conditions as a result of impoundments and watercourse diversions.
- While these effects would be temporary during the construction works, they would be widespread and therefore new reservoir construction has been flagged as high impact during the Level 1 screening and is subject to Level 2 detailed assessment.
- Impacts of the construction activities associated with raising existing reservoir embankment structures would be similar to those listed above. Whilst these would be temporary, they could have widespread impacts on the lake water body associated with the reservoir due to the relatively small size of the water body. Impacts could also occur on the downstream river water body. These activities have been flagged as high impact during the Level 1 screening and are subject to Level 2 detailed assessment.
- Options WR159 (Group 1 Improved reservoir compensation release control) and WR160 (Group 2 Improved reservoir compensation release control) involve a change to the penstock arrangements of reservoir compensation releases. As this only involves changes to pipework and associated equipment, any impacts on the WFD status of water bodies would be none or minimal, and this activity is not subject to a detailed Level 2 assessment.

Construction or Repair of Tunnels and Conduits

- Two Manchester and Pennine Resilience options include the construction of new tunnels and conduits, and two include the repair of existing tunnels and conduits that make up the regional aqueduct. These four options also include the drilling of temporary and permanent access shafts to the new or existing tunnels. The potential impacts of these activities include:
 - Reductions in the quantitative status of a groundwater body due to dewatering of shafts and tunnels;
 - Changes to groundwater levels and flow patterns due to dewatering of shafts and tunnels, or through the creation or disruption of groundwater flow pathways due to subsurface excavation and construction. These changes could result in a reduction in the quantitative status of a groundwater body. Depending on the nature of the surface geology and the degree of connectivity between the groundwater and surface water environment, there may also be an impact on the hydrological regime of overlying surface water bodies or protected areas;
 - Reductions in chemical status of groundwater bodies. This could be caused by migration of contaminated groundwater from shallow contaminated land or abandoned coal workings to unaffected areas of the groundwater body, or by leakages from construction machinery;
 - Reduction in the chemical status of surface water bodies due to deterioration in water quality arising from disturbance of soils and sediments at the surface, particularly if contaminated, or due to accidental spillage or leakage of fuels, oils and other chemicals associated with construction machinery;
 - Reduction in the ecological status of surface water bodies due to smothering of habitats or reduction in light as a result of the release of sediments from construction activities; and
 - Reduction in the ecological status of surface water bodies resulting from a deterioration in chemical status.
- The length of the tunnels (up to 52 km of new tunnels), the number of access shafts that need to be constructed (estimated at every 3 km), and the scale of the excavation and construction activities means that there is the potential for significant impacts on the WFD status of water bodies. As a result, resilience options that include tunnels have been assigned a medium level of impact in the Level 1 screening and are subject to a Level 2 detailed assessment.

Operation Phase Activities

Water Transfers

- A total of 11 WRMP feasible options (many of the third party options (WR8xx), plus WR099a (Worsthorne Borehole (Compensation)), WR109 (Swineshaw Boreholes (Buckton Castle Water Treatment Works (WTW))), and WR114 (Python Mill Borehole)), involve transfer of water between water bodies via canals, or occasionally surface watercourses. The discharge of water can affect the water quality of the receiving watercourse, and also the hydrological flow regime. For the purposes of this WFD assessment, it has been assumed that any transfers would be consented by an appropriate discharge activity permit or equivalent controls if the activity would be exempt from such regulation. In addition, it is assumed that canals are managed (by the canal owner or equivalent organisations) to maintain flows and water levels to permit navigation and existing water transfer arrangements with UU, and that this is done with due consideration for WFD objectives (see Section 3.3).
- Water transfers have been flagged as a minor level of impact in the Level 1 screening and are not subject to a detailed Level 2 assessment.

New or Increased Abstractions

A total of 65 WRMP feasible options include either a new abstraction or a change to an existing abstraction. Changes to an existing abstraction can either be an increase in the licensed quantity,

or an increase from recent actual abstraction levels, but still within the licensed quantity. For this latter option type, a new abstraction licence is not required, but the increase in abstraction is considered in the WFD assessment, as the increased abstraction may have an impact on the WFD status of the associated water bodies.

- 4.1.18 A further 32 options include a new or increased groundwater abstraction quantity. The impact of this activity may include:
 - Reduction in the quantitative status of the groundwater body due to a failure of the quantitative water balance test as a result of long term abstraction rates from the aquifer exceeding long term recharge rates;
 - Reduction in the quantitative status of the aquifer due to deterioration in the dependent surface water body or groundwater dependent terrestrial ecosystem test. This can occur as a result of changes in groundwater flows and levels changing the supply of baseflow to surface water environments;
 - Reduction in the quantitative or chemical status of the groundwater body if changes in groundwater flow induced by the abstraction causes migration of contaminated or saline groundwater;
 - Reduction in the chemical or ecological status of surface water bodies due to reductions in baseflow causing changes to the hydrological regime or reduction in dilution of pollutants.
- A total of 33 options include a new or increased surface water abstraction quantity. The impact of this activity may include:
 - Reduction in the ecological status of the surface water body due to changes in the hydrological regime failing to support good status of biological elements such as fish or benthic invertebrates:
 - Reduction in the chemical status of the surface water body due to reduction of dilution of specific pollutants, priority substances or priority hazardous substances;
 - Reduction in the ecological status of the surface water body due to changes in the chemical status failing to support good status of biological elements such as fish or benthic invertebrates; and
 - Reduction in the quantitative water balance of a groundwater body due to changes to the quantity and patterns of leakage of surface water to groundwater.
- 4.1.20 Changes to abstractions may have a widespread or prolonged effect on the WFD status of surface water or ground water bodies, so water bodies in which a new or changed abstraction is located are screened in for Level 2 detailed assessments. For all abstractions, both the groundwater and surface water bodies in which they are located have been screened in. The Level 2 detailed assessment takes the following into consideration:
 - The size of the proposed new abstraction (or size of the increase compared to the current abstraction);
 - If an abstraction licence is already in place;
 - ▶ The proximity of groundwater abstractions to surface watercourses; and
 - The availability of water in the relevant surface water and groundwater bodies.

Changes to Existing Discharges

Option WR146 (Davyhulme - Final Effluent Reuse) is a direct final effluent reuse scheme which involves utilisation of the discharge from Davyhulme Waste Water Treatment Works (WwTW).

Reduction in the volume of a discharge may affect the hydrological regime of a surface water body and therefore this option (the only option which involves a reduction of a discharge from a WwTW)

has been flagged as medium level of impact in the Level 1 screening and is subject to a Level 2 detailed assessment.

- Options WR159 and WR160 comprise the reduction in compensation flows from 76 local and four regional reservoirs. This is not a reduction in the consented compensation flow, rather a reduction in the currently discharged volume to bring the compensation release in line with the consented volume. The current WFD status is based on the current flow regime (including recent actual abstraction and discharge patterns) and changes to the discharge patterns could result in a change to the hydrological regime of a surface water body. Therefore, reduction in compensation flows are flagged as medium impact at Level 1 screening for the river water body immediately downstream of the reservoir, and subject to a Level 2 detailed assessment. As the wetted area of the reservoir and downstream watercourses would not change significantly, any impact on groundwater bodies would be minor. Therefore, groundwater bodies for Options WR159 and WR160 have been flagged as no or minimal impact at Level 1 screening and are not subject to a detailed Level 2 assessment.
- Where a reservoir is a WFD lake water body in its own right, the lake has not been screened in for Level 2 detailed assessment. This is because any water not released as compensation flow will be abstracted for supply, therefore there will not be a significant change to the lake water bodies and they have been flagged as no or minimal impact in the Level 1 screening.

Presence of New Reservoirs or Increased Size of Modified Reservoirs

- Two options (Option WR004 (Longsleddale Reservoir) and Option WR012 (Borrow Beck Reservoir)) include the construction and subsequent operation of a new impounding reservoir. Out of all the activities planned, this has the potential for the greatest impact on the WFD status of the surface water body in which it is constructed due to permanent changes to the habitats, hydrological flow regime, and water quality of the watercourses. It may also result in the reclassification of a water body as highly modified water body. Interactions with underlying groundwater bodies may also occur affecting their WFD status. Therefore, these options are flagged as a high impact at Level 1 screening stage and subject to a Level 2 detailed assessment.
- While increasing the size of a reservoir through embankment raising or other modifications has a lower potential for significant impacts, these are still flagged as a high impact at Level 1 screening stage, then assessed in more detail in the Level 2 assessment.

Presence of New Tunnels and Conduits

- Two Manchester and Pennine Resilience options include the construction of new tunnels and conduits. These resilience options also include the construction of permanent access shafts to the new or existing tunnels. The potential impacts of these resilience options include:
 - Changes to groundwater levels and flow patterns due to the presence of a new subsurface impermeable structure. Where the diameter of the tunnel is small in comparison to the saturated thickness of the aquifer, and the tunnel is well below the water table, impacts are likely to be minor. However, where the diameter of the tunnel is large relative to the saturated thickness of the aquifer, and the tunnel is close to the water table and active zone of groundwater flow, greater impacts may occur, particularly if the tunnel is perpendicular to the direction of groundwater flow. These changes may cause a reduction in the quantitative status of the groundwater body and may also impact on the hydrological regime of overlying surface water bodies or protected areas (depending on the degree of connection between the groundwater and surface water environment). Changes to groundwater levels and flow patterns may also occur if altered or preferential flow paths are created in the strata immediately surrounding the tunnels and shafts;
 - Changes to the chemical status of groundwater bodies due to leakages from the aqueduct. However, it is assumed that the potable standard raw water would be free from hazardous and priority hazardous substances and other pollutants and would therefore not have a significant negative effect on the chemical status of the groundwater body.

The presence of large (up to 52 km long tunnels) impermeable structures in the subsurface has the potential to result in permanent changes to the groundwater environment which may impact on both groundwater and surface water bodies. As a result, resilience options which include tunnels have been assigned a medium level of impact in the Level 1 screening and have been subject to a Level 2 assessment.

Enabling Works for Trading Option

- The Draft WRMP included a strategic choice to trade water to Thames Water during drought years (although this now longer forms part of United Utilities' Preferred Plan for the Final WRMP) but is included here for completeness to ensure all feasible options are considered. Water would be released from Lake Vyrnwy into the River Severn, re-abstracted from the River Severn at Deerhurst, transferred by a new pipeline to the River Thames at Culham, then re-abstracted from the River Thames using Thames Water existing infrastructure.
- For the purposes of preparing the Draft WRMP and undertaking the WFD assessment, UU agreed with Thames Water that any environmental impacts downstream of Vyrnwy in the Severn catchment, and in the Thames catchments associated with this transfer, would be assessed in Thames Water's Water Resources Management Plan. These activities have therefore not been included in this WFD assessment, although the findings of the Thames Water WFD assessment²⁷ in respect of this transfer are summarised below. As the water traded is currently abstracted for UU supply, it is assumed that there would be no impacts on Lake Vyrnwy itself.
- 4.1.30 In order to facilitate the transfer of water from the UU supply area to the Thames Water supply area, enabling works would be required. The enabling works for the trading option include:
 - Upgrading of the Vyrnwy Aqueduct;
 - Modifications to Oswestry WTW;
 - Transfer of water from the Dee Aqueduct to the Vyrnwy Aqueduct;
 - Construction of four booster stations: and
 - Transfer of water from Duddon Common Booster Station and Sandiford WTW.
- These enabling works are included in this WFD assessment (Option B2).

Summary of the Thames Water Draft Water Resources Management Plan 2019 WFD Assessment of a Severn Thames Transfer

- The Thames Water WFD assessment highlights that the additional releases of water from Lake Vyrnwy would be not likely to have a significant adverse impact on the WFD physico-chemical or chemical classifications sufficient to result in a change of WFD status in the Afon Vyrnwy or River Severn. However, the assessment notes that there is some uncertainty as to effects on dissolved oxygen and water temperature in the upper reaches of the Afon Vyrnwy downstream of the reservoir, due to the higher releases which may adversely impact on aquatic ecology, as well as a risk of higher flow velocities leading to the resuspension of copper from river bed sediment associated with historic copper mine workings in the river catchment area. The WFD assessment states that there may be beneficial effects under some flow conditions, particularly during low flows in hot weather, with higher flows helping to moderate elevated water temperatures and increasing dilution of diffuse pollution pressures.
- The WFD assessment states that abstraction of water from the River Severn at Deerhurst would not be anticipated to result in a change in the flow regime that would be materially significant such as to alter the chemical status of the river. The abstracted water would be treated at the nearby treatment works, which would include ferric chloride, clarification and rapid gravity filters (RGF)

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²⁷ Ricardo (2017) *Draft Water Resources Management Plan 2019: Water Framework Directive Assessment.* Available from https://corporate.thameswater.co.uk/-/media/Site-Content/Your-water-future-2018/Appendices/dWRMP19-Apendix-BB---Water-framework-directive-151217.pdf [Accessed July 2018].

treatment processes. The first flush of water through the pipeline after a period of non-use has the potential for adverse effects to water quality, although mitigation includes that the first flush of water through the pipeline would be tested and if required treated at a temporary holding lagoon. Once operational, the discharge would be treated to environmental standards at the water treatment works and this would provide sufficient quality of water for discharge taking account of the mixing and dilution that would occur within the receiving waters.

The effects of the discharge at the discharge/flow augmentation point at Culham (Thames (Evenlode to Thame) and the potentially impacted waterbodies downstream were considered in the WFD assessment. The assessment states that discharge would be treated to environmental standards and therefore there would be a low risk of impacting the physico-chemical quality elements of these River Thames water bodies (which are currently assessed as being at moderate WFD status). Peaks in suspended solids would be monitored and if there was an elevated level of suspended solids, the abstraction from the River Severn would be reduced to just the pipeline 'sweetening' flows, and would be treated prior to the main treatment works. The outfall to the River Thames would involve an aeration cascade structure to oxygenate the discharge water to minimise any adverse impacts on dissolved oxygen concentrations in the river. The assessment notes that there is the potential for some organic pollutants to be in the discharged, such as metaldehyde, as these pollutants are more difficult to treat and remove at the water treatment works.

Results of the WFD Assessment of WRMP Supply-Demand Feasible Options

5.1 Level 1 Screening of Feasible Options

The Level 1 screening identified 328 WFD water bodies that may be impacted by the 81 supply-demand feasible options. Many of these water bodies could be impacted by more than one option, resulting in a total number of 584 option-water body combinations. The screening exercise was undertaken for each option and its related water bodies. The results of the screening exercise are summarised in **Table 5.1** and presented in full in **Appendix B**.

Table 5.1 Summary of Level 1 Screening Exercise for Feasible Options

	No of option– water body combinations	No of water bodies	No of options
Total	584	328	81
High level of impact	10	6	4
Medium level of impact	198	126	65
Minor level of impact	201	128	39
No or minimal impact	175	127	28

Note that a water body may have varying levels of impact from different options, and an option may have differing levels of impact on different water bodies. This means that some water bodies and options are counted more than once in the values in this table.

5.2 Level 2 Assessment of Feasible Options

- The Level 1 screening identified 69 feasible options that may have a medium or a high level of impact on one or more water bodies. The water bodies that may be subject to a medium or a high level of impact from these options were subject to a Level 2 detailed assessment. This involved further consideration of the activities proposed within those water bodies and review of baseline data. Following the Level 2 detailed assessment, the level of impact assigned during the Level 1 screening may have been reduced or increased depending on the judgement of the likely impact.
- The results of the Level 2 assessment were combined with the results of the Level 1 assessment to produce a combined assessment result which is summarised in **Table 5.2** and presented in full in **Appendix B**. The individual Level 2 assessment spreadsheets are presented in **Appendix C**. In general terms, the Level 2 detailed assessments resulted in a lowering of the level of impacts, a reflection on the conservative approach adopted in the Level 1 screening.
- Four options were identified as having a high level of impact. These are:
 - WR004: Longsleddale reservoir;
 - WR012: Borrow Beck impounding reservoir;
 - WR039a: River Eden; and
 - WR119b: Egremont Boreholes (new).

Table 5.2 Summary of Combined Assessment Results for Feasible Options

	No of option– water body combinations	No of water bodies	No of options
Total	584	328	81
High level of impact	4	4	4
Medium level of impact	52	38	34
Minor level of impact	337	198	68
No or minimal impact	191	134	38

Note that a water body may have varying levels of impact from different options, and an option may have differing levels of impact on different water bodies. This means that some water bodies and options are counted more than once in the values in this table.

6. Results of the WFD Assessment of Manchester and Pennine Resilience Options and Solutions

6.1 Introduction

- The results of the Level 1 and Level 2 assessments for each resilience option are summarised in **Table 6.1**, and described by solution in Sections 6.3**Error! Reference source not found.** to 6.7. The assessments are presented in full in Appendices D and E.
- For each of the five resilience solutions, the impact level of all the individual resilience options within that solution have been considered, and initial screening level cumulative and protected area assessments have been undertaken.

6.2 Resilience Options

- **Table 6.1** presents a summary of the resilience options assessment. This assessment indicates that, in total:
 - 22 resilience options have a no or minimal level of impact;
 - > 7 resilience options have a minor level of impact; and
 - ▶ 5 resilience options have a medium level of impact.

Table 6.1 Summary of Resilience Option Assessment

Option Number	Solution	Option Description	WFD Impact Level	Confidence Rating
3	С	Manchester and Pennine Aqueduct to Raw: 2 Stage filtration (Bury)	No or minimal impact	High
37-38	В	Manchester and Pennine Aqueduct section T05 to T06	Medium level of impact	Low
37-42	D, E	Manchester and Pennine Aqueduct sections T01 to T06	Medium level of impact	Low
46	A, E	WELM Uprate to 150Ml/day	No or minimal impact	High
112	B, D	Manchester and Pennine Aqueduct Outage (4 weeks) for installation of connections	No or minimal impact	High
212	С	Manchester and Pennine Aqueduct to Raw (Newton-in-Bowland)	No or minimal impact	High
213	С	Manchester and Pennine Aqueduct to Raw (Clayton-le-Moors)	No or minimal impact	High
214	С	Manchester and Pennine Aqueduct to Raw (Haslingden)	No or minimal impact	High
215	E	Alternative Supply: Raw water transfer and WTW (Clayton-le-Moors)	Medium level of impact	Medium
216	A, E	Alternative Supply: Raw water abstraction and WTW (Haslingden)	Minor level of impact	Medium
217	E	Alternative Supply: Raw water transfer and WTW (Newton-in-Bowland)	Minor level of impact	High
218	E	Alternative Supply: Raw water transfer and WTW (Preston)	Minor level of impact	High

Option Number	Solution	Option Description	WFD Impact Level	Confidence Rating
238	В	Metals & UV treatment of BSPs: Bury	No or minimal impact	High
260	Α	Ribblesdale South Well Isolation	No or minimal impact	High
261	Α	Haslingden Well Isolation	No or minimal impact	High
296	Α	T05 targeted repair 2025	Medium level of impact	Low
297	Α	T06 targeted repair 2025	Medium level of impact	Low
301	С	Lunesdale Siphon BSPs North	Minor level of impact	High
303	С	Lunesdale Siphon BSPs South	Minor level of impact	High
306	С	Ribblesdale Siphon BSPs North	Minor level of impact	High
348	В	Metals & UV Treatment of BSPs: Lunesdale Siphon (1)	No or minimal impact	High
349	В	Metals & UV Treatment of BSPs: Lunesdale Siphon (2)	No or minimal impact	High
350	В	Metals & UV Treatment of BSPs: Lunesdale Siphon (3)	No or minimal impact	High
351	В	Metals & UV Treatment of BSPs: Lunesdale Siphon (4)	No or minimal impact	High
352	В	Metals & UV Treatment of BSPs: Lunesdale Siphon (5)	No or minimal impact	High
353	В	Metals & UV Treatment of BSPs: Lunesdale Siphon (6)	No or minimal impact	High
354	В	Metals & UV Treatment of BSPs: Hodder Siphon	No or minimal impact	High
355	В	Metals & UV Treatment of BSPs: Ribblesdale Siphon (1)	No or minimal impact	High
356	В	Metals & UV Treatment of BSPs: Ribblesdale Siphon (2)	No or minimal impact	High
357	В	Metals & UV Treatment of BSPs: Ribblesdale Siphon (3)	No or minimal impact	High
358	В	Metals & UV Treatment of BSPs: Ribblesdale Siphon (4)	No or minimal impact	High
359	В	Metals & UV Treatment of BSPs: Ribblesdale Siphon (5)	No or minimal impact	High
360	В	Metals & UV Treatment of BSPs: Haslingden	No or minimal impact	High
382	С	Manchester and Pennine Aqueduct to Raw: WTW reduced flow	Minor level of impact	High

6.3 Solution A (FM20-SO4)

- Solution A includes six resilience options involving new sources and targeted repair of Tunnel 5 and Tunnel 6 (T05 and T06), centred around uprating the West East Link Main (WELM), construction of a new associated break tank near Bolton and new abstraction from the River Irwell with treatment.
- Three resilience options in this solution have been assessed at no or minimal impact with a high level of confidence in the Level 1 screening assessment:
 - 46: WELM Uprate to 150Ml/day;
 - 260: Ribblesdale South Well Isolation; and
 - 261: Haslingden Well Isolation.

- Option 216 (Alternative Supply: Raw water abstraction and WTW (Haslingden) was assigned a medium level of impact in the Level 1 screening assessment as it includes a new surface water abstraction, but following the Level 2 assessment, the impact was lowered to minor with a medium confidence due to the relatively small size of the abstraction and the availability of water in the surface water body.
- Two resilience options (296: T05 targeted repair 2025, and 297: T06 targeted repair 2025) were assigned a medium level of impact in the Level 1 screening, and this was confirmed in the Level 2 detailed assessment, but with a low level of confidence. These resilience options involve the repair of the existing Manchester and Pennine Aqueduct tunnels and conduits, including new access shafts. Medium impacts could occur in the groundwater bodies as a result of water quality impacts from drilling shafts through mine workings, or spillages from construction machinery in the subsurface environment. The assessment results have been assigned a low level of confidence due to the lack of design detail at this stage, and the high level of the WFD assessment (i.e. no detailed baseline data has been collected).
- Cumulative assessments have not been undertaken at this time. Initial screening indicates that for most water bodies or operational catchments affected by more than one resilience option, the impact level would not be raised above the highest impact level assigned to the individual options. However, the Croal and Irwell catchment will be affected by both of the tunnel repair options (296 and 297) plus the new abstraction under Option 216. If this solution is selected as the preferred solution, further cumulative assessment would therefore be required.
- No waterbodies affected by the options that comprise this solution are linked to a protected area, so a protected area assessment would not be required if this solution is selected as the preferred solution.

6.4 Solution B (C29)

- Solution B includes sixteen resilience options related to new tunnel sections T05 and 06 and partial UV and metals treatment at existing UU facilities along the length of the existing Manchester and Pennine Aqueduct.
- Fifteen of the sixteen resilience options have been assessed as no or minimal impact with a high level of confidence in the Level 1 screening. This includes resilience options 112 (HA Outage (4 weeks) for installation of connections), 238 and 348 to 360 (metals and UV treatment of bulk supply points).
- Option 37 38 (Manchester and Pennine Aqueduct section T05 to T06) was assigned a medium level of impact in the Level 1 screening, and this was confirmed in the Level 2 detailed assessment, but with a low level of confidence. This resilience option involves the construction of 19.2 km of new tunnel and conduit, along with associated temporary and permanent access shafts, and connections into the existing Manchester and Pennine Aqueduct.
- Medium impacts could occur in the construction phase due to dewatering of the tunnel and shafts, and due to water quality impacts from drilling shafts through mine workings, or spillages from construction machinery in the subsurface environment. Medium impacts could also occur in the operation phase due to permanent changes in the groundwater flow regime, impacting both groundwater and surface water bodies.
- A detailed study of the geology of the tunnel route has not been undertaken at this time, and good connections between the groundwater and surface water environment have been assumed. Further study may indicate that lower permeability strata (e.g. mudstones) and superficial deposits (e.g. glacial till) may protect surface water bodies from impacts arising from changes in the groundwater regime. Due to this uncertainty, the general high level nature of the WFD assessments, and the lack of design detail at this stage, the results have been assigned a low level of confidence.
- 6.4.6 Cumulative assessments have not been undertaken at this time. Initial screening indicates that no waterbody that is affected by this solution is affected by more than one option. Several individual

waterbodies in the Croal and Irwell catchment and the Calder catchment are affected by Option 37-38 and in consequence, a cumulative assessment would be required should this solution be taken forward as the preferred solution, although it is unlikely that the impact on the surface watercourses would be raised above the current medium level of impact.

No waterbodies affected by the options that comprise this solution are linked to a protected area that is designated for protection of habitats and species, so a protected area assessment would not be required if this solution is selected as the preferred solution.

6.5 Solution C (FM15-SO4b)

- This solution includes eight resilience options for converting the Manchester and Pennine Aqueduct to raw water supply and building water treatment works (WTWs).
- All eight of the resilience options that make up this solution have been assessed as no or minimal or minor level of impact with a high level of confidence in the Level 1 screening. These resilience options would include new pipelines and/or new WTWs but with suitable construction best practice and pollution control measures in place, they would not have a prolonged or widespread impact on the WFD status of water bodies.
- 6.5.3 Cumulative assessments have not been undertaken at this time. As no options in this solution would have greater than a minimal level of impact, a cumulative assessment would not be required if this solution is selected as the preferred solution.
- No waterbodies affected by options in this solution are linked to a protected area, so a protected area assessment would not be required if this solution is selected as the preferred solution.

6.6 Solution D (C11)

- Solution D includes two resilience options associated with new tunnel sections T01, 02, 03, 04, 05 and 06.
- Option 112 (HA Outage (4 weeks) for installation of connections) has been assessed as no or minimal impact with a high level of confidence in the Level 1 screening because there is no new infrastructure and no construction works proposed as part of this resilience option.
- Option 37 42 (Manchester and Pennine Aqueduct sections T01 to T06) was assigned a medium level of impact in the Level 1 screening, and this was confirmed in the Level 2 detailed assessment, although with a low level of confidence. This resilience option involves the construction of 51.8 km of new tunnel and conduit, along with associated temporary and permanent access shafts, and connections into the existing Manchester and Pennine Aqueduct.
- Medium impacts could occur in the construction phase of this resilience option due to dewatering of the tunnel and shafts, and due to water quality impacts from drilling shafts through mine workings, or spillages from construction machinery in the subsurface environment. Medium impacts could also occur in the operation phase due to permanent changes in the groundwater flow regime, impacting both groundwater and surface water bodies.
- A detailed study of the geology of the tunnel route has not been undertaken at this time, and good connections between the groundwater and surface water environment have been assumed. Further study may indicate that lower permeability strata (e.g. mudstones) and superficial deposits (e.g. glacial till) may protect surface water bodies from impacts arising from changes in the groundwater regime. Due to this uncertainty, the general high level nature of the WFD assessments, and the lack of design detail at this stage, the results have been assigned a low level of confidence.
- 6.6.6 Cumulative assessments have not been undertaken at this time. An initial screening indicates that no waterbody that is affected by this solution is affected by more than one option. Several individual waterbodies in the Croal and Irwell catchment, the Calder catchment, the Kent

catchment, the Bela catchment and the Hodder and Loud catchment are affected by Option 37-42. If this solution is selected as the preferred solution, a cumulative assessment would therefore be required; however, it is unlikely that the impact on the surface watercourses would be raised above the current medium level of impact.

Six waterbodies affected by options under this solution are linked to protected areas that are designated for protection of habitats and species (The Bowland Fells, Morecambe Bay Pavements and the River Kent). In consequence, a protected area assessment would be required if this solution is selected as the preferred solution.

6.7 Solution E (C17)

- This solution includes six resilience options, comprising new tunnel sections as for Solution D, plus new sources requiring WTWs and associated pipelines.
- Three of the six resilience options have been assessed as no or minimal impact, or minor level of impact with a high level of confidence in the Level 1 screening because they involve relatively small scale in catchment or in channel construction works. These are resilience options:
 - 46: WELM Uprate to 150 Ml/day;
 - ▶ 217: Alternative Supply: Raw water transfer and WTW (Newton-in-Bowland); and
 - ▶ 218: Alternative Supply: Raw water transfer and WTW (Preston).
- Options 215 (Alternative Supply: Raw water transfer and WTW (Clayton-le-Moors)) and 216 (Alternative Supply: Raw water abstraction and WTW (Haslingden)) are both related to new surface water abstractions, and were assigned a medium level of impact in the Level 1 screening assessment. The Level 2 detailed assessment lowered the impact of Option 216 to a minor level of impact due to the relatively small size of the proposed abstraction and the availability of water in the surface water body in which the new abstraction is located. The impact of Option 215 has remained at medium in the Level 2 detailed assessment due to the large size of the abstraction.
- As with Solution D, Option 37 42 (Manchester and Pennine Aqueduct sections T01 to T06 was assigned a medium level of impact in the Level 1 screening, and this was confirmed in the Level 2 detailed assessment, but with a low level of confidence. This resilience options involves the construction of 51.8 km of new tunnel and conduit, along with associated temporary and permanent access shafts, and connections into the existing Manchester and Pennine Aqueduct.
- Medium impacts could occur in the construction phase of this option due to dewatering of the tunnel and shafts, and due to water quality impacts from drilling shafts through mine workings, or spillages from construction machinery in the subsurface environment. Medium impacts could also occur in the operation phase due to permanent changes in the groundwater flow regime, impacting both groundwater and surface water bodies.
- A detailed study of the geology of the tunnel route has not been undertaken at this time, and good connections between the groundwater and surface water environment have been assumed. Further study may indicate that lower permeability strata (e.g. mudstones) and superficial deposits (e.g. glacial till) may protect surface water bodies from impacts arising from changes in the groundwater regime. Due to this uncertainty, the general high level nature of the WFD assessments, and the lack of design detail at this stage, the results have been assigned a low level of confidence.
- 6.7.7 Cumulative assessments have not been undertaken at this time. An initial screening indicates that for most water bodies or operational catchments affected by more than one option, the impact level would not be raised above the highest impact level assigned to the individual options. However, the three waterbodies will be affected the tunnel options (37-42) plus a new abstraction (option 215 or 216). If this solution is selected as the preferred solution, further cumulative assessment would therefore be required.

Six waterbodies affected by options in this solution are linked to protected areas that are designated for protection of habitats and species (The Bowland Fells, the River Kent, and Morecambe Bay Pavements), so a protected area assessment would be required if this solution is selected as the preferred solution.

7. Results of the WFD Assessment of the Final WRMP Preferred Plan

7.1 Overview

- 7.1.1 As set out in **Section 1.3**, the Final WRMP includes the following strategic choices:
 - Adopt an enhanced leakage reduction comprising a total of 190 Ml/d over the planning period, a reduction of just over 40% from the baseline position of 448Ml/d. By the end of 2024/25 United Utilities plans to reduce leakage by at least 91 Ml/d, or 20%;
 - Improve level of service for drought permits and orders to augment supply from 1 in 20 years to 1 in 40 years (moving from 5% to 2.5% annual average risk);
 - Increase resilience to others hazards, specifically for the regional aqueduct system associated with Manchester and Pennines Resilience. This involves completing Solution D, which involves rebuilding all single line sections of the relevant aqueduct.
- The Preferred Plan encompasses a combination of preferred demand management measures and resilience options designed to achieve the three strategic choices outlined above. It should be noted that the supply-demand preferred options that comprise the Preferred Plan do not include resource management measures (i.e. they are demand management measures including leakage reduction and water efficiency) and are therefore not expected to have impacts on WFD water bodies. The preferred Manchester and Pennine Resilience solution (Solution D) has been considered as part of this WFD assessment.
- 7.1.3 **Table 7.1** lists the resilience options that comprise the preferred Manchester and Pennine Resilience solution.

Table 7.1 Summary of Option Assessment for Manchester and Pennine Resilience Solution D

Option Number	Option Description	WFD Impact Level	Confidence Rating
37-42	Manchester and Pennine Aqueduct sections T01 to T06	Medium level of impact	Low
112	Manchester and Pennine Aqueduct Outage (4 weeks) for installation of connections	No or minimal impact	High

7.2 Results of the Assessment of Solution D

Solution D includes two resilience options associated with new tunnel sections T01, 02, 03, 04, 05 and 06. A summary of the Level 1 and Level 2 assessments for these options is presented in **Appendix J** and the Level 2 detailed assessments are included in **Appendix E**.

Individual Option Assessments

- Option 112 (Manchester and Pennine Aqueduct Outage (4 weeks) for installation of connections) has been assessed as having no or minimal impact with a high level of confidence in the Level 1 screening because there is no new infrastructure and no construction works proposed as part of this resilience option.
- Option 37 42 (Manchester and Pennine Aqueduct sections T01 to T06) was assigned a medium level of impact in the Level 1 screening, and this was confirmed in the Level 2 detailed assessment, although with a low level of confidence. This resilience option involves the construction of 51.8 km

- of new tunnel and conduit, along with associated temporary and permanent access shafts, and connections into the existing Manchester and Pennine Agueduct.
- Medium impacts could occur in the construction phase of this resilience option due to dewatering of the tunnel and shafts, and due to water quality impacts from drilling shafts through mine workings, or spillages from construction machinery in the subsurface environment. Medium impacts could also occur in the operation phase due to permanent changes in the groundwater flow regime, impacting both groundwater and surface water bodies.
- A detailed study of the geology of the tunnel route has not been undertaken at this time, and good connections between the groundwater and surface water environment have been assumed. Further study may indicate that lower permeability strata (e.g. mudstones) and superficial deposits (e.g. glacial till) may protect surface water bodies from impacts arising from changes in the groundwater regime. Due to this uncertainty, the general high level nature of the WFD assessments, and the lack of design detail at this stage, the results have been assigned a low level of confidence.

Water Body Cumulative Assessment

Where two or more options are located in the same water body, there is the potential for a cumulative impact on that waterbody. However, no waterbody that is affected by Solution D is affected by more than one option, so a waterbody scale cumulative assessment is not required.

Operational Catchment Cumulative Assessment

- Where two or more options are located in multiple water bodies within one operational catchment, there may be cumulative effects on WFD objectives. For example, impacts in a downstream water body may combine with impacts from an upstream water body and result in a greater impact than assessed for each individual water body.
- Several individual waterbodies in the Bela, Calder, Croal and Irwell, Hodder and Loud, and Kent operational catchments are affected by Option 37-42. Therefore, operational catchment scale cumulative assessments have been undertaken.
- The same impact classification system has been used for the cumulative assessments as for the Level 1 and Level 2 assessments. The results are summarised in **Table 7.2** and presented in full in **Appendix K**.
- For all five operational catchments, the cumulative impact on a catchment scale will not exceed the maximum impact on an individual water body of a medium level of impact. This is because:
 - The individual option assessment assumed a worst-case scenario, due to the high-level nature of the assessment, and the lack of detailed information available at this stage on the design of the tunnel, the nature of the geological strata it will pass through, and the linkages between the groundwater and surface water environment.
 - All the individual waterbodies have flow available across some or all of the flow regime, helping to mitigate any impacts on baseflow arising from the operational presence of the tunnels in the subsurface.

Table 7.2 Summary of Operational Catchment Cumulative Assessment

Catchment	WFD Water Body Information			Option		Assessment Result		
Operational Catchment	ID	Туре	WB Name	Ref	Option Name	Individual Option Assessment Result	Individual Options Assessment Confidence	Cumulative Assessment Result
	GB112073071090	River	Peasey Beck			Medium level of impact	Low	
Bela	GB112073071080	River	Lupton (Farleton) Beck	37-42	Manchester and Pennine Aqueduct sections T01 to T06	Medium level of impact	Low	Medium level of impact
	GB112073071100	River	Stainton Beck			Medium level of impact	Low	
	GB112071065490	River	Calder - Pendle Water to conf Ribble		Manchester and Pennine	Medium level of impact	Low	Medium level
Calder	GB112071065040	River	Hyndburn	37-42	Aqueduct sections T01 to T06	Medium level of impact	Low	of impact
	GB112069064641	River	Irwell (Cowpe Bk to Rossendale STW)			Medium level of impact	Low	
Croal and Irwell	GB112069064620	River	Irwell (Rossendale STW to Roch)	37-42	Manchester and Pennine Aqueduct sections T01 to T06	Medium level of impact	Low	Medium level of impact
	GB112069064650	River	Ogden			Medium level of impact	Low	
Hodder and	GB112071065420	River	Whitendale River	37-42	Manchester and Pennine Agueduct sections T01 to	Medium level of impact	Low	Medium level
Loud	GB112071065560	River	Hodder - conf Easington Bk to conf Ribble	3/-42 Aqueduct sections 101 to T06		Medium level of impact	Low	of impact
Kent	GB112073071370	River	Mint	37-42		Medium level of impact	Low	Medium level of impact

Catchment	WFD Water Body Info	rmation		Option		Assessment Res	ult	
Operational Catchment	ID	Туре	WB Name	Ref	Option Name	Individual Option Assessment Result	Individual Options Assessment Confidence	Cumulative Assessment Result
	GB112073071340	River	Flodder Beck		Manchester and Pennine Aqueduct sections T01 to T06	Medium level of impact	Low	

Protected Area Assessment

- Six water bodies affected by Option 37-42 are linked to protected areas that are designated for protection of habitats and species (Bowland Fells, Morecambe Bay Pavements and the River Kent). Therefore, a protected area assessment has been undertaken.
- An assessment was undertaken for all habitat and species protected areas that are linked to a water body that contains a Preferred Plan option. The list of protected areas requiring assessment was established by comparing the list of protected areas and the water bodies they are linked to²⁸, to the list of water bodies affected by Option 37-42 (**Appendix D**).
- Protected area assessments were undertaken for three protected areas. The results are presented in **Table 7.3**. For the Bowland Fells and Morecambe Bay Pavements protected areas, the level of impact is assessed as no or minimal due to the distance between the protected areas and the option. The potential impact on the River Kent protected area has been assessed as medium because two river water bodies which form part of the SAC have been assigned a medium level of impact in the Level 2 assessment. There may be impacts on the hydrological regime of the water courses, which could affect the migratory fish which are present in the SAC.

Table 7.3 Results of the Protected Area Assessment

Protected area	Designation	Preferred options	Summary of protected area assessment	Assessment Results
Bowland Fells	SPA	Manchester and Pennine Aqueduct sections T01 to T06	The new tunnel will pass beneath Bowland Fells SPA. At surface or near surface construction works have the potential to impact on the SPA, but it has been confirmed by UU that no at or near surface works (e.g. shaft construction) would be undertaken within the SPA. The nearest shafts are located 2 km to the north and 4 km to the south of the SPA. The SPA does include water dependent habitats (bogs, marshes, water fringed vegetation, fens) but given the depth of the tunnelling works and that no surface construction works will take place in or adjacent to the SPA, there should be no or minimal impact on the SPA.	No or minimal impact
Morecambe Bay Pavements	SAC	Manchester and Pennine Aqueduct sections T01 to T06	Morecambe Bay Pavements is comprised of several separate distinct areas, with the closest situated approximately 6 km to the west of the proposed new aqueduct sections. Only the southernmost sections near Kirkby Lonsdale are connected hydraulically to the option via the Lupton (Farleton) Beck water body.	No or minimal impact
			The SAC includes water dependent habitats (inland water bodies (Haweswater) and bogs, marshes, water fringed vegetation and fens); however these make up only 0.4% and 0.6% of the SAC respectively.	
			Haweswater is not in the section of the SAC that is hydraulically connected to the option via the Lupton (Farleton) Beck river water body. Given that water dependent habitats make up less than 1% of the SAC, and that the SAC is 6 km from the option, any impact on the SAC is likely to be minimal.	

²⁸ Downloaded from the EA's Catchment Data Explorer website October 2017: http://environment.data.gov.uk/catchment-planning/RiverBasinDistrict/12

Protected area	Designation	Preferred options	Summary of protected area assessment	Assessment Results
River Kent	SAC	Manchester and Pennine Aqueduct sections T01 to T06	The River Kent SAC is situated at the very north of Option 37 – 42 and is linked to the option via two river water bodies, Mint and Flodder Beck, both tributaries of the River Kent and part of the SAC. The SAC is almost completely (99%) comprised of inland water bodies, and this includes several species of migratory fish which may be affected by reductions in river flows.	Medium level of impact.
			The northern extent of the option is within approximately 700 m of the river Mint.	
			The Level 2 detailed assessment for the Mint and Flodder Beck water bodies indicated a medium level of impact (with low confidence), which also applies to the SAC.	

8. Summary and Conclusions

8.1 Summary of Feasible Options Assessment

- A WFD assessment was undertaken on 115 feasible resource management and Manchester and Pennine Resilience options to inform UU's Final WRMP. Each option was subject to a Level 1 screening exercise. Option-water body combinations that were identified as being subject to a medium or high level of impact in the Level 1 screening were then subject to a Level 2 detailed assessment.
- The results of the screening and detailed assessments were collated to produce a combined assessment result for all option-water body assessments, which are presented in **Appendix B** for the supply-demand feasible options and **Appendix D** for the Manchester and Pennine resilience feasible options and summarised in Sections 5 and 6.

8.2 Summary of Preferred Plan Assessment

- 8.2.1 UU has identified one resilience solution (Solution D) which forms part of the Preferred Plan for WRMP19. The solution comprises two options:
 - Option 112: Manchester and Pennine Aqueduct Outage (4 weeks) for installation of connections; and
 - Option 37 42: Manchester and Pennine Aqueduct sections T01 to T06.

Option 112: Manchester and Pennine Aqueduct Outage (4 weeks) for installation of connections

Option 112 has been assessed as having no or minimal impact with a high level of confidence in the Level 1 screening because there is no new infrastructure and no construction works proposed as part of this resilience option.

Option 37 – 42: Manchester and Pennine Aqueduct sections T01 to T06.

- Option 37 42 was assigned a medium level of impact in the Level 1 screening, and this was confirmed in the Level 2 detailed assessment, although with a low level of confidence. This resilience option involves the construction of 51.8 km of new tunnel and conduit, along with associated temporary and permanent access shafts, and connections into the existing Manchester and Pennine Agueduct.
- Medium impacts could occur in the construction phase of this resilience option due to dewatering of the tunnel and shafts, and due to water quality impacts from drilling shafts through mine workings, or spillages from construction machinery in the subsurface environment. Medium impacts could also occur in the operation phase due to permanent changes in the groundwater flow regime, impacting both groundwater and surface water bodies.
- The new tunnel passes through five operational catchments containing more than one waterbody which may be affected by the construction or operation of the new infrastructure. There is the potential for cumulative effects in these five operational catchments, but the cumulative assessment indicates that the cumulative impact will be no greater than the medium level of impact assigned to the individual water bodies.
- The option is linked to three protected areas designated for habitats and/or species. Two of the protected areas would be subject to no or minimal impact, but there could be a medium level of impact on the River Kent SAC due to changes in the hydrological regime of the River Mint and Flodder affecting migratory fish.

A detailed study of the geology of the tunnel route has not been undertaken at this time, and good connections between the groundwater and surface water environment have been assumed. Further study may indicate that lower permeability strata (e.g. mudstones) and superficial deposits (e.g. glacial till) may protect surface water bodies from impacts arising from changes in the groundwater regime. Due to this uncertainty, the general high-level nature of the WFD assessments, and the lack of design detail at this stage, the results have been assigned a low level of confidence.

8.3 Summary of the Preferred Plan

The assessment results for the Preferred Plan for WRMP19 are summarised in **Table 8.1**. The results indicate that Option 37-42 of the Manchester and Pennine Resilience solution could have a medium level of impact against WFD objectives and as such, this option will require further assessment at the detailed planning (project) stage.

Table 8.1 Summary of Assessment Results for the Preferred Plan Opt	Table 8.1	Summary of	Assessment	Results for the	Preferred Plan (Options
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Option	Result of Individual assessment	Result of cumulative assessment	Result of Protected Area assessment	Overall result	Confidence level
Option 112	No or minimal impact	n/a	n/a	No or minimal impact	High
Option 37 – 42	Medium level of impact	Medium level of impact	Medium level of impact	Medium level of impact	Low

8.4 WRMP Preferred Plan Options Requiring Further Assessment

The Reality of Moderate Potential Impact: A Regulatory Perspective

- One of the Preferred Plan options (Option 37-42) has been assigned a medium level of potential impact on account of the risk to the quantitative and chemical status of groundwater bodies and changes to the hydrological regime (and therefor ecological status) of rivers. These activities pose a potential risk of widespread or prolonged impacts on the status of WFD water bodies.
- In such cases, further WFD assessment is required to be more conclusive in respect of requirements, or otherwise, for bespoke mitigation in order to ensure that WFD objectives are not compromised. In reality, on consideration of further information and dialogue with the EA on proposed bespoke mitigation measures, this option is unlikely to result in significant or long-term potential impacts. Therefore, WFD compliance is unlikely to be an issue in respect of regulatory permitting once the further assessment provides the appropriate level of confidence for presentation to the regulator.
- The assessment of Option 37-42 has a low level of confidence, which reflects the high-level nature of the WFD assessments undertaken at this time. The lack of detailed design or environmental baseline information has necessitated a precautionary approach to the assessments, which relies on assumptions (e.g. that changes to the groundwater environment will result in changes to flows in surface water courses), and results in a worst case level of impact. Further assessment and dialogue with the EA would likely result in a reduction of the level of impact, and an increase in the level of confidence.

Preferred Plan Option Requiring Further Assessment

8.4.4 Further detailed WFD assessment should be undertaken on Option 37-42 as it has been assigned a medium level of impact in the individual, cumulative and protected area assessments.

Further assessment should include consideration of more detailed design information, investigation of the water environment (in particular links between the groundwater and surface water environments), detailed impact assessment, and more detailed review of WFD objectives to ensure that the impacts highlighted in this report are appropriately accounted for.

9. Statement of Compliance with the WFD

9.1 Current Abstraction Licences

The assessments of the data provided by the EA and UU indicate that although there is some residual risk, overall the operation of the licences, the reductions noted by the EA and the schemes identified for AMP6 should be enough to mitigate against any significant risks to the WFD water bodies and are therefore compliant with the requirements of the WFD.

9.2 Preferred Plan Options

- The assessments for the preferred options that comprise the Preferred Plan for WRMP19 indicate that one of the options (Option 37-42) could have a medium level of impact against WFD objectives. Further WFD assessment is therefore required to be more conclusive in respect of requirements, or otherwise, for bespoke mitigation in order to ensure that WFD objectives are not compromised.
- In reality, on consideration of further information and dialogue with the EA on proposed bespoke mitigation measures during the consultation and project stages, this option is unlikely to result in significant or long-term potential impacts. Therefore, WFD compliance is unlikely to be an issue in respect of regulatory permitting once the further assessment provides the appropriate level of confidence for presentation to the regulator.

9.3 Article 4.7 Requirements

- If the impact assessment for a Preferred Plan option concluded that there was a high risk that the option would not be compliant with WFD requirements after mitigation (i.e. there would be a deterioration in WFD status of one or more water bodies), documentation would be required to justify permitting of the option under the provisions of Article 4.7 of the WFD. Article 4.7 states that the option would not be in breach of the WFD if the following conditions were met:
 - All practicable mitigation has been incorporated;
 - ▶ There are no significantly better environmental options;
 - The option is of overriding public interest and/or the benefits of the option outweigh the benefits of WFD compliance; and
 - ▶ The reasons for the modifications to the water body are flagged to the EA for reporting in the next RBMP.
- 9.3.2 The Planning Inspectorate and the EA would be responsible for deciding whether the Article 4.7 conditions have been met with respect to any option.
- Based on the assessments in this report, there is currently no requirement to implement Article 4.7 for either the current abstractions or the Preferred Plan options. However, this is based on the assumptions detailed in this report, the need to implement reductions on some of the current licences, and the assumption that additional investigations and mitigation will be implemented for the Preferred Plan options noted in **Section 8.4**.

Appendix A List of Feasible Options

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Option				
Ref	Option Name	Resilience Option?	Preferred Option at dWRMP Stage?	Preferred Option at fWRMP Stage?
WR001 WR003	River Alt To Prescot WTW Fisher Tarn (Kendal) to Thirlmere Aqueduct and Lostock For Treatment			
WR004	Longsleddale Reservoir			
WR006 WR007	Glaze Brook Sankey Brook			
WR009	River Rawthey To Watchgate Borrow Beck IR			
WR012 WR026a	River Ribble Support To Stocks Reservoir			
WR037a WR037b	Haweswater Reservoir – Raise Embankment Structure Haweswater Reservoir – Raise Embankment Structure			
WR039a	River Eden (Temple Sowerby) To Watchgate			
WR041 WR047a	River Irthing to Cumwhinton plus Castle Carrock Link Milwr Tunnel, Bagillt (Transfer to Huntington)			
WR049b	River Ribble (Transfer to Anglezarke IR)			
WR062a WR062b	Worthington WTW Worthington WTW (Rivington)			
WR074	River Darwen (Transfer to Fishmoor WTW)			
WR076 WR079b	River Bollin Appleton Reservoir, Warrington			
WR079c	Appleton Reservoir, Warrington			
WR079d WR095	Appleton Reservoir, Warrington Roughton Gill			
WR099a	Worsthorne Borehole (Compensation)			
WR099b WR099c	Worsthorne Borehole (Hurstwood IR) Worsthorne Borehole (Worsthorne WTW)		Yes	
WR100	Thorncliffe Road Borehole, Barrow-In-Furness			
WR101 WR102a	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity Widnes Boreholes to Prescot WTW		Yes	
WR102ai	Widnes Boreholes To Prescot WTW			
WR102b WR102c	Widnes Boreholes To Liverpool And Warrington DMZs Widnes Boreholes To Runcorn And Warrington DMZs			
WR102d	Eccleston Hill Borehole to Prescot WTW			
WR102e WR105a	Bold Heath Boreholes to Prescot WTW Lymm Boreholes (Abandonment of Existing WTW Facility; New WTW at Sow Brook)		Yes	
WR105ai	Lymm Boreholes (Abandonment of Existing WTW Facility; New WTW at Sow Brook)			
WR105b WR105bi	Lymm Boreholes (Abandonment of Existing WTW Facility; New WTW at Hill Cliffe) Lymm Boreholes (Abandonment Of Existing WTW Facility; New WTW At Hill Cliffe)			
WR106	Walton And Daresbury Boreholes			
WR107a WR107ai	Aughton Park & Moss End Boreholes (Royal Oak WTW) Aughton Park & Moss End Boreholes (Royal Oak WTW)			
WR107b	Randles Bridge, Knowsley, Primrose Hill			
WR109 WR110	Swineshaw Boreholes (Buckton Castle WTW) Rushton Spencer Boreholes			
WR111	Woodford Borehole			
WR112 WR113	Bramhall Borehole Tytherington Boreholes		Yes	
WR114	Python Mill Borehole		Yes	
WR119a WR119b	Egremont Boreholes (Existing) Egremont Boreholes (New)			
WR120	Cross Hill Boreholes, Wirral			
WR120i WR121a	Cross Hill Boreholes, Wirral Eaton Boreholes (Hollins Hill)			
WR121b	Eaton Boreholes (Mid Cheshire Main)			
WR122 WR125	Newton Hollows Boreholes Bearstone Boreholes			
WR128	Tarn Wood (North Eden to Carlisle)			
WR129 WR140	North Cumbria Boreholes Horwich Wwtw – Final Effluent Reuse			
WR141	Rossendale Wwtw- Final Effluent Reuse			
WR142 WR144	Hyndburn Wwtw – Final Effluent Reuse Saddleworth and Mossley Top- Final Effluent Reuse			
WR146	Davyhulme- Final Effluent Reuse			
WR148 WR150	Cumwhinton Boreholes plus Castle Carrock Link Castle Carrock Dead Water Storage			
WR153	Simmonds Hill- Increased WTW Capacity			
WR154 WR159	Sandiford – Increased WTW Capacity Group 1 - Improved reservoir compensation release control from 76 individual reservoirs		Yes	
WR160	Group 2 - Improved reservoir compensation release control from Vyrnwy, Rivington, Thirlmere and Haweswater Reservoirs		Yes	
WR800 WR810	River Bela to Thirlmere Aqueduct Third Party Option: Cow Green IR To Haweswater via Heltondale Aqueduct			
WR812	Third Party Option: Kielder Water IR Transfer			
WR813 WR814a	Third Party Option: Scammonden IR To Buckton Castle via Huddersfield Narrows Canal Increased Abstraction Capacity at Heronbridge			
WR814b	Increased treatment capacity at Hurleston WTW via Canal			
WR814c WR816	Increased treatment capacity at Hurleston WTW via Canal Third Party Option: Manchester Bolton Bury Canal To Integrated Zone			
WR817	Third Party Option: Carr Mill Dam To Integrated Resource Zone			
WR820 WR821	Third Party Option: Shropshire Union Canal To Integrated Resource Zone Shropshire Union Canal		Yes	
WR824	Third Party Option: Blenkinsopp Mine			
B2 3	Enabling Works HA to Raw: 2 Stage filtration Woodgate Hill	Yes	Yes	
37-38	Haweswater Aqueduct section T05 to T06 (Ribblesdale SW to Woodgate Hill)	Yes		V
37-42 46	Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill) WELM Uprate to 150Ml/day	Yes Yes		Yes
112	HA Outage (4 weeks) for installation of connections	Yes		Yes
212 213	HA to Raw: Fober Barn HA to Raw: Martholme	Yes Yes		
214	HA to Raw: Townsend Fold	Yes		
215 216	Alternative Supply: Raw water transfer and WTW at Martholme BSP Alternative Supply: Raw water abstraction and WTW at Townsend Fold BSP	Yes Yes		
217	Alternative Supply: Raw water transfer and WTW at Fober Barn BSP	Yes		
218 238	Alternative Supply: Raw water transfer and WTW at Mill Lane Metals & UV treatment of bulk supply points (BSPs): Woodgate Hill	Yes Yes		
260	Ribblesdale South Well Isolation	Yes		
261 296	Townsend Fold South Well Isolation T05 targeted repair 2025	Yes Yes		
297	T06 targeted repair 2025	Yes		
301	Lunesdale Siphon BSPs North	Yes		

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Option				
Ref	Option Name	Resilience Option?	Preferred Option at dWRMP Stage?	Preferred Option at fWRMP Stage?
303	Lunesdale Siphon BSPs South	Yes		
306	Ribblesdale Siphon BSPs North	Yes		
348	Metals & UV Treatment of Bulk Supply Points (BSPs): Lunesdale Siphon, Mansergh BSP	Yes		
349	Metals & UV Treatment of Bulk Supply Points (BSPs): Lunesdale Siphon, Casterton BSP	Yes		
350	Metals & UV Treatment of Bulk Supply Points (BSPs): Lunesdale Siphon, Parkside Farm BSP	Yes		
351	Metals & UV Treatment of Bulk Supply Points (BSPs): Lunesdale Siphon, Jacksons Pasture BSP	Yes		
352	Metals & UV Treatment of Bulk Supply Points (BSPs): Lunesdale Siphon, Lowgill BSP	Yes		
353	Metals & UV Treatment of Bulk Supply Points (BSPs): Lunesdale Siphon, Birks Farm BSP	Yes		
354	Metals & UV Treatment of Bulk Supply Points (BSPs): Hodder Siphon, Fober Barn BSP	Yes		
355	Metals & UV Treatment of Bulk Supply Points (BSPs): Ribblesdale Siphon, Waddington BSP	Yes		
356	Metals & UV Treatment of Bulk Supply Points (BSPs): Ribblesdale Siphon, Bashall Town BSP	Yes		
357	Metals & UV Treatment of Bulk Supply Points (BSPs): Ribblesdale Siphon, Spring Wood BSP	Yes		
358	Metals & UV Treatment of Bulk Supply Points (BSPs): Ribblesdale Siphon, Martholme BSP	Yes		
359	Metals & UV Treatment of Bulk Supply Points (BSPs): Ribblesdale Siphon, Brown Birks BSP	Yes		
360	Metals & UV Treatment of Bulk Supply Points (BSPs): Haslingden Walmsley Tunnel (Townsend Fold BSP)	Yes		
382	HA to Raw: Watchgate WTW reduced flow	Yes		

Appendix B Summary of Level 1 Screening and Level 2 Detailed Assessment Results for Supply-demand Feasible Options

															water 185	ed (e.g.	ed water arks reservoir	o river /	ater via red uantity	axisiting	t on well surface	ed uantity sservoir release	r/ raising				
L -				Hydro - morphological				Ecological	Quantitative	Quantitative	Chemical	Chemical			line on k line with se crossir	r/modifie ace water r) intake r pumping	r/modifie tment wo	routfall to rvoir/can educt	sfer of wa r/canal/ educt r/increas ace water raction qu	ation of e harge to s er	rbishmen rbishmen rabstracti sworks / s	r/increas indwater raction qu raction qu ped to re pensatior	reservoli		Level 2 Screening	Level 2 Screening	
	Option Name	ID	Туре	Designation	WB Name	Operational Catchment	Ecological Status	Objective	Status	Objective	Status	Objective		s Overall Objective	Pipe Cour	New rives	New Year	New rese ague	Tran rives agus Surfi abst	discl	drilli refu New hear struc	Rew grou abst Char com	New emb	Level 1 Screening Results	Required?	Level 2 Screening Results Confidence	Combined Screening Result
	River Alt To Prescot WTW River Alt To Prescot WTW	GB112069060710 GB112069060610	River	No designation Heavily modified	Prescot Brook (Logwood Mill Brook) Croxteth/Knowsley Brook	Ditton	moderate Moderate	Moderate by 2027 Good by 2027	n/a n/a	n/a n/a	Good		Moderate Moderate	Moderate by 2027 Good by 2027	YY	N I	N N N	N N	N N	N N	N N	N N		Minor level of impact Minor level of impact	N N		Minor level of impact Minor level of impact
WR001	River Alt To Prescot WTW	GB112063060630	River	Heavily modified	Simonswood Brook	Alt	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	N I	N N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	River Alt To Prescot WTW			Heavily modified	Alt US Bull Bridge	Alt	Moderate		n/a	n/a	Fail	Good by 2027	Moderate	Good by 2027	Y	N I	N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	River Alt To Prescot WTW River Alt To Prescot WTW	GB112063061442 GB41202G100100		Heavily modified	Alt DS Bull Bridge Sankey and Glaze Carboniferous Aquifers	Alt Sankey and Glaze Carboniferous An	Moderate n/a		n/a Good	n/a Poor by 2015	Fail Poor	Good by 2027 Good by 2027	Moderate	Good by 2027 Poor by 2027	Y N	Y ,	Y N N	N	N Y	N N	N N	N N	N N	Medium level of impact Minor level of impact	Y	Medium level of impact Medium	Medium level of impact Minor level of impact
	River Alt To Prescot WTW			No designation	Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	Mersey Basin Lower and Merseyside North Permo-Triassic Sandstone Aq			Poor	Good by 2027	Poor	Good by 2027	Poor	Good by 2027	Y	Y	Y N N	N	N Y	N	N N	N N	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR003	Fisher Tarn (Kendal) to Thirlmere Aqueduct and Lostock For Treatment Fisher Tarn (Kendal) to Thirlmere Aqueduct and Lostock For	GB112073071100	River	No designation	Stainton Beck	Bela	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y N	N .	Y Y N	N	N Y	N	N N	N N	N	Medium level of impact	Υ	Minor level of impact Medium	Minor level of impact
	Treatment	GB41202G102100		No designation	South Cumbria Lower Palaeozoic and Carboniferous Aquifers	Cumbria South Lower Palaeozoic and Carboniferous Aq	n/a		Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y N	N .	Y Y N	N	N Y	N	N N	N N	N	Medium level of impact	Υ	No or minimal impact High	No or minimal impact
	Longsleddale Reservoir Longsleddale Reservoir			No designation No designation	Sprint South Cumbria Lower Palaeozoic and Carboniferous Aquifers	Kent Cumbria South Lower Palaeozoic and Carboniferous Aq	Good n/a		n/a Good	n/a Good by 2015	Good		Good	Good by 2015 Good by 2027	YYY	N N	Y N N	N N	N Y	N N	N N	N N	Y	High level of impact	Y	High level of impact High Minor level of impact High	Minor level of impact
	Glaze Brook			No designation	Glaze	Glaze	Poor		n/a	n/a	Good		Poor	Poor by 2015	Y Y	Y	N N N	N	N Y	N	N N	N N	N	Medium level of impact	Υ		Medium level of impact
WR006	Glaze Brook	GB112069064520	River	Heavily modified	Hey/Borsdane Brook Lower Mersey Basin and North Merseyside Permo-Triassic	Glaze Mersey Basin Lower and Merseyside North Permo-Triassic	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	NI	Y N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	Glaze Brook	GB41201G101700		No designation	Sandstone Aquifers	Sandstone Aq	n/a		Poor	Good by 2027	Poor	Good by 2027	Poor	Good by 2027	Y	Y	Y N	N	N Y	N	N N	N N	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
	Sankey Brook Sankey Brook	170 GB531206908100	River Transitional wate	No designation	Non reportable water body to the north of the River Mersey Mersey	Sankey Sankey	n/a Moderate	n/a Good by 2027	n/a n/a	n/a n/a	n/a Fail	n/a Good by 2027	n/a Moderate	n/a Good by 2027	N N	Y	N N N	N N	N N	N N	N N	N N	N N	Minor level of impact Medium level of impact	N Y	Medium level of impact Medium	Minor level of impact Medium level of impact
	Sankey Brook	GB71210001		Artificial	Bridgewater Canal	Sankey	Moderate		n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N Y	N I	N N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
WR007	Sankey Brook	GB71210004	Canal	Artificial	Manchester Ship Canal	Sankey	Moderate	Good by 2027	n/a	n/a	Fail	Good by 2027	Moderate	Good by 2027	N Y	N I	N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	Sankey Brook	169		No designation	Non reportable water body to the south of the River Mersey Lower Mersey Basin and North Merseyside Permo-Triassic	n/a Lower Mersey Basin and North Merseyside Permo-Triassic			n/a	n/a	n/a	n/a	n/a	n/a	Y Y	N I	Y N	N .	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	Sankey Brook River Rawthey To Watchgate	GB41201G101700 GB112072071710		No designation No designation	Sandstone Aquifers Rawthey - Lower	Sandstone Aq Greta and Rawthey	n/a Good	n/a Good by 2027	Poor n/a	Good by 2026 n/a	Poor	Good by 2027 Good by 2027	Poor Good	Good by 2027 Good by 2027	Y	Y ,	Y N N	N N	N Y	N N	N N	N N	N N	Medium level of impact Medium level of impact	Y	No or minimal impact Medium Medium level of impact Medium	No or minimal impact Medium level of impact
	River Rawthey To Watchgate	GB112072071720		No designation	Lune - conf Birk Beck to conf Rawthey	Lune Upper	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	N I	N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	River Rawthey To Watchgate	GB112073071090	River	No designation	Peasey Beck	Bela	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	N I	N N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	River Rawthey To Watchgate River Rawthey To Watchgate			No designation No designation	Stainton Beck Flodder beck	Bela Kent	Good		n/a n/a	n/a n/a	Good		Good	Good by 2027 Good by 2027	YY	N I	N N N	N	N N	N	N N	N N	N N	Minor level of impact	N		Minor level of impact
	River Rawthey To Watchgate River Rawthey To Watchgate			No designation No designation	Flodder beck Mint	Kent	Good		n/a n/a	n/a n/a	Good		Good	Good by 2027 Good by 2027	YY	N I	- N N	N	N N	N N	N N	N N	N N	Minor level of impact Minor level of impact	N N		Minor level of impact Minor level of impact
	River Rawthey To Watchgate	GB112073074640	River	No designation	Mint - Upper	Kent	Good		n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	N I	N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
WR009	River Rawthey To Watchgate	GB112073071460	River	No designation	Kent - conf Sprint to tidal	Kent	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y Y	N I	N N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	River Rawthey To Watchgate			No designation	Sprint	Kent	Good		n/a	n/a	Good		Good	Good by 2015	YY	N I	Y N	N	N N	N	N N	N N	N N	Minor level of impact	N	Minor level of impact Medium	Minor level of impact
	River Rawthey To Watchgate River Rawthey To Watchgate	GB41202G102700 GB41202G102100		No designation No designation	Lune and Wyre Carboniferous Aquifers South Cumbria Lower Palaeozoic and Carboniferous Aquifers	Lune and Wyre Carboniferous Aq South Cumbria Lower Palaeozoic and Carboniferous Aq	n/a n/a		Good	Good by 2027 Good by 2027	Good		Good	Good by 2027 Good by 2027	YY	N I	Y N N	N N	N N	N N	N N	N N	N N	Medium level of impact Minor level of impact	N N	Minor level of impact Medium	Minor level of impact Minor level of impact
WR012	Borrow Beck IR	GB112073074640	River	No designation	Mint-Upper	Kent	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y Y	N .	Y N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
WR012	Borrow Beck IR	GB112072071770	River	No designation	Borrow Beck	Lune Upper	Good	Good by 2027	n/a	n/a	Good	Good by 2015	Good	Good by 2027	Y Y	N I	N N	N	N N	N	N N	N N	Υ	High level of impact	Υ	High level of impact High	High level of impact
	Borrow Beck IR Borrow Beck IR	GB41202G102100 GB41202G102700		No designation No designation	South Cumbria Lower Palaeozoic and Carboniferous Aquifers Lune and Wyre Carboniferous Aquifers	Cumbria South Lower Palaeozoic and Carboniferous Aq Lune and Wyre Carboniferous Aq	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Poor	Good by 2027 Good by 2015	Poor	Good by 2027 Good by 2015	Y	N .	Y N N	N	N N	N	N N	N N	Y	Minor level of impact	Y	Minor level of impact High	Minor level of impact Minor level of impact
	River Ribble Support To Stocks Reservoir			No designation	Ribble DS Stock Beck	Ribble Middle - Settle to Calder	Good		n/a	n/a	Fail		Moderate	Moderate by 2015	Y Y	Y	Y N N	N	N Y	N	N N	N N	N	Medium level of impact	Y	Medium level of impact Medium	Medium level of impact
WR026a	River Ribble Support To Stocks Reservoir	GB112071065520	River	No designation	Bashall Brook	Ribble Middle - Settle to Calder	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y Y	N I	N N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	River Ribble Support To Stocks Reservoir			No designation	Easington Brook	Hodder and Loud	Good		n/a	n/a	Good		Good	Good by 2015	Y	N I	N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	River Ribble Support To Stocks Reservoir River Ribble Support To Stocks Reservoir	GB112071065560 GB112071065350		No designation No designation	Hodder - conf Easington Bk to conf Ribble Hodder - conf Croasdale Bk to conf Easington Bk	Hodde and Loud Hodder and Loud	Good		n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Good	Good by 2015 Good by 2015	Y N	N I	N N N	N N	N N	N N	N N	N N	N N	No or minimal impact No or minimal impact	N N		No or minimal impact No or minimal impact
	River Ribble Support To Stocks Reservoir	GB112071065390	River	Heavily modified	Hodder - Stocks Reservoir to conf Croasdale Bk	Hodder and Loud	Moderate		n/a	n/a	Good		Moderate	Good by 2021	Y N	N 1	N N N	N	N N	N	N N	N N	N	No or minimal impact	N		No or minimal impact
WR026a	River Ribble Support To Stocks Reservoir	GB31230030	Lake	Heavily modified	Stocks Reservoir	Hodder and Loud	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N I	N N	Y	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	River Ribble Support To Stocks Reservoir		Groundwater		Ribble Carboniferous Aquifers	Ribble Carboniferous Aq	n/a		Good	Good by 2015	Good		Good	Good by 2015	Y Y	Y	Y N N	Y	N Y	N	N N	N N	N	Medium level of impact	Υ		Minor level of impact
	Haweswater Reservoir – Raise Embankment Structure Haweswater Reservoir – Raise Embankment Structure	GB30229073 GB102076070720	Lake	Reservoir No designation	Haweswater Reservoir Haweswater Beck	Eamont	Good	Good by 2027 Good by 2027	n/a n/a	n/a n/a	Good		Good	Good by 2027 Good by 2027	N N	N I	4 N N	N N	N N	N N	N N	N N	Y	High level of impact	Y		Minor level of impact Minor level of impact
WR037a	Haweswater Reservoir – Raise Embankment Structure	GB40202G102300		No designation	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Eden and Esk Lower Palaeozoic and Carboniferous Aq	n/a	n/a	Good	Good by 2015	Good		Good	Good by 2015	N N	N I	N N	N	N N	N	N N	N N	Y	High level of impact	Υ	Minor level of impact High	Minor level of impact
WR037b	Haweswater Reservoir – Raise Embankment Structure	GB30229073	Lake	Heavily modified	Haweswater Reservoir	Eamont	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	N N	N I	N N N	N	N N	N	N N	N N	Υ	High level of impact	Υ		Minor level of impact
	Haweswater Reservoir – Raise Embankment Structure Haweswater Reservoir – Raise Embankment Structure			No designation No designation	Haweswater Beck Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Eamont Eden and Esk Lower Palaeozoic and Carboniferous Ag	Good n/a		n/a Good	n/a Good by 2015	Good		Good	Good by 2027 Good by 2015	N N	N I	N N N	N	N N	N	N N	N N	Y	High level of impact	Y		Minor level of impact
	River Eden (Temple Sowerby) To Watchgate			No designation	Eden Lyvennet to Earnont	Eden Upper	Moderate		n/a	n/a	Good	Good by 2015 Good by 2015	Moderate	Good by 2015 Good by 2015	Y N	Υ ,	r N N	N	N Y	N N	N N	N N	N	Medium level of impact	Y	High level of impact Medium	High level of impact
WR039a	River Eden (Temple Sowerby) To Watchgate	GB102076070900	River	No designation	Leith	Eden Upper	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y Y	N I	N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	River Eden (Temple Sowerby) To Watchgate			No designation	Morland Beck	Eden Upper	Poor	Good by 2027	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Y N	N I	N N	N	N N	N	N N	N N	N	No or minimal impact	N		No or minimal impact
	River Eden (Temple Sowerby) To Watchgate River Eden (Temple Sowerby) To Watchgate			Heavily modified No designation	Lowther (Upper) Birk Beck	Eamont Lune Upper	Moderate Moderate		n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Moderate Moderate	Good by 2021 Good by 2027	Y N	N I	N N N	N	N N	N N	N N	N N	N N	No or minimal impact Minor level of impact	N N		No or minimal impact Minor level of impact
	River Eden (Temple Sowerby) To Watchgate			No designation	Borrow Beck	Lune Upper	Good		n/a	n/a	Good	Good by 2015 Good by 2015	Good	Good by 2027	Y	N I	N	N	N N	N N	N N	N N	N	Minor level of impact	N N		Minor level of impact
WR039a	River Eden (Temple Sowerby) To Watchgate	GB112073074640	River	No designation	Mint - Upper	Kent Eden Valley and Carlisle Basin Permo-Triassic sandstone	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y Y	N I	Y N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	River Eden (Temple Sowerby) To Watchgate	GB40201G100400		No designation	Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Aquifers Eden and Esk Lower Palaeozoic and Carboniferous	n/a		Good	Good by 2015	Poor		Poor	Good by 2027	YY	Y	Y N N	N .	N Y	N	N N	N N	N	Medium level of impact	Υ	Medium level of impact Medium	Medium level of impact
	River Eden (Temple Sowerby) To Watchgate River Eden (Temple Sowerby) To Watchgate			No designation No designation	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers Lune and Wyre Carboniferous Aquifers	Aquifers Lune and Wyre Carboniferous Aq	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Good		Good	Good by 2015 Good by 2015	Y	N I	4 N N	N	N N	N N	N N	N N	N N	No or minimal impact Minor level of impact	N N		No or minimal impact Minor level of impact
	River Eden (Temple Sowerby) To Watchgate			No designation	South Cumbria Lower Palaeozoic and Carboniferous Aquifers		n/a		Good	Good by 2015	Poor		Poor	Good by 2027	Y Y	N I	Y N	N	N N	N	N N	N N	N	Minor level of impact	N N		Minor level of impact
WR041	River Irthing to Cumwhinton plus Castle Carrock Link	GB102076073981	River	No designation	Irthing DS Crammel Linn Waterfall	Esk and Irthing	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y Y	Υ .	Y N N	N	N Y	N	N N	N N	N	Medium level of impact	Y	Medium level of impact Medium	Medium level of impact
	River Irthing to Cumwhinton plus Castle Carrock Link			No designation	Pow Maughan Beck	Eden Lower	Poor		n/a	n/a	Good		Poor	Good by 2027	Y Y	N I	Y N	N .	N N	N	N N	N N		Minor level of impact	N		Minor level of impact
	River Irthing to Cumwhinton plus Castle Carrock Link River Irthing to Cumwhinton plus Castle Carrock Link			No designation No designation	Eden- Eamont to tidal Caim Beck	Eden Lower Eden Lower	Good	Good by 2015 Good by 2027	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Good	Good by 2015 Good by 2027	Y	N I	v N N	N N	N N	N N	N N	N N	N N	Minor level of impact Minor level of impact	N N		Minor level of impact Minor level of impact
	River Irthing to Cumwhinton plus Castle Carrock Link			No designation	Trout Beck (Cairn Beck)	Eden Lower	Moderate		n/a	n/a	Good		Moderate	Good by 2027	Y Y	N 1	4 N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
WR041	River Irthing to Cumwhinton plus Castle Carrock Link	GB102076074040	River	No designation	Gelt	Esk and Irthing Eden Valley and Carlisle Basin Permo-Triassic Sandstone	Poor	Good by 2027	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Y Y	N I	N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	River Irthing to Cumwhinton plus Castle Carrock Link	GB40201G100400		No designation	Eden Valley and Carlisle Basin Permo-Triassic Sandstone aquifers	Aq	n/a		Good	Good by 2015	Poor		Poor	Good by 2027	Y Y	Y ,	Y Y N	N .	N Y	N	N N	N N	N	Medium level of impact	Y		Minor level of impact
	Milwr Tunnel, Bagillt (Transfer to Huntington) Milwr Tunnel, Bagillt (Transfer to Huntington)	166 GB111067056940		No designation No designation	Non reportable water body at the mouth of the River Dee Swinchiard Brook	n/a Dee	n/a Good		n/a n/a	n/a n/a	n/a Good	n/a Good by 2015	n/a Good	n/a Good by 2015	YY	N I	N N	N N	N Y	N N	N N	N N	N N	Medium level of impact Minor level of impact	Y N	Medium level of impact Low	Medium level of impact Minor level of impact
	Milwr Tunnel, Bagillt (Transfer to Huntington)			No designation	Wepre Brook	Dee	Moderate		n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	N 1	4 N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	Milwr Tunnel, Bagillt (Transfer to Huntington)	GB111067052160	River	Heavily modified	Sandycroft Drain	Dee	Moderate	Good by 2021	n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	Y Y	N I	N N N	N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
	Milwr Tunnel, Bagillt (Transfer to Huntington) Milwr Tunnel, Bagillt (Transfer to Huntington)			Heavily modified	Balderton Drain	Dee Estuary Dee	Moderate		n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	N 1	N N	N *	N N	N 	N N	N N	N	Minor level of impact	N		Minor level of impact
	Milwr Tunnel, Bagillt (Transfer to Huntington) Milwr Tunnel, Bagillt (Transfer to Huntington)			Heavily modified No designation	Dee- Chester Weir to Ceiriog Dee Permo-Triassic Sandstone	Dee Permo-Triassic Sandstone	Moderate n/a		n/a Good	n/a Good by 2015	Fail	Good by 2021 Good by 2015	Moderate Good	Good by 2021 Good by 2015	Y N	N I	Y N	N N	n N	N N	n N N N	n N	N N	No or minimal impact Minor level of impact	N N		No or minimal impact Minor level of impact
WR047a	Milwr Tunnel, Bagillt (Transfer to Huntington)	GB41102G204800	Groundwater	No designation	Dee Carboniferous Coal Measures	Dee Carboniferous Coal Measures	n/a	n/a	Good	None given	Poor	Poor by 2015	Poor	Poor by 2015	Y Y	Y	r N N	N	N Y	N	N N	N N	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact

	Option	WFD Water Body Inf	formation												Option Detail									Impa	cts				
															nd water 3s	ni n e	station d water ks	servoir river / al /	ter via d antity	distring inface	n well n well rrface	d antity ervoir	release	aising					
Fig. Part															ne on lar ne with v	modifier e water (intake	modifiee	torage re sutfall to oir / can:	er of wat canal / luct in crease e water ction qua	tion of ex	ibstractio 8 / ishment ibstractio rorks / su	in crease dwater ction qui	ensation	nkment r	Le	evel 2			
Mathematical Control of the contro	Ref Option Name	ID	Туре		WB Name	Operational Catchment	Ecological Status		Quantitative Status				Overall Status	s Overall Objective	Pipe II Pipe II	New / surfac river)	New p New / treatm	New o reserv agued	Transf river/ aqued New/ surfac abstra	Cessat discha water	New a drilling refurb New a headw structs	New / groun ab stra Chang	o m	Level			Level 2 Screening Results		Combined Screening Result
Mathematical Control of the contro															Y Y	N	N N	N N		N						N			
Mathematical Control of the contro									n/a						Y Y	N V	N N	N N	N N	N N	N N	N N	N N			N Y	Medium level of impact	Medium	
Mathematical Control						_	Bad		n/a						Y Y	N	N N	N N	N N	N N	N N	N	N			N N	Median level of Impact	mediani	
Part	WRD49b River Ribble (Transfer to Anglezarke IR)	GB112071065280	River	Heavily modified	Many Brooks	Darwen	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	N	N N	N N	N N	N	N N	N	N	N Mino	r level of impact	N			Minor level of impact
Mathematical Control of the contro	WR049b River Ribble (Transfer to Anglezarke IR)	GB112070064850	River	Heavily modified	Douglas upper	Douglas OC	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N Y	N N	N	N N	N	N	N Mino	r level of impact	N			Minor level of impact
Mathematical Control of the contro								n/a							YY	Y	Y N	N N	N Y	N	N N	N	N				Medium level of impact	Medium	
Mathematical Control of the contro			Groundwater	-	-		n/a Moderate								N N	N N	N N	N Y	N N	N N	N N	N N	N N	N Mino					
Mathematical Control of the contro			River				Moderate								N N	N	N Y	N N	N N	N	N N	N	N	N No or	minimal impact				No or minimal impact
Mathematical Control	WR062a Worthington WTW	GB41202G100300	Groundwater	No designation	Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N Y	N N	N N	N	N N	N	N	N No or	minimal impact	N			No or minimal impact
Mathematical Control of the contro	WR062b Worthington WTW (Rivington)	GB112070064780	River	Heavily modified	Douglas- Mid	Douglas OC	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	N	N N	N N	N N	N	N N	N	N	N Mino	r level of impact	N			Minor level of impact
Mathematical Content				,			Moderate								YY		N N	N N	N N	N	N N	N	N			N 			
			Groundwater				n/a	n/a	.,-				Poor		YY	N N	N N	N N	N N	N N	N N	N N	N N			N N			
			River				Moderate	Good by 2027	n/a		Good		Moderate		Y N	Y	Y N	N N	N Y	N	N N	N	N	N Medi		Υ	Medium level of impact	Medium	
Mathematical Control of the contro	WR074 River Darwen (Transfer to Fishmoor WTW)	GB112071065300	River	No designation	Darwen - conf Roddlesworth to tidal	Darwen	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y N	N	N N	N N	N N	N	N N	N	N	N No or	minimal impact	N			No or minimal impact
Mathematical Control of Math															Y N	N	N N	N N	N N	N	N N	N	N			N			
															Y N	N	N N	N N	N N	N	N N	N	N			N			
Mathematical Content				-					.,-						Y N	N	N Y	N N	N N	N	N N	N	N			N N			
Part	WR074 River Darwen (Transfer to Fishmoor WTW)	GB41201G100500	Groundwater	No designation	Fylde Permo-Triassic Sandstone Aquifers		n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	Y N	Υ	Y N	N N	N Y	N	N N	N	N	N Medi	um level of impact	Υ	Minor level of impact	Medium	Minor level of impact
Part	WR076 River Bollin	GB112069061382	River	Heavily modified	Bollin (Ashley Mill to Manchester Ship Canal)	Bollin Dean Mersey Upper	Moderate	Moderate by 201	5 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	Y Y	Y	Y Y	N N	N Y	N	N N	N	N	N Medi	um level of impact	Υ	Medium level of impact	Medium	Medium level of impact
Part															Y Y	N	N N	N N	N N	N	N N	N	N						
Part			Groundwater		,										N N	Y V	Y	N N	N Y	N N	N N	N	N					Medium	
		169	River			n/a							n/a		Y Y		Y	N N	N Y	N N	N N	N	N			Y		Low	
Mathematical Control of the contro		GB41202G991700	Groundwater	No designation				n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y Y	Υ	Y N	N N	N Y	N	N N	N	N	N Medi	um level of impact	Υ	Minor level of impact	Medium	Minor level of impact
Mathematical Control of the contro	WR079b Appleton Reservoir, Warrington	GB41201G101700	Groundwater	No designation				n/a	Poor	Good by 2027	Poor	Good by 2027	Poor	Good by 2027	Y N	N	N Y	N N	N N	N	N N	N	N	N No or	minimal impact	N			No or minimal impact
Part		GB31232665				Weaver Lower							Moderate		N N	Y	Y N	N N	N Y	N	N N	N	N			Ť		Low	
Mathematical Mat		169									,.		,.		Y	Y	Y	N N	N Y	N N	N N	N	N	N Medi					
Mathematical Control of the contro			Groundwater		Lower Mersey Basin and North Merseyside Permo-Triassic	Lower Mersey Basin and North Merseyside Permo-Triass	iic								Y N	N	N Y	N N	N N	N N	N N	N N	N N	N No or			Minor level of Impact	Medium	
Mathematical Control of the contro			Lake	Heavily modified	Appleton Reservoir	Weaver Lower	Moderate	Moderate by 201	5 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	Υ	Y N	N N	N Y	N	N N	N	N			Υ	Medium level of impact	Low	
Part	WR079d Appleton Reservoir, Warrington	169	River	No designation	Non reportable water body to the south of the River Mersey	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Y Y	Υ	Y Y	N N	N Y	N	N N	N	N	N Medi	um level of impact	Υ	Minor level of impact	Low	Minor level of impact
Marche M					Lower Mersey Basin and North Merseyside Permo-Triassic	Lower Mersey Basin and North Merseyside Permo-Triass	iic								Y	Y	Y N	N N	N Y	N	N N	N					Minor level of impact	Medium	
Mathematical Mat						,								,	Y N	N N	N Y	N N	N N	N N	N N	N N	N N		• • • • • • • • • • • • • • • • • • • •	N N			
Mathematical Mat			River												YY	Y	N Y	N N	N N	N	N N	Y	N			ν γ	Minor level of impact	Medium	
Mathematical Mat	WR095 Roughton Gill	GB40202G102300	Groundwater	No designation	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Eden and Esk Lower Palaeozoic and Carboniferous Aq	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	Y Y	Y	N Y	N N	N N	N	N N	Y	N	N Medi	um level of impact	Υ	Minor level of impact	Medium	Minor level of impact
	WR099a Worsthorne Borehole (Compensation)	GB112071065090	River	Heavily modified	Brun- headwaters to conf Don	Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y N	N	N N	N Y	Y N	N	Y Y	Y	N	N Medi	um level of impact	Υ	Minor level of impact	Medium	Minor level of impact
Mathematical Mat															Y N	N	N N					Y							
	,													,	Y N	N	N N	N Y	N N	N N	Y	Y	N N			Y			
	WR099c Worsthorne Borehole (Worsthorne WTW)	GB112071065090	River	Heavily modified			Moderate				Good		Moderate		N N	N	N Y	N N	N N	N	Y Y	Y	N	N Medi	um level of impact	Υ	Minor level of impact	Medium	Minor level of impact
Method control contr	WR099c Worsthorne Borehole (Worsthorne WTW)	GB41202G100300	Groundwater	No designation	Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N Y	N N	N N	N	Y Y	Y	N	N Medi	um level of impact	Υ	Minor level of impact	Medium	Minor level of impact
Market		344													N N	N	N Y	N N	N N	N	Y Y	Y				Υ	Minor level of impact	Medium	
Mathematical Control	Franklaw Z Site plus Increased Franklaw WTW Treatment			-											N N	N	N Y	N N	N N	N N		Y				ν .		High	
Mathematical Property of the Control Property of the	Franklaw Z Site plus Increased Franklaw WTW Treatment				,	,			n/a					,	N N	N	N Y	N N	N N	N		Y						Medium	
Mathematical Control of Math	WR101 Capacity	GB112072066220	River	Heavily modified	Calder (Wyre)	Wyre and Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N N	N	Y Y	Y	N	N Medi	um level of impact	Υ	Medium level of impact	Low	Medium level of impact
	WR101 Capacity	GB112072065790	River	No designation	New Draught Brook	Brock and Trib	Poor	Good by 2027	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	N N	N	N N	N N	N N	N	Y Y	Y	N	N Medi	um level of impact	Υ	Medium level of impact	Low	Medium level of impact
	WR101 Capacity Franklaw Z Site plus Increased Franklaw WTW Treatment			-											N N	N	N N	N N	N N	N	Y	Y				Υ		Low	
Part	Franklaw Z Site plus Increased Franklaw WTW Treatment			-											N N	N N	N N	N N	N N	N N	Y	Y	N N					Low	
Miles Mile															Y N	N	N N	N N	N N	N	Y Y	N	N				Wedian level of Impact	LOW	
Mate		GB112069061390	River	Heavily modified	Ditton Brook (Halewood to Mersey Estuary)	Ditton	Moderate	Moderate by 202	7 n/a	n/a	Good	Good by 2027	Moderate	Moderate by 2027	Y N	N	N N	N N	N N	N	Y Y	N	N	N Mino	r level of impact	N			Minor level of impact
March Marc	WR102a Widnes Boreholes to Prescot WTW	GB112069060690	River	Heavily modified	Dog Clog Brook (including Mill Brook)	Ditton	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	N	Y N	N N	N N	N	Y Y	N	N	N Mino	r level of impact	N			Minor level of impact
Maritan Mari					Lower Mersey Basin and North Merseyside Permo-Triassic		iic								YN	N	N Y	N N	N N	N	N N	N	N						
Minister				-											Y	N N	N N	N N	N N	N N	Y	N	N N						
Ministry							Moderate								Y N	N	N N	N N	N N	N N		N N	N						
Column Memory Markers Colu		GB112069060690	River	Heavily modified		Ditton	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	N	Y N	N N	N N	N	Y	N	N	N Mino	r level of impact	N			Minor level of impact
Mill State Mil			River	No designation	Prescot Brook (Logwood Mill Brook) Lower Mersey Basin and North Merseyside Permo-Triassic	Ditton Lower Mersey Basin and North Merseyside Permo-Triass	moderate	Moderate by 202				Good by 2027	moderate		Y N	N	N Y	N N	N N	N	N N	N	N			N			
Will 1972 Will Not Startheles To Livergood And Warrington DMZs					Sandstone Aquifers	Sandstone Aq	n/a								Y	N N	Y	N N	N N	N	Y	N 	N						
WRIGUZE WRIGURE WRIGUZE WRIGURE WRIGUR WRIGURE WRIGURE WRIGURE WRIGURE WRIGURE WRIGURE WRIG															Y	N N	Y	n N	N N	N N	Y	N N	N N						
WRI 1022 Widnes Borneholes To Liverpook And Warrington DMZs 157 River No designation Level Mersey Basin and North Merseyside Permo-Triassic Lower Mersey Basin and North Merseys					Dog Clog Brook (including Mill Brook)										Y Y	N	N Y	N N	N N	N		N	N						
WR1022 Widnes Boreholes To Europool And Warrington DMZs WR1023 WR1023 WR1024 WR1024 WR	WR102b Widnes Boreholes To Liverpool And Warrington DMZs	167	River	No designation	estuary	n/a Lower Mersey Basin and North Marcancida Darma Trians		n/a	n/a	n/a	n/a	n/a	n/a	n/a	Y	N	N N	N N	N N	N	N N	N	N	N Mino	r level of impact	N			Minor level of impact
WRIDZ: Widnes Boreholes To Runcorn And Warrington DMZs WRIDZ: Widn					Sandstone Aquifers	Sandstone Aq	n/a								Y N	N	Y Y	N N	N N	N	Y	N	N						
WR102c Widnes Boreholes To Runcorn And Warrington DMZs G81120699060880 River Heavily modified Netherley Brook Non reportable water body to the north of the River Mersey WR102c Widnes Boreholes To Runcorn And Warrington DMZs 157 River No designation estuary n/a															YY	N	N N	N N	N N	N	Y	N 	N						1
WR102c Widnes Boreholes To Runcorn And Warrington DMZs 157 River No designation estuary n/a															Y Y	N N	N Y	N N	N N	N N		N N	N N						
		167			Non reportable water body to the north of the River Mersey										Y	N	N Y	N N	N N	N	N N	N	N						
WRI 102 z Wildnes Boreholes To Runcorn And Warrington DIMZs 169 River No designation Non reportable water body to the south of the River Mersey n/a	WR102c Widnes Boreholes To Runcorn And Warrington DMZs	169	River	No designation	Non reportable water body to the south of the River Mersey	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Y N	N	N N	N N	N N	N	N N	N	N	N No or	minimal impact	N			No or minimal impact

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	ļ.														nd water gs	station ed water rks	eservoir o river /	iter via ed	santity xisiting urface	on well on well	ed tantity servoir release	./ raising				
1															line on la line with se crossin / modifie ce water	pumping / modifie ment wo	storage r outfall to voir / can duct	ifer of wa /canal / duct /increas	action quation of e	abstracti 18 / bishment abstracti works / s tures	/ in creas ndwater action qu ged to re gensation	reservoir		Level 2		
Ref Opti	on Name	ID	Туре	Hydro - morphological Designation	WB Name	Operational Catchment	Ecological Status	Ecological Objective	Quantitative Status	Quantitative Objective	Chemical Status	Chemical Objective	Overall Status	s Overall Objective	Pipe I Cours New ,	New J New , treatr	New resen	Trans river, aquec New,	abstra Cessa dischu	New a drillin refurt New a heads	New, groun abstra Chang	New	Level 1 Screening Results	Screening Required?	Level 2 Screening Results Confidence	Combined Screening Res
	es Boreholes To Runcorn And Warrington DMZs	170		No designation	Non reportable water body to the north of the River Mersey Lower Mersey Basin and North Merseyside Permo-Triassic	Sankey Lower Mersey Basin and North Merseyside Permo-Triass	n/a c	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Y N	N N	N N	N	N N	N N	N I	N N	No or minimal impact	N		No or minimal impact
	es Boreholes To Runcorn And Warrington DMZs es Boreholes To Runcorn And Warrington DMZs	GB41201G101700 GB41101G202600		No designation No designation	Sandstone Aquifers Wirral and West Cheshire Permo-Triassic Sandstone Aquifers	Sandstone Aq Wirral and West Cheshire Permo-Triassic Sandstone Aq	n/a n/a	n/a n/a	Poor	Good by 2026 Good by 2015	Poor	Good by 2027 Good by 2027	Poor	Good by 2027 Good by 2027	Y Y	N Y	N N	N N	N N	Y Y	N N	N N	Minor level of impact No or minimal impact	N N		Minor level of impact No or minimal impact
	ston Hill Borehole to Prescot WTW	GB112069061210	River	Heavily modified	Hardshaw (Windle) Brook	Sankey	Moderate		n/a	n/a	Good		Moderate	Good by 2027	Y N	N Y	N N	N N	N N	Y	Y	N N	Medium level of impact	v v	Minor level of impact Medium	Minor level of impact
WR102d Ecclr	ston Hill Borehole to Prescot WTW	GB41202G100100	Groundwater	No designation	Sankey and Glaze Carboniferous aquifers	Sankey and Glaze Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Poor by 2015	Poor	Poor by 2015	Y N	N Y	N N	N	N N	N N	N I	N N	No or minimal impact	N		No or minimal impact
WR102d Eccle	ston Hill Borehole to Prescot WTW	GB41201G101700	Groundwater	No designation	Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	Mersey Basin Lower and Merseyside North Permo-Triass Sandstone Aq	n/a	n/a	Poor	Good by 2027	Poor	Good by 2027	Poor	Good by 2027	Y N	N N	N N	N	N N	Y Y	Y	N N	Medium level of impact	¥	Minor level of impact Medium	Minor level of impact
	Heath Boreholes to Prescot WTW	170	River	No designation	Non reportable water body to north of River Mersey	Sankey	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Y Y	N N	N N	N	N N	Y	Y	N N	Medium level of impact	Y	Minor level of impact High	Minor level of impact
		GB112069061210 GB112069061170	River	Heavily modified Heavily modified	Hardshaw (Windle) Brook Sutton Brook	Sankey	Moderate Moderate	Good by 2027 Good by 2027	n/a	n/a	Good	Good by 2015 Good by 2015	Moderate Moderate	Good by 2027 Good by 2027	Y	N N	N N	N	N N	N N	N I	N N	No or minimal impact Minor level of impact	N N		No or minimal impact Minor level of impact
	Heath Boreholes to Prescot WTW	GB112069060990	River	Heavily modified	Whittle Brook (Mersey Estuary)	Sankey	Moderate		n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y N	N N	N N	N N	N N	N N	N I	N N	No or minimal impact	N N		No or minimal impact
WR102e Bold	Heath Boreholes to Prescot WTW	GB112069060710	River	No designation	Prescot Brook (Logwood Mill Brook)	Ditton Mersey Basin Lower and Merseyside North Permo-Triass	moderate	Moderate by 2027	n/a	n/a	Good	Good by 2027	moderate	Moderate by 2027	Y N	N Y	N N	N	N N	N N	N	N N	No or minimal impact	N		No or minimal impact
WR102e Bold	Heath Boreholes to Prescot WTW	GB41201G101700	Groundwater	No designation	Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	Sandstone Aq	n/a	n/a	Poor	Good by 2027	Poor	Good by 2027	Poor	Good by 2027	Y Y	N N	N N	N	N N	Y Y	Y	N N	Medium level of impact	Y	Minor level of impact High	Minor level of impact
Lymr	Heath Boreholes to Prescot WTW n Boreholes (Abandonment of Existing WTW Facility;	GB41202G100100		No designation	Sankey and Glaze Carboniferous aquifers	Sankey and Glaze Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor		Poor	Poor by 2015	Y Y	N Y	N N	N	N N	N N	N	N N	Minor level of impact	N		Minor level of impact
Lymn	WTW at Sow Brook) n Boreholes (Abandonment of Existing WTW Facility; WTW at Sow Brook)	169 GB41201G101700	River Groundwater	No designation No designation	Non reportable water body to the south of the River Mersey Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	n/a Mersey Basin Lower and Merseyside North Permo-Triass Sandstone Aq	n/a c	n/a	n/a Poor	n/a Good by 2027	n/a Poor	n/a Good by 2027	n/a Poor	n/a Good by 2027	N N	N Y	N N	N N	N N	N N	N I	N N	No or minimal impact No or minimal impact	N N		No or minimal impact
Lymn	n Boreholes (Abandonment of Existing WTW Facility; WTW at Sow Brook)	169		No designation	Non reportable water body to the south of the River Mersey	n/a	n/a	n/a	n/a	n/a	n/a		n/a	n/a	N N	N Y	N N	N N	N N	N N	N I	N N	No or minimal impact	N N		No or minimal impact
WR105ai New	n Boreholes (Abandonment of Existing WTW Facility; WTW at Sow Brook)	GB41201G101700	Groundwater	No designation	Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	Mersey Basin Lower and Merseyside North Permo-Triass Sandstone Aq	n/a	n/a	Poor	Good by 2027	Poor	Good by 2027	Poor	Good by 2027	N N	N Y	N N	N	N N	N N	N	N N	No or minimal impact	N		No or minimal impact
WR105b New	n Boreholes (Abandonment of Existing WTW Facility; WTW at Hill Cliffe) n Boreholes (Abandonment of Existing WTW Facility:	169	River	No designation	Non reportable water body to the south of the River Mersey Lower Mersey Basin and North Merseyside Permo-Triassic	n/a Mersey Basin Lower and Merseyside North Permo-Triass	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Y Y	N Y	N N	N	N N	N N	N	N N	Minor level of impact	N		Minor level of impact
WR105b New Lymr	WTW at Hill Cliffe) n Boreholes (Abandonment Of Existing WTW Facility;	GB41201G101700		No designation	Sandstone Aquifers	Sandstone Aq	n/a	n/a	Poor	Good by 2027	Poor	Good by 2027	Poor	Good by 2027	Y	N Y	N N	N	N N	N N	N	N N	Minor level of impact	N		Minor level of impact
WR105bi New Lymr	WTW At Hill Cliffe) n Boreholes (Abandonment Of Existing WTW Facility;	169		No designation	Non reportable water body to the south of the River Mersey Lower Mersey Basin and North Merseyside Permo-Triassic	n/a Mersey Basin Lower and Merseyside North Permo-Triass	n/a ic	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Y Y	N Y	N N	N	N N	N N	N	N N	Minor level of impact	N		Minor level of impact
	WTW At Hill Cliffe) on And Daresbury Boreholes	GB41201G101700 GB112068060520	Groundwater River	No designation heavily modified	Sandstone Aquifers Keckwick Brook	Sandstone Aq Weaver Lower	n/a Moderate	n/a Good by 2027	Poor n/a	Good by 2027	Poor	Good by 2027 Good by 2015	Poor Moderate	Good by 2027 Good by 2027	Y	N Y	N N	N N	N N	N N	N Y	N N	Minor level of impact Medium level of impact	N Y	Minor level of impact Medium	Minor level of impact Minor level of impact
	on And Daresbury Boreholes	169	River	No designation	Non reportable water body to the south of the River Mersey	n/a	n/a		n/a	n/a	n/a	n/a	n/a	n/a	Y	N Y	N N	N N	N N	Y	Y	N N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR106 Wal	on And Daresbury Boreholes	GB41201G101700	Groundwater	No designation	Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	Lower Mersey Basin and North Merseyside Permo-Triass Sandstone Aq	n/a	n/a	Poor	Good by 2027	Poor	Good by 2027	Poor	Good by 2027	Y	N Y	N N	N	N N	N N	N	N N	Minor level of impact	N		Minor level of impact
WR106 Walf	on And Daresbury Boreholes	GB41202G991700	Groundwater	No designation	Weaver and Dane Quaternary Sand and Gravel Aquifers	Weaver and Dane Quaternary Sand and Gravel Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	YY	N N	N N	N	N N	Y	Y	N N	Medium level of impact	¥	Minor level of impact Medium	Minor level of impact
	ton Park & Moss End Boreholes (Royal Oak WTW)	GB112069060640	River	Heavily modified	Downholland (Lydiate/Cheshires Lines) Brook Lower Mersey Basin and North Merseyside Permo-Triassic	Alt Mersey Basin Lower and Merseyside North Permo-Triass			n/a	n/a	Good		Poor	Good by 2027	YY	N Y	N N	N	N N	Y	Y	N N	Medium level of impact	Y	Medium level of impact Medium	Medium level of impact
	ton Park & Moss End Boreholes (Royal Oak WTW)	GB41201G101700	Groundwater	No designation	Sandstone Aquifers	Sandstone Aq	n/a	n/a	Poor	Good by 2027	Poor	Good by 2027	Poor	Good by 2027	Y	N Y	N N	N	N N	Y	Y	N N	Medium level of impact	Y	Medium level of impact Medium	Medium level of impact
	ton Park & Moss End Boreholes (Royal Oak WTW) ton Park & Moss End Boreholes (Royal Oak WTW)	GB112069060640 GB41201G101700	River	Heavily modified No designation	Downholland (Lydiate/Cheshires Lines) Brook Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	Alt Mersey Basin Lower and Merseyside North Permo-Triass Sandstone Aq	Poor ic n/a	Good by 2027 n/a	n/a	n/a Good by 2027	Good	Good by 2015 Good by 2027	Poor	Good by 2027 Good by 2027	Y	N Y	N N	N	N N	Y	Y	N N	Medium level of impact Medium level of impact	, Y	Medium level of impact Medium Medium level of impact Medium	Medium level of impact
	les Bridge, Knowsley, Primrose Hill	GB112063060610	River	Heavily modified	Croxteth/ Knowsley Brook	Alt	Moderate		n/a	n/a	Good		Moderate	Good by 2027	Y	N N	N N	N N	N N	Y Y	Y	N N	Medium level of impact		Minor level of impact Medium	Minor level of impact
WR107b Ran	les Bridge, Knowsley, Primrose Hill	GB112063060630	River	Heavily modified	Simonswood Brook	Alt	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	N N	N N	N	N N	N N	N	N N	Minor level of impact	N		Minor level of impact
WR107b Rann	les Bridge, Knowsley, Primrose Hill	GB112063060640	River	Heavily modified	Downholland (Lydiate/Cheshires Lines) Brook	Alt	Poor	Good by 2027	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Y Y	N Y	N N	N	N N	N N	N	N N	Minor level of impact	N		Minor level of impact
WR107b Rand	les Bridge, Knowsley, Primrose Hill	GB112063064510	River	Heavily modified	Chisnall Brook	Alt	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N N	N N	N	N N	N N	N	N N	Minor level of impact	N		Minor level of impact
	les Bridge, Knowsley, Primrose Hill	GB112070064830	River	Heavily modified	Three Pool's Waterway Lower Mersey Basin and North Merseyside Permo-Triassic	Crossens System Mersey Basin Lower and Merseyside North Permo-Triass	Moderate c		n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N N	N N	N	N N	Y	Y	N N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
	les Bridge, Knowsley, Primrose Hill eshaw Boreholes (Buckton Castle WTW)	GB41201G101700 GB112069061111		No designation Heavily modified	Sanstone Aquifers Tame (Chew Brook to Swineshaw Brook)	Sandstone Aq Govt Etherow Tame	n/a Moderate	n/a Moderate by 2015	Poor n/a	Good by 2027	Poor		Poor Moderate	Good by 2027 Moderate by 2015	Y Y	N Y	N N	N V	N N	Y	Y V	N N	Medium level of impact Medium level of impact	, č	Minor level of impact Low Minor level of impact Medium	Medium level of impact
	eshaw Boreholes (Buckton Castle WTW)	GB412009061111		No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good		Poor		Poor	Good by 2027	N N	N N	N Y	Y	N N	Y	Y	N N	Medium level of impact	, ,	Minor level of impact Medium Minor level of impact Medium	Minor level of impact
WR110 Rush	on Spencer Boreholes	GB112068060180	River	No designation	Dane (Clough Brook to Cow Brook)	Dane	Poor	Good by 2027	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	N N	N N	N N	N	N N	N N	Y	N N	Medium level of impact	٧	Medium level of impact Medium	Medium level of impact
WR110 Rush	ton Spencer Boreholes	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifer	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N N	N N	N	N N	N N	Y	N N	Medium level of impact	Y	Medium level of impact Medium	Medium level of impact
WR111 Woo	fford Borehole	GB112069060950	River	No designation	Poise Brook	Goyt Etherow Tame	Poor	Good by 2027	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	N N	N Y	N N	N	N N	N N	N	N N	No or minimal impact	N		No or minimal impact
WR111 Woo		GB112069061360	River	No designation	Dean (Bollington to Bollin)	Bollin Dean Mersey Upper	Poor	Moderate by 2027		n/a	Good		Poor	Moderate by 2027	N N	N N	N N	N	N N	ΥΥ	Υ	N N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR111 Woo	Iford Borehole	GB41202G102900 GB41201G101100	Groundwater Groundwater	No designation No designation	Manchester and East Cheshire Carboniferous Aquifers Manchester and East Cheshire Permo-Triassic Sandstone Aquife	Manchester and Cheshire East Carboniferous Aq Manchester and Cheshire East Permo-Triassic Sandstone	n/a n/a	n/a n/a	Good		Poor		Poor	Good by 2027 Good by 2021	N N	N Y	N N	N N	N N	N N	N V	N N	No or minimal impact Medium level of impact	N Y	Minor level of impact Medium	No or minimal impact
WR112 Bram				No designation	Poise Brook	Goyt Etherow Tame	Poor	•	n/a	n/a	Good		Poor	Good by 2027	Y N	N Y	N N	N N	N N	N N	N	N N	No or minimal impact	N		No or minimal impact
WR112 Bram	nall Borehole	GB112069061360	River	No designation	Dean (Bollington to Bollin)	Bollin Dean Mersey Upper	Poor	Moderate by 2027	n/a	n/a	Good	Good by 2015	Poor	Moderate by 2027	Y N	N N	N N	N	N N	Y	Y	N N	Medium level of impact	Y	Medium level of impact Medium	Medium level of impact
WR112 Bram	nall Borehole	GB112069060940	River	No designation	Dean (Bollington to Bollin)	Bollin Dean Mersey Upper	Poor	Moderate by 2027	n/a	n/a	Good	Good by 2015	Poor	Moderate by 2027	Y Y	N N	N N	N	N N	N N	N	N N	Minor level of impact	N		Minor level of impact
WR112 Bram		GB112069060900	River	No designation	Poynton Brook	Bollin Dean Mersey Upper	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	N N	N N	N	N N	N N	N	N N	Minor level of impact	N		Minor level of impact
WR112 Bram		GB112069060920	River	Heavily modified	Micker (Norbury) Brook	Bollin Dean Mersey Upper	Moderate		n/a	n/a	Good		Moderate	Good by 2027	Y	N N	N N	N	N N	N N	N I	N N	Minor level of impact	N		Minor level of impact
WR112 Bram WR112 Bram		GB41202G102900 GB41201G101100		No designation No designation	Manchester and East Cheshire Carboniferous Aquifers Manchester and East Cheshire Permo-Triassic Sandstone Aquife	Manchester and Cheshire East Carboniferous Aq Manchester and Cheshire East Permo-Triassic Sandstone	n/a	n/a n/a	Good	Good by 2015 Good by 2021	Poor		Poor	Good by 2027 Good by 2021	Y	N Y	N N	N N	N N	y y	N V	N N	Minor level of impact Medium level of impact	, N	Medium level of impact Medium	Minor level of impact Medium level of impact
	rington Boreholes	GB112069061320	River	Heavily modified	Bollin (Source to Dean)	Bollin Dean Mersey Upper	Moderate	Moderate by 2027		n/a	Good	Good by 2027	Moderate	Moderate by 2027	Y N	N Y	N N	N N	N N	Y Y		N N	Medium level of impact	Y	Minor level of impact Low	Minor level of impact
	rington Boreholes	GB41201G101100	Groundwater	No designation	Manchester and East Cheshire Permo-Triassic Sandstone Aquife	Manchester and Cheshire East Permo-Triassic Sandstone rs Aq	n/a	n/a	Poor	Good by 2027	Poor	Good by 2027	Poor	Good by 2027	Y N	N Y	N N	N	N N	Y Y	Y	N N	Medium level of impact	Y	Minor level of impact Low	Minor level of impact
WR114 Pyth	on Mill Borehole	GB112069064720	River	Heavily modified	Roch (Source to Spodden)	Roch Irk Medlock	Moderate	Good by 2027	n/a	n/a	Good	Good by 2027	Moderate	Good by 2027	Y N	N N	N N	N	N N	Y	Y	N N	Medium level of impact	¥	Medium level of impact Low	Medium level of impact
	on Mill Borehole	GB41202G101800		No designation	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2027	Poor		Poor	Good by 2027	Y N	N N	N Y	Y	N N	Y	Y	N N	Medium level of impact	Y	Medium level of impact Low	Medium level of impact
WR114 Pytho		GB71210517 GB112074069980	AWB - Canal River	Artificial No designation	Rochdale Canal, western section Ehen (lower)	Roch Irk Medlock Canals and SWT Ehen-Calder	Moderate		n/a	n/a	Good		Good	Good by 2027	Y N	N N	N Y	Y	N N	N N	N.	N N	Minor level of impact Medium level of impact	N U	Minor level of impact Low	Minor level of impact
		GB112074069980 GB112074070010	River	No designation Heavily modified	Ehen (lower) Ehen (upper including Liza)	Ehen-Calder Ehen-Calder	Good Moderate		n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Good Moderate	Good by 2015 Good by 2027	Y Y	N N	N N	N N	n N	N N	N	N N	Medium level of impact Minor level of impact	Y N	Namor rever or impact Low	Minor level of impact Minor level of impact
	nont Boreholes (Existing)	353	River	No designation	Non reportable water body on the St Bees Coast	n/a	n/a		n/a	n/a	n/a	n/a	n/a	n/a	N N	N N	N N	N N	N N	N N	Y	N N	Medium level of impact	γ	Minor level of impact Low	Minor level of impact
		GB41201G102000	Groundwater	No designation	West Cumbria Permo-Triassic Sandstone Aquifers	Cumbria West Permo-Triassic Sandstone Aq	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	N N	N N	N N	N	N N	N N	Y	N N	Medium level of impact	Y	Minor level of impact Low	Minor level of impact
WR119a Egre	nont Boreholes (Existing)	GB41202G103700	Groundwater	No designation	Derwent and West Cumbria Lower Palaeozoic and Carboniferou Aquifers	s Derwent and West Cumbria Lower Palaeozoic and Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y Y	N Y	N N	N	N N	N N	N	N N	Minor level of impact	N		Minor level of impact
		GB112074069980		No designation	Ehen (lower)	Ehen-Calder	Good		n/a	n/a	Good		Good	Good by 2015	YY	YN	N N	N	N N	Y Y	Y	N N	Medium level of impact	Y	High level of impact Medium	High level of impact
	nont Boreholes (New)	GB112074070010	River	Heavily modified	Ehen (upper including Liza)	Ehen-Calder	Moderate		n/a	n/a	Good	Good by 2015	Moderate n/o	Good by 2027	Y Y	N Y	N N	N	N N	N N	N	N N	Minor level of impact	N U	Madium land of the state	Minor level of impact
	nont Boreholes (New) nont Boreholes (New)	353 GB41201G102000		No designation No designation	Non reportable water body on the St Bees Coast West Cumbria Permo-Triassic Sandstone Aquifers	n/a Cumbria West Permo-Triassic Sandstone Aq	n/a n/a	n/a n/a	n/a Good	n/a Good by 2015	n/a Good	n/a Good by 2015	n/a Good	n/a Good by 2015	N N	N N	N N	N N	N N	Y	Y	N N	Medium level of impact Medium level of impact	/ Č	Medium level of impact Medium Medium level of impact Medium	Medium level of impact Medium level of impact
		GB41201G102000 GB41202G103700		No designation	Derwent and West Cumbria Lower Palaeozoic and Carboniferou Aquifers		n/a	n/a	Good	Good by 2015 Good by 2015	Poor		Poor	Good by 2015 Good by 2027	Y	N Y	N N	N N	N N	N N	N	N N	Minor level of impact	N	mediani	Minor level of impact
	Hill Boreholes, Wirral	GB112068060530	River	Heavily modified	The Birket including Arrowe Brook and Fender	Wirral	Moderate	•	n/a	n/a	Good		Moderate	Good by 2027	N N	N Y	N N	N	N N	Y	Y	N N	Medium level of impact	¥	Medium level of impact Medium	Medium level of impact
WR120 Cros	Hill Boreholes, Wirral	GB41101G202600	Groundwater	No designation	Wirral and West Cheshire Permo-Triassic Sandstone Aquifers	Wirral and Cheshire West Permo-Triassic Sandstone Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N Y	N N	N	N N	Y	Y	N N	Medium level of impact	Y	Medium level of impact Medium	Medium level of impact
WR120i Cros	Hill Boreholes, Wirral	GB112068060530	River	Heavily modified	The Birket including Arrowe Brook and Fender	Wirral	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N Y	N N	N	N N	Y	Y	N N	Medium level of impact	Y	Medium level of impact Low	Medium level of impact
WR120i Cros	Hill Boreholes, Wirral	GB41101G202600	Groundwater	No designation	Wirral and West Cheshire Permo-Triassic Sandstone Aquifers	Wirral and West Cheshire Permo-Triassic Sandstone Aq	n/a	n/a	Good	Good by 2015	Poor		Poor	Good by 2027	N N	N Y	N N	N	N N	Y	Y	N N	Medium level of impact	Y	Medium level of impact Low	Medium level of impact
	Boreholes (Hollins Hill)	GB112068055440	River	No designation	Wettenhall Brook	Weaver Upper	Poor		n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Y N	Y Y	N N	N N	N N	Y Y	Y M	N N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
		GB112068060450	Kiver'	Heavily modified	Darley Brook	Weaver Lower	Moderate		n/a	ıya	9000	Good by 2015	Moderate	Good by 2027	N	N N	re N	N	n N	N N	N	n N	No or minimal impact	N		No or minimal impact Minor level of impact
WR121a Eator		GB41202G901700	Groundwater	No designation	Weaver and Dane Quaternary Sand and Graval Assistance	Weaver and Dane Quaternary Sand and Gravel An	n/a	n/a			Poor	Good hy 2027	Poor										Medium level of impact	Y	Minor level of impact Medium	
WR121a Eator	Boreholes (Hollins Hill) Boreholes (Hollins Hill)	GB41202G991700 GB41101G202600		No designation No designation	Weaver and Dane Quaternary Sand and Gravel Aquifers Wirral and West Cheshire Permo-Triassic Sandstone Aquifers	Weaver and Dane Quaternary Sand and Gravel Aq Wirral and West Cheshire Permo-Triassic Sandstone Aq	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Poor		Poor	Good by 2027 Good by 2027	Y N	N N	N N	N N	N N	N N	N	N N	Medium level of impact No or minimal impact	Y N	Minor level of impact Medium	No or minimal impact
WR121a Eator WR121a Eator WR121a Eator	Boreholes (Hollins Hill) Boreholes (Hollins Hill)		Groundwater	-				n/a	Good n/a			Good by 2027			Y N Y N	N N	N N	N N	N N	N N	N Y			N	Minor level of impact Medium Minor level of impact Medium	

Option	WFD Water Body Inf	formation												Option Detail									Impacts			
														d	nà - ri	tation water is	iver/	a d	siting	n well n well rface	antity ntity ervoir elease	sing				
														ne on lan ne with w crossing:	modified water (e ntake	umping s modified ent work	utfall to r pir/cana uct	er of wate canal / uct in creases water tion qua	ion of exi rge to sur	bstraction / shment bstraction orks / su	in creased Water tion qua	servoir/ kment ra		Level 2		
Ref Option Name	ID	Туре	Hydro - morphological Designation	WB Name	Operational Catchment	Ecological Status	Ecological Objective	Quantitative Status	Quantitative Objective	Chemical Status	Chemical Objective	Overall Statu	us Overall Objective	Pipe lin Pipe lin course	New / r surface river) in	New pu New / r treatme	New ou reservo ad ned u	Transfe river / c aq ued u New / i surface ab strac	Cessatio dischan water	New ab drilling refurbis New ab headwe	New / i ground ab strac Change compes	New re embani	Level 1 Screening Results	Screening Required?	Level 2 Screening Results Level 2 Scre	ning Combined Screening Result
WR122 Newton Hollows Boreholes	GB112068060550	River	No designation	Crowton Brook	Weaver Lower	Poor	Moderate by 2027	n/a	n/a	Good	Good by 2015	Poor	Moderate by 2027	N N	N	N Y	N N	N N	N	Y Y	Y N	N	Medium level of impact	Y	Medium level of impact Medium	Medium level of impact
WR122 Newton Hollows Boreholes	GB41101G202600	Groundwater	No designation	Wirral and West Cheshire Permo-Triassic Sandstone Aquifers	Wirral and Cheshire West Permo-Triassic Sandstone Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N Y	N N	N N	N	Y	Y N	N	Medium level of impact	Y	Medium level of impact Medium	Medium level of impact
WR125 Bearstone Boreholes	GB109054055150	River	No designation	Tern- source to conf Loggerheads Bk	Perry Roden and Tern North Shropshire	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	YY	N N	Y Y	N N	N N	N	Y	Y N	N	Medium level of impact	Y	Medium level of impact Medium	Medium level of impact
WR125 Bearstone Boreholes WR125 Bearstone Boreholes	GB112068055220 GB40901G300100	River Groundwater	No designation No designation	Birchall Brook Shripshire Middle Severn- PT Sandstone East Shropshire	Weaver Upper Severn Middle Shropshire- Permo-Triassic Sandstone Eas Shropshire	t n/a	Good by 2027 n/a	n/a Poor	n/a Poor by 2015	Good	Good by 2015 Good by 2050	Poor	Good by 2027 Poor by 2015	Y	N N	YY	N N	N N	N N	Y Y	Y N	N N	No or minimal impact Medium level of impact	N Y	Medium level of impact Medium	No or minimal impact Medium level of impact
WR125 Bearstone Boreholes	GB41202G991700	Groundwater	No designation	Weaver and Dane Quaternary Sand and Gravel Aquifers	Weaver and Dane Quaternary Sand and Gravel Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y Y	N	N N	N N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
WR128 Tarn Wood (North Eden to Carlisle)	GB102076073910	River	No designation	Pow Maughan Beck	Eden lower	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y	N	Y N	N N	N N	N	Y	Y N	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR128 Tarn Wood (North Eden to Carlisle)	GB102076074030	River	No designation	Petteril d/s Blackrack Beck	Petteril	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y N	N	N N	N N	N N	N	N N	N N	N	No or minimal impact	N		No or minimal impact
WR128 Tarn Wood (North Eden to Carlisle)	GB102076073940	River	No designation	Eden - Eamont to tidal	Eden lower Eden Valley and Carlisle Basin Permo-Triassic sandstone	Good	Poor by 2027	n/a	n/a	Good	Good by 2027	Good	Poor by 2027	Y N	N	N N	N N	N N	N	N N	N N	N	No or minimal impact	N		No or minimal impact
WR128 Tarn Wood (North Eden to Carlisle) WR129 North Cumbria Boreholes	GB40201G100400 GB102075073410	Groundwater	No designation No designation	Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers Wampool (Upper)	Aq Waver-Wampool	n/a Good	n/a Good by 2027	Good n/a	Good by 2027 n/a	Good	Good by 2027 Good by 2027	Good	Good by 2027 Good by 2027	Y	N N	Y N	N N	N N	N N	Y Y	Y N	N N	Medium level of impact Medium level of impact	Y Y	Minor level of impact Medium Minor level of impact Medium	Minor level of impact Minor level of impact
WR129 North Cumbria Boreholes	GB102075073390	River	Heavily modified	Wiza Beck	Waver-Wampool	Good		n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	N N	N N	N N	N N	N	N N	N N	N	Minor level of impact	N N		Minor level of impact
WR129 North Cumbria Boreholes	GB102075073440	River	No designation	Waver	Waver-Wampool	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	N	N N	N N	N N	N	Y Y	Y N	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR129 North Cumbria Boreholes	GB102075073480	River	No designation	Crummock Beck u/s Holme Dub	Ellen and West Coast	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	N N	N	N N	N N	N N	N	N N	Y N	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR129 North Cumbria Boreholes	GB112075073650	River	No designation	Ellen (Middle)	Ellen and West Coast	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	N	N N	N N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
WR129 North Cumbria Boreholes	GB112075073640	River	No designation	Hellen (Lower)	Ellen and West Coast	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y	N	N N	N N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
WR129 North Cumbria Boreholes WR129 North Cumbria Boreholes	GB112075073620 GB112075073630	River	No designation No designation	Threapland Gill Ellen (upper)	Ellen and West Coast Ellen and West Coast	Good	Good by 2027 Good by 2015	n/a n/a	n/a n/a	Good	Good by 2027 Good by 2015	Good	Good by 2027 Good by 2015	Y Y	N N	N N	N N	N N	N	N N	N N	N	Minor level of impact	N N		Minor level of impact
WR129 North Cumbria Boreholes	GB112075073600	River	No designation	Cockshot Beck	Ellen and West Coast	Good		n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y Y	N N	N N	N N	N N	N	N N	N N	N N	Minor level of impact	N N		Minor level of impact
WR129 North Cumbria Boreholes	GB112075073570	River	No designation	Broughton Beck	Derwent	Moderate	Good by 2015	n/a	n/a	Good	Good by 2015	Moderate	Good by 2015	Y Y	N	N N	N N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
WR129 North Cumbria Boreholes	GB40202G100900	Groundwater	No designation	Carlisle Basin Triassic and Jurassic Aquifers	Carlisle Basin Triassic and Jurassic Aq Eden Valley and Carlisle Basin Permo-Triassic sandstone	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	Y Y	N	N N	N N	N N	N	Y Y	Y N	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR129 North Cumbria Boreholes	GB40201G100400	Groundwater	No designation	Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Aq	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Good	Good by 2027	YY	N	N N	N N	N N	N	N N	Y	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR129 North Cumbria Boreholes	GB40202G102300		No designation	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers Derwent and West Cumbria Lower Palaeozoic and Carboniferous		n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	YY	N	N N	N N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
WR129 North Cumbria Boreholes WR140 Horwich Wwtw – Final Effluent Reuse	GB41202G103700 GB112070064850	Groundwater River	No designation Heavily modified	Aquifers Douglas - Upper	Carboniferous Aq Douglas OC	n/a Moderate	n/a Good by 2027	Good n/a	Good by 2015 n/a	Poor	Good by 2027 Good by 2015	Poor Moderate	Good by 2027 Good by 2027	Y	N	N Y	N N	N N	N M	N N	N N	N	Minor level of impact Medium level of impact	N V	Medium level of impact Medium	Minor level of impact Medium level of impact
WR140 Horwich Wwtw – Final Effluent Reuse WR140 Horwich Wwtw – Final Effluent Reuse	GB112070064850 GB41202G100300	River	No designation	Douglas - Upper Douglas, Darwen and Calder Carboniferous Aquifers	Douglas OC Douglas, Darwen and Calder Carboniferous Aq	n/a	Good by 2027 n/a	n/a Good	n/a Good by 2015	Good	Good by 2015 Good by 2027	Moderate	Good by 2027 Good by 2027	Y	Y	Y	. N N N	N Y	N N	N N	N N	N N	Medium level of impact Medium level of impact	, Y	Minor level of impact Medium Minor level of impact Medium	Medium level of impact Minor level of impact
WR141 Rossendale Wwtw- Final Effluent Reuse	GB112069064641	River	Heavily modified	Irwell (Cowpe Bk to Rossendale STW)	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	Υ	Y Y	N N	N Y	N	N N	N N	N	Medium level of impact	Y	Medium level of impact Medium	Medium level of impact
WR141 Rossendale Wwtw- Final Effluent Reuse	GB41202G101800	Groundwater	No designation	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y Y	Υ	Y Y	N N	N Y	N	N N	N N	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR142 Hyndburn Wwtw – Final Effluent Reuse	GB112071065490	River	No designation	Calder - Pendle Water to conf Ribble	Calder	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	Y	Y Y	N N	N Y	N	N N	N N	N	Medium level of impact	Y	Medium level of impact Medium	Medium level of impact
WR142 Hyndburn Wwtw – Final Effluent Reuse	GB112071065070	River	No designation	Hyndburn Brook - Lower	Calder	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	N	N Y	N N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
WR142 Hyndburn Wwtw – Final Effluent Reuse	GB41202G100300		No designation	Douglas, Darwen and Calder Carboniferous Aquifers	Douglas, Darwen and Calder Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y	Y	Y	N N	N Y	N	N N	N N	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR144 Saddleworth and Mossley Top- Final Effluent Reuse WR144 Saddleworth and Mossley Top- Final Effluent Reuse	GB112063061111 GB41202G102900	River	Heavily Modified No designation	Tame (Chew Brook to Swineshaw Brook) Manchester and East Cheshire Carboniferous Aquifers	Goyt Etherow Tame Manchester and Cheshire East Carboniferous Aq	Moderate n/a	Moderate by 2015 n/a	n/a Good	n/a Good by 2015	Good	Good by 2015 Good by 2027	Moderate	Moderate by 2015 Good by 2027	Y Y	N N	Y	N N	N Y	N N	N N	N N	N	Medium level of impact Medium level of impact	, Y	Minor level of impact Medium No or minimal impact Medium	Minor level of impact No or minimal impact
WR146 Davyhulme- Final Effluent Reuse	GB112069061452	River	Heavily modified	Irwell/ Manchester Ship Canal (Irk to confluence with Upper Mersey)	Croal Irwell	Moderate	Moderate by 2015		n/a	Good	Good by 2027	Moderate	Moderate by 2015	Y	N N	N Y	Y N	N N	Y	N N	N N	N	Medium level of impact	,	Medium level of impact Medium	Medium level of impact
WR146 Davyhulme- Final Effluent Reuse	GB112069061430	River	Heavily modified	Folly Brook and Salteye Brook	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	N	N Y	Y N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
WR146 Davyhulme- Final Effluent Reuse	GB41201G101100	Groundwater	No designation	Manchester and East Cheshire Permo-Triassic Sandstone Aquifer Lower Mersey Basin and North Merseyside Permo-Triassic	Manchester and Cheshire East Permo-Triassic Sandstone s Aq Mersey Basin Lower and Merseyside North Permo-Triass	n/a	n/a	Poor	Good by 2021	Poor	Good by 2021	Poor	Good by 2021	Y Y	N	N Y	Y N	N N	Y	N N	N N	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR146 Davyhulme- Final Effluent Reuse	GB41201G101700	Groundwater	No designation	Sandstone Aquifers	Sandstone Aq	n/a	n/a	Poor	Good by 2027	Poor	Good by 2027	Poor	Good by 2027	Y Y	N	N Y	Y N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
WR148 Cumwhinton Boreholes plus Castle Carrock Link	GB102076073910	River	No designation	Pow Maughan Beck	Eden lower	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y N	N	Y Y	N N	N N	N	Y	Y	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR148 Cumwhinton Boreholes plus Castle Carrock Link WR148 Cumwhinton Boreholes plus Castle Carrock Link	GB102076073940 GB102076073870	River	No designation No designation	Eden - Eamont to tidal Caim Beck	Eden lower eden lower	Good	Good by 2027 Good by 2027	n/a n/a	n/a n/a	Good	Good by 2027 Good by 2027	Good	Good by 2027 Good by 2027	Y	N N	N N	N N	N N	N	N N	N N	N	Minor level of impact Minor level of impact	N N		Minor level of impact Minor level of impact
WR14B Cumwhinton Boreholes plus Castle Carrock Link	GB102076073900	River	No designation	Trout Beck (Cairn Beck)	Eden lower	Good		n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	N N	N N	N N	N N	N N	N N	N N	N	Minor level of impact	N N		Minor level of impact
WR148 Cumwhinton Boreholes plus Castle Carrock Link	GB102076074040	River	No designation	Gelt	Esk and Irthing	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	N	Y Y	N N	N N	N	N N	N N	N	Minor level of impact	N		Minor level of impact
WR148 Cumwhinton Boreholes plus Castle Carrock Link	GB40201G100400	Groundwater	No designation	Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Eden Valley and Carlisle Basin Permo-Triassic sandstone Aq	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Good	Good by 2027	Y Y	N	Y Y	N N	N N	N	Y	Y N	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR150 Castle Carrock Dead Water Storage	GB102076074040	River	No designation	Gelt	Esk and Irthing Eden Valley and Carlisle Basin Permo-Triassic Sandstone	Poor	Good by 2027	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	N N	N	N N	N N	N N	N	N N	N N	N	No or minimal impact	N		No or minimal impact
WR150 Castle Carrock Dead Water Storage	GB40201G100400 GB112068060330	Groundwater	No designation	Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers		n/a Poor	n/a Poor by 2015	Good n/a	Good by 2015 n/a	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N N	N	N N	N N	N	No or minimal impact Medium level of impact	N U	Medium level of impact Low	No or minimal impact Medium level of impact
WR153 Simmonds Hill- Increased WTW Capacity WR153 Simmonds Hill- Increased WTW Capacity	GB112068060330 GB112068060500	River	No designation Heavily modified	Peckmill Brook, Hoolpool Gutter at Ince Marshes Weaver (Dane to Frodsham)	Gowy Weaver Lower	Moderate		n/a	n/a n/a	Good	Good by 2015 Good by 2015	Moderate	Poor by 2015 Good by 2027	N N	N N	N Y	N N	N N	N N	Y	Y N	N	Medium level of impact	,	Medium level of impact Low	Medium level of impact
WR153 Simmonds Hill- Increased WTW Capacity	GB41101G202600	Groundwater	No designation	Wirral and West Cheshire Permo-Triassic Sandstone Aquifers	Wirral and Cheshire West Permo-Triassic Sandstone Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N Y	N N	N N	N	Y Y	Y N	N	Medium level of impact	Y	Medium level of impact Low	Medium level of impact
WR154 Sandiford – Increased WTW Capacity	GB112068060450	River	Heavily modified	Darley Brook	Weaver Lower	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N Y	N N	N N	N	Y Y	Y N	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR154 Sandiford – Increased WTW Capacity	GB41101G202600	Groundwater	No designation	Wirral and West Cheshire Permo-Triassic Sandstone Aquifers	Wirral and Cheshire West Permo-Triassic Sandstone Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N Y	N N	N N	N	Y Y	Y N	N	Medium level of impact	Y	Medium level of impact Low	Medium level of impact
WR154 Sandiford – Increased WTW Capacity Group 1 - Improved reservoir compensation release cont	GB112068060480 rol	River	No designation	Cuddington Brook (Source to Crowton Brook)	Weaver Lower	Poor	Good by 2021	n/a	n	Good	Good by 2015	Poor	Good by 2021	N N	N	N N	N N	N N	N	Y Y	Y N	N	Medium level of impact	Y	Minor level of impact Low	Minor level of impact
WR159 — MITCHELLS HOUSE 1 & 2 Group 1 - Improved reservoir compensation release cont		Lake	Heavily modified	Mitchells House Reservoir No 1	Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N N	N	N N	N Y	N	No or minimal impact	N		No or minimal impact
WR159 - MITCHELLS HOUSE 1 & 2 Group 1 - Improved reservoir compensation release cont WR159 - MITCHELLS HOUSE 1 & 2	GB31230833 rol GB112071065040	Lake	Artificial Heavily modified	Mitchells House Reservoir No 2 Hyndburn	Calder Calder	Moderate Moderate	Good by 2027 Good by 2027	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Moderate	Good by 2027 Good by 2027	N N	ri N	N N	N N	N N	N N	n N	N Y	N	No or minimal impact Medium level of impact	N Y	Minor level of impact Medium	No or minimal impact Minor level of impact
Group 1 - Improved reservoir compensation release cont WR159 — MITCHELLS HOUSE 1 & 2	rol GB41202G100300	Groundwater	No designation	Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N N	N.	N N	N Y	N	No or minimal impact	N		No or minimal impact
Group 1 - Improved reservoir compensation release cont WR159 — POAKA BECK, PENNINGTON & HARLOCK Group 1 - Improved reservoir compensation release cont	GB112074069790	River	Heavily modified	Mill Beck (Poaka Beck)	Duddon	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N N	N	N N	N Y	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR159 – POAKA BECK, PENNINGTON & HARLOCK Group 1 - Improved reservoir compensation release cont	GB112073071160	River	No designation	Dragley Beck	Leven	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N N	N	N N	N	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR159 — POAKA BECK, PENNINGTON & HARLOCK Group 1 - Improved reservoir compensation release cont	GB31229599 rol	Lake	Artificial	Harlock Reservoir	Duddon	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N N	N	N N	N	N	No or minimal impact	N		No or minimal impact
WR159 – POAKA BECK, PENNINGTON & HARLOCK Group 1 - Improved reservoir compensation release cont WR159 – POAKA BECK, PENNINGTON & HARLOCK	GB31229607 rol GB31229615	Lake Lake	Heavily modified Artificial	Pennington Reservoir Poaka Beck Reservoir	Leven	Moderate	Good by 2027	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Moderate	Good by 2027 Good by 2027	N N	N	N N	N N	N N	N	N N	N Y	N	No or minimal impact	N N		No or minimal impact
WR159 – POAKA BECK, PENNINGTON & PAREDEK Group 1 - Improved reservoir compensation release cont WR159 – POAKA BECK, PENNINGTON & HARLOCK		Groundwater	No designation	South Cumbria Lower Palaeozoic and Carboniferous Aquifers	Cumbria South Lower Palaeozoic and Carboniferous Ag	n/a	Good by 2027	nya Good	Good by 2015	Poor	Good by 2015 Good by 2027	Poor	Good by 2027 Good by 2027	N N	N N	N N	N N	N N	N N	N N	N Y	N N	No or minimal impact	N N		No or minimal impact
Group 1 - Improved reservoir compensation release cont WR159 — LEVERS WATER	GB31229285	Lake	Heavily modified	Levers Water	Crake	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N N	N	N N	N Y	N	No or minimal impact	N		No or minimal impact
Group 1 - Improved reservoir compensation release cont WR159 — LEVERS WATER Group 1 - Improved reservoir compensation release cont	GB112073071210	River	No designation	Yewdale/Church Beck	Crake	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N N	N	N N	N Y	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
Group 1 - Improved reservoir compensation release cont WR159 - LEVERS WATER Group 1 - Improved reservoir compensation release cont	GB41202G102100	Groundwater	No designation	South Cumbria Lower Palaeozoic and Carboniferous Aquifers	Cumbria South Lower Palaeozoic and Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N N	N	N N	N Y	N	No or minimal impact	N		No or minimal impact
WR159 – FISHMOOR TOTAL Group 1 - Improved reservoir compensation release cont	GB31230883 rol	Lake	Artificial	Fishmoor Reservoir	Darwen	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N N	N	N N	N Y	N	No or minimal impact	N		No or minimal impact
WR159 – FISHMOOR TOTAL Group 1 - Improved reservoir compensation release cont		River	Heavily modified	Darwen - conf Davy Field Bk to conf Blakewater	Darwen	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N N	N	N N	N Y	N	Medium level of impact	Y .	Minor level of impact Medium	Minor level of impact
WR159 – FISHMOOR TOTAL Group 1 - Improved reservoir compensation release cont WR159 – RIDGEGATE & TRENTABANK	GB41202G100300 rol GB31233250	Groundwater	No designation Heavily modified	Douglas, Darwen and Calder Carboniferous Aquifers Ridgegate Reservoir	Douglas Darwen and Calder Carboniferous Aq Bollin Dean Mersey Upper	n/a Moderate	n/a Good by 2027	Good n/a	Good by 2015 n/a	Poor	Good by 2027 Good by 2015	Poor Moderate	Good by 2027 Good by 2027	N N	N	N N	n N	N N	N M	N N	N Y	N M	No or minimal impact	N N		No or minimal impact No or minimal impact
Group 1 - Improved reservoir compensation release cont WR159 — RIDGEGATE & TRENTABANK	rol GB31233247	Lake	Heavily modified	Trentabank Reservoir	Bollin Dean Mersey Upper Bollin Dean Mersey Upper	Moderate		n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Moderate	Good by 2027 Good by 2027	N N	N N	N N	N N	N N	N N	N N	N Y	N	No or minimal impact	N N		No or minimal impact
Group 1 - Improved reservoir compensation release cont WR159 — RIDGEGATE & TRENTABANK	GB112069061320	River	Heavily modified	Bollin (Source to Dean)	Bollin Dean Mersey Upper	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	N	N N	N N	N N	N	N N	N Y	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
Group 1 - Improved reservoir compensation release cont WR159 — RIDGEGATE & TRENTABANK Group 1 - Improved reservoir compensation release cont	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N N	N	N N	N Y	N	No or minimal impact	N		No or minimal impact
WR159 – LAMALOAD Group 1 - Improved reservoir compensation release cont	GB31233063	Lake	Heavily modified	Lamaload Reservoir	Bollin Dean Mersey Upper	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N N	N	N N	N Y	N	No or minimal impact	N		No or minimal impact
WR159 - LAMALOAD Group 1 - Improved reservoir compensation release cont	GB112069060650 rol	River	Heavily modified	Dean (Lamaload to Bollington)	Bollin Dean Mersey Upper	Moderate	,	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N N	N	N N	N	N	Medium level of impact	Y	Minor level of impact Medium	Minor level of impact
WR159 – LAMALOAD Group 1 - Improved reservoir compensation release cont WR159 – WET SLEDDALE	GB41202G102900 rol GB102076070690	Groundwater	No designation Heavily modified	Manchester and East Cheshire Carboniferous Aquifers Lowther (Upper)	Manchester and Cheshire East Carboniferous Aq Eamont	n/a Moderate	n/a Good by 2021	Good n/a	Good by 2015 n/a	Poor	Good by 2027 Good by 2015	Poor Moderate	Good by 2027 Good by 2021	N N	N	N N	N N	N N	N M	N N	N Y	N M	No or minimal impact Medium level of impact	N V	Minor level of impact	No or minimal impact
WEI SCHUNKE	de1050\p0\0090	niver	neavily modified	coware (opper)	Comunit	moderaté	good by 2021	iya	iya	9000	GOOD BY 2015	woderate	GOUG BY 2021	I N	N	19 19	N	rs N	N	rs N	N	N	weditiff level of impact	- 1	High	wintor level of impact

Mathematical Content	Opti	on		WFD Water Body Int	formation											Option Detail									Impacts				
																d		tation water servoir	iver/	er via d ntity	siting	n well n well rface	d ntity	elease	Suising				
Part																e on lan	modified water (e	amping s modified ent work	utfall to u pir/cana uct	rr of wat canal / act in creases water tion qua	on of ex ge to su	ostractio / shment ostractio orks / su	in creases water tion qua	d to resination	kment ra	Le	vel 2		
Mathematical Content	Ref	Optio	n Name	ID	Туре		WB Name	Operational Catchment	Ecological Status					Overall Status	s Overall Objective	Pipe lin Pipe lin	New / n surface river) in	New pu New / n treatme New stc	New ou reservol aq ued u	Transfer river / c aquedu New / ii surface abstract	Cessatic dischan water	New ab drilling, refurbis New ab headwc structur	New / is grounds abstract	Change	Level 1	Sc	reening		Combined Screening Result
Part	WR	Group .59 – WE	1 - Improved reservoir compensation release control CSLEDDALE	GB40202G102300	Groundwater		Eden and Esk Lower Palaeozoic and Carboniferous Aquifers				Good by 2015	Good	Good by 2015	Good	Good by 2015	N I	N N	N N	N N	N N	N	N N	N	Y	N No or m	inimal impact			No or minimal impact
Part	WR	.59 – WA	YOH, ENTWISTLE & JUMBLES	GB31231200	Lake	Heavily modified	Wayoh Reservoir	Croal Irwell	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	N No or m	inimal impact	N		No or minimal impact
Part		.59 – WA Group	YOH, ENTWISTLE & JUMBLES 1 - Improved reservoir compensation release control		Lake	Heavily modified	Turton and Entwistle Reservoir		Moderate		n/a		Good by 2015	Moderate	Moderate by 2015	N I	N N	N N	N N	N N	N	N N	N	Y	N No or m	inimal impact	N		No or minimal impact
Part		Group	1 - Improved reservoir compensation release control		Lake											N I	N N	N N	N N	N N	N	N N	N	Y			N	Market Market	No or minimal impact Minor level of impact
Mathematical Content		Group	1 - Improved reservoir compensation release control		Groundwater											N I	N N	N N	N N	N N	N N	N N	N	Y			N .	winor level or impact medium	No or minimal impact
Mathematical Content	WR	.59 – DEL	РН	GB31231264	Lake	Heavily modified	Delph Reservoir	Croal Irwell	Moderate	Moderate by 2015 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N I	N N	N N	N N	N N	N	N N	N	Y	N No or m	inimal impact	N		No or minimal impact
Mathematical Content	WR	.59 - DEL	PH	GB41202G101800	Groundwater	No designation	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	No or m	inimal impact	N		No or minimal impact
Part	WR	.59 - DEL	PH		River	Heavily modified	Eagley Brook		Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	N Medium	level of impact	Y !	Minor level of impact Medium	Minor level of impact
Mathematical Content		Group	1 - Improved reservoir compensation release control		Lake		-									N I	N N	N N	N N	N N	N	N N	N	Y			N		No or minimal impact
Marchester Mar		Group	1 - Improved reservoir compensation release control				· -									N I	N N	N N	N N	N N	N N	N N	N N	Y Y			N Y	Minor level of impact Medium	No or minimal impact Minor level of impact
Marche M		Group .59 – SPR	1 - Improved reservoir compensation release control INGS DINGLE										,			N I	N N	N N	N N	N N	N	N N	N	Y			N		No or minimal impact
Part	WR	.59 – ASH	WORTH MOOR	GB31231267	Lake	Heavily modified	Ashworth Moor Reservoir	Roch Irk Medlock	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	N No or m	inimal impact	N		No or minimal impact
Mathematical Content of the conten	WR	.59 – ASH	WORTH MOOR	GB112069064710	River	Heavily modified	Naden Brook	Roch Irk Medlock	Moderate	Moderate by 2015 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N I	N N	N N	N N	N N	N	N N	N	Y	N Mediun	level of impact	Y I	Minor level of impact Medium	Minor level of impact
A	WR	.59 – ASH Group	WORTH MOOR 1 - Improved reservoir compensation release control	GB41202G101800	Groundwater	No designation	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	No or m	inimal impact	N		No or minimal impact
Mathematical Content		Group	1 - Improved reservoir compensation release control		Lake											N I	N N	N N	N N	N N	N	N N	N .	Y			N 		No or minimal impact
Mathematical Content of the conten		Group	1 - Improved reservoir compensation release control										,			N I	N N	N N	N N	N N	N M	N N	N N	Y .		• • • • • • • • • • • • • • • • • • • •	N N		No or minimal impact No or minimal impact
Marchest	WR	Group	1 - Improved reservoir compensation release control ENBOOTH & 2 NADENS			,				,						N I	N N	N N	N N	N N	N N	N N	N.	Y			Y ,	Minor level of impact Medium	Minor level of impact
Part	WR	Group .59 – GRE	1 - Improved reservoir compensation release control ENBOOTH & 2 NADENS	GB41202G101800	Groundwater				n/a				,	Poor		N	N N	N N	N N	N N	N	N N	N	Y	N No or m	inimal impact	N		No or minimal impact
Mathematical Content of the conten	WR	.59 – SPR	ING MILL, WATERGROVE & COWM	GB31231212	Lake		Spring Mill Reservoir	Roch Irk Medlock	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	No or m	inimal impact	N		No or minimal impact
Mathematical Content of the conten	WR:	.59 – SPR	ING MILL, WATERGROVE & COWM	GB31231164	Lake	Heavily modified	Watergrove Reservoir	Roch Irk Medlock	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	N N	N	N N	N	Y	No or m	inimal impact	N		No or minimal impact
Mathematical Content of the conten		.59 – SPR Group	ING MILL, WATERGROVE & COWM 1 - Improved reservoir compensation release control										,			N I	N N	N N	N N	N N	N	N N	N	Y			N		No or minimal impact
Part		Group	1 - Improved reservoir compensation release control										,			N I	N N	N N	N N	N N	N 	N N	N	Y			Y	Minor level of impact Medium	Minor level of impact
Section Sect		Group	1 - Improved reservoir compensation release control						n/a							N	N N	N N	N N	N N	N N	N N	ri N	Y			n I	High High	Minor level of impact No or minimal impact
Section Sect		Group .59 – HUF	1 - Improved reservoir compensation release control ISTWOOD		Lake	-		Calder	Moderate			Good				N	N N	N N	N N	N N	N N	N N	N	Y			N		No or minimal impact
March Marc	WR	.59 - HUF	STWOOD	GB112071065090	River	Heavily modified	Brun - headwaters to conf Don	Calder	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	N Mediun	level of impact	Y I	Minor level of impact Medium	Minor level of impact
A I WINDOWN NEW MINING NEW MINI	WR	.59 - HUF	STWOOD	GB41202G100300	Groundwater	No designation	Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a	n/a Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	No or m	inimal impact	N		No or minimal impact
Marchen Marc		59 – CAN Group	T CLOUGH 1 - Improved reservoir compensation release control		Lake								,			N I	N N	N N	N N	N N	N	N N	N	Y			N		No or minimal impact
Marchestern	WR:	Group	1 - Improved reservoir compensation release control			,										N I	N N	N N	N N	N N	N	N N	N	Y			Y I	Minor level of impact Medium	Minor level of impact
Mathematical Content of the conten	WR:	Group	1 - Improved reservoir compensation release control		Groundwater				n/a Moderate							N I	N N	N N	N N	N N	N	N N	N	Y V			N N		No or minimal impact No or minimal impact
Mathematical Content of the conten		Group	1 - Improved reservoir compensation release control		Lake		-		Moderate							N I	N N	N N	N N	N N	N	N N	N	Y			N N		No or minimal impact
Mathematical Content of the conten	WR	.59 – SWI	NDEN 1 & 2	GB112071065090	River	Heavily modified	Brun - headwaters to conf Don	Calder	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	N Mediun	level of impact	Y	Minor level of impact Medium	Minor level of impact
March Marc	WR	.59 – SWI	NDEN 1 & 2	GB41202G100300	Groundwater	No designation	Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a	n/a Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	No or m	inimal impact	N		No or minimal impact
Section Sect	WR:	.59 – LAN	ESHAW	GB31230377	Lake	Heavily modified	Laneshaw Reservoir	Colne Water	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	No or m	inimal impact	N		No or minimal impact
		.59 – LAN Group	ESHAW 1 - Improved reservoir compensation release control		River											N I	N N	N N	N N	N N	N	N N	N	Y			Y I	Minor level of impact High	Minor level of impact
Part		Group	1 - Improved reservoir compensation release control		Groundwater	-										N I	N N	N N	N N	N N	N	N N	N	Y			N		No or minimal impact No or minimal impact
		Group	1 - Improved reservoir compensation release control		Lake											N N	N N	N N	N N	N N	N N	N N	N	Y			N N		No or minimal impact
**************************************		Group 59 – COL	1 - Improved reservoir compensation release control DWELL UPPER & LOWER										,			N I	N N	N N	N N	N N	N.	N N	N	Y			Υ	Minor level of impact Medium	Minor level of impact
	WR	.59 – COL	DWELL UPPER & LOWER	GB41202G100300	Groundwater	No designation	Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a	n/a Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	N No or m	inimal impact	N		No or minimal impact
Control Cont	WR	.59 – OGE	DEN UPPER & LOWER	GB31230422	Lake	Heavily modified	Ogden Lower Reservoir	Colne Water	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	N No or m	inimal impact	N		No or minimal impact
Conference	WR	.59 – OGI Group	DEN UPPER & LOWER 1 - Improved reservoir compensation release control		Lake	Heavily modified			Moderate	Good by 2027 n/a	n/a		Good by 2015	Moderate		N I	N N	N N	N N	N N	N	N N	N	Y			N		No or minimal impact
March Marc		Group	1 - Improved reservoir compensation release control			-										N I	N N	N N	N N	N N	N	N N	N	Y			Y .	Minor level of impact High	Minor level of impact
		Group	1 - Improved reservoir compensation release control			-		-	•							N N	N N	N N	N N	N N	N N	N N	N	· ·			N N		No or minimal impact No or minimal impact
		Group	1 - Improved reservoir compensation release control RN CLOUGH		River								,			N I	N N	N N	N N	N N	N	N N	N	Y			γ ,	Minor level of impact Medium	Minor level of impact
Final Section Sectio	WR:	.59 - CHU	RN CLOUGH	GB41202G103000	Groundwater		Ribble Carboniferous Aquifers	Ribble Carboniferous Aq	n/a	n/a Good	Good by 2015	Good		Good		N	N N	N N	N N	N N	N	N N	N	Y	N No or m	inimal impact	N		No or minimal impact
Final State	WR	.59 – STO	CKS	GB31230030	Lake	Heavily modified	Stocks Reservoir	Hodder and Loud	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	No or m	inimal impact	N		No or minimal impact
March Marc		.59 – STO Group	CKS 1 - Improved reservoir compensation release control													N I	N N	N N	N N	N N	N	N N	N	Y			Y I	Minor level of impact High	Minor level of impact
Cong 1 - Improved -		Group	1 - Improved reservoir compensation release control			-				,						N I	N N	N N	N N	N N	N	N N	N .	Y			N 		No or minimal impact
Gugs 1 - Supposed concorporation rivers control on Mandors 1 - Man		Group	1 - Improved reservoir compensation release control										,			N I	N N	N N	N N	N N	N N	N N	N	Y		• • • • • • • • • • • • • • • • • • • •	N N		No or minimal impact No or minimal impact
Fig.		Group .59 – PIET	1 - Improved reservoir compensation release control HORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW,	GB31231399		. ,										N	N N	N N	N N	N N	N N	N N	N N	Y			N N		No or minimal impact
VISTOR	WRI	.59 - PIET	HORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW,	GB31231398	Lake	Heavily modified	Ogden Reservoir Rochdale	Roch Irk Medlock	Moderate	Moderate by 2015 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N I	N N	N N	N N	N N	N	N N	N	Y	No or m	inimal impact	N		No or minimal impact
VI	WR	.59 - PIET	HORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW,	GB31231405	Lake	Heavily modified	Hanging Lees Reservoir	Roch Irk Medlock	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	N N	N	N N	N	Y	No or m	inimal impact	N		No or minimal impact
No. Post P		.59 – PIET Group	HORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW, 1 - Improved reservoir compensation release control	GB31231435	Lake	Heavily modified	Rooden Reservoir	Goyt Etherow Tame	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	No or m	inimal impact	N		No or minimal impact
Group 1 - Improved reservoir compensation release control (Galdoti-Upper) and Moderate (Good by 2015) Moderate (Galdoti-Upper) Moderate (Good by 2015)		.59 – PIET Group	HORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW, 1 - Improved reservoir compensation release control										,			N	N N	N N	N N	N N	N	N N	N	Y			Y I	Minor level of impact High	Minor level of impact
Goody 2-1 my proved reservoirs compensation relases control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a not a control of Good by 2027 of a not a control		Group	1 - Improved reservoir compensation release control					,								N I	N N	N N	N N	N N	N	N N	N a-	Y			N N		No or minimal impact No or minimal impact
Group 1- Improved reservoirs compensation relates control of Galdout 207,000 Are & Calder Carb Limestone / Millstone Grit Coal Measures. Aire and Calder Carb Limestone - Millstone Grit Coal Measures. Aire and Calder Car		Group	1 - Improved reservoir compensation release control													N N	N N N	N N	N N	N N	N N	N N	ri N	Y			Y	Minor level of impact Medium	No or minimal impact Minor level of impact
Group 1 - Improved reservoir compensation release control of Fig. 1 and Fig.		Group .59 – WA	1 - Improved reservoir compensation release control RLAND													N	N N	N N	N N	N N	N N	N N	N.	Y		•	N .	- Treduit	No or minimal impact
WR159 - IJGHT HAZZES, WHITTHOLME & BLACKSTONE EDGE G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 Lake Heavily modified White Holme Reservoir Compensation release control G830431104 La		Group .59 – LIGH	1 - Improved reservoir compensation release control IT HAZZLES, WHITEHOLME & BLACKSTONE EDGE			Heavily modified	Blackstone Edge Reservoir	Roch Irk Medlock	Moderate	Moderate by 2015 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N I	N N	N N	N N	N N	N	N N	N	Y	No or m	inimal impact	N		No or minimal impact
WR159 — UGHT MAZZES, WHITEHOLME & BLACKSTONE EDGE Group 1 - Improved reservoir compensation release control WR159 — UGHT MAZZES, WHITEHOLME & BLACKSTONE EDGE Group 1 - Improved reservoir compensation release control WR159 — UGHT MAZZES, WHITEHOLME & BLACKSTONE EDGE Group 1 - Improved reservoir compensation release control WR159 — UGHT MAZZES, WHITEHOLME & BLACKSTONE EDGE Group 1 - Improved reservoir compensation release control WR159 — UGHT MAZZES, WHITEHOLME & BLACKSTONE EDGE GROUp 1 - Improved reservoir compensation release control WR159 — UGHT MAZZES, WHITEHOLME & BLACKSTONE EDGE GROUP 1 - Improved reservoir compensation release control WR159 — UGHT MAZZES, WHITEHOLME & BLACKSTONE EDGE GROUP 1 - Improved reservoir compensation release control WR159 — UGHT MAZZES, WHITEHOLME & BLACKSTONE EDGE GROUP 1 - Improved reservoir compensation release control WR159 — UGHT MAZZES, WHITEHOLME & BLACKSTONE EDGE GROUP 1 - Improved reservoir compensation release control WR159 — UGHT MAZZES, WHITEHOLME & BLACKSTONE EDGE GROUP 1 - Improved reservoir compensation release control WR159 — UGHT MAZZES, WHITEHOLME & BLACKSTONE EDGE GROUP 1 - Improved reservoir compensation release control WR159 — UGHT MAZZES, WHITEHOLME & BLACKSTONE EDGE GROUP 1 - Improved reservoir compensation release control WR159 — UGHT MAZZES, WHITEHOLME & BLACKSTONE EDGE GROUP 1 - Improved reservoir compensation release control WR159 — UGHT MAZZES, WHITEHOLME & BLACKSTONE EDGE GROUP 1 - Improved reservoir compensation release control WR159 — UGHT MAZZES, WHITEHOLME & BLACKSTONE EDGE GROUP 1 - IMPROVED 1 - IMPROV	WR	.59 – LIGH	IT HAZZLES, WHITEHOLME & BLACKSTONE EDGE		Lake	Heavily modified	White Holme Reservoir	Calder Upper	Good	Good by 2015 n/a	n/a	Good	Good by 2015	Good	Good by 2015	N	N N	N N	N N	N N	N	N N	N	Y	No or m	inimal impact	N		No or minimal impact
WR159	WR	.59 – LIGI	IT HAZZLES, WHITEHOLME & BLACKSTONE EDGE		River	Heavily modified	Walsden Water from Source to River Calder	Calder Upper	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	N Mediun	level of impact	Y I	Minor level of impact Medium	Minor level of impact
WR159 - LIGHT HAZZLES, WHITEHOLME & BLACKSTONE E BG 681120699064720 River Heavily modified Roch (Source to Spoodden) Roch Inf. Medium level of impact Y Minor level of impact	WR:	.59 – LIGI Group	IT HAZZLES, WHITEHOLME & BLACKSTONE EDGE 1 - Improved reservoir compensation release control		Groundwater				eas n/a							N I	N N	N N	N N	N N	N	N N	N	Y	No or m	inimal impact	N		No or minimal impact
Group 1- Improved reservoir compensation release control Group 1- Improved reservoir control Group 1- Improved reservoir control Group 1- Improved reser	WRI	Group	1 - Improved reservoir compensation release control		River				Moderate n/a							N I	N N	N N	N N	N N	N as	N N	N	Y	N Mediun	level of impact	Y I	Minor level of impact High	Minor level of impact No or minimal impact
Group 1 - Improved reservoir compensation release control		Group	1 - Improved reservoir compensation release control													N	N N	N N	N N	N N	N N	N N	ri N	Y			N N		No or minimal impact No or minimal impact
Group 1 - Improved reservoir compensation releases control Minister Part All TESHAMU UPPER & LOWER & Good by 2027 n/a n/a Good Good By 2027		Group .59 – CAS	1 - Improved reservoir compensation release control TLESHAW UPPER & LOWER													N	N N	N N	N N	N N	N.	N N	N	Y			Y	Minor level of impact Medium	Minor level of impact
	WR	.59 – CA	TLESHAW UPPER & LOWER		Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N I	N N	N N	N N	N N	N	N N	N	Y	N No or m	inimal impact	N		No or minimal impact
Group 1 - Improved reservoir compensation release control WR3159 — READYCON DEAN, CROOKGATE, DOWRY & NEW YEARS G831231404 Lake Heavily modified Ready.con Dean Reservoir Goyl Etherow Tame Moderate Good by 2027 n/a n/a Good Good by 2027 N N N N N N N N N N N N N N N N N N N	WR				Lake	Heavily modified	Readycon Dean Reservoir	Goyt Etherow Tame	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	N N	N	N N	N	Υ	No or m	inimal impact	N		No or minimal impact

Part	Option	WFD Water Body	Information											Option Detail									Impacts		
Part	Орион	Wi D Water Body	mornation											ė į		tion	rooir	is s	i ii a	well vell	je je	ease ing	шрисо		
Part														on land with wal	dified ster (e.g	ping sta diffied w works	ge rese Ill to riv 'canal /	fwater al / eased ater	of exisit to surfa	action v nent action v s / surfi	reased n quant	tion rel voir/ ent rais			
Part				Hydro - morphological				Fcological Quantitative	Quantitative	Chemical	I Chemical			line or	r/moc ace wa r) intak	r pump	r storag r outfa rvoir / educt	r/can educt //incr ace wa	ation harge t	rabstra ing / ribishm rabstra dworks ctures	//incr indwat raction	resen		Level 2 Screening	Level 2 Screening
Mathematical Content		ID e control	Туре		WB Name	Operational Catchment	Ecological Statu					Overall Statu	s Overall Objective	Pipe Cou	Surf rive	Nev trea	Nev Nev rese	Trar nive agu surf	Cess	Nev drill Nev hea stru	Bros	Nev emt	Level 1 Screening Resu		
Mathematical Content			Lake	Heavily modified	Crook Gate Reservoir	Goyt Etherow Tame	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N N	N	N N	N	Y N	No or minimal impact	N	No or minimal impact
Mathematical Content	Group 1 - Improved reservoir compensation release	e control	Lake				Moderate	, , , , , , , , , , , , , , , , , , , ,	n/a	Good				N N	N	N N	N N	N N	N	N N	N	Y	No or minimal impact	N	
Part	Group 1 - Improved reservoir compensation release	e control					Moderate		n/a	Good		Moderate		N N	N	N N	N N	N N	N	N N	N	Y	No or minimal impact	N	
Part	Group 1 - Improved reservoir compensation release	control					Moderate	Good by 2027 n/a		Good				N N	N	N N	N N	N N	N	N N	N	Y	Medium level of impact	Y	
Mathematical Control	Group 1 - Improved reservoir compensation release	control					n/a	n/a Good						N N	N	N N	N N	N N	N	N N	N	Y		N	
Mathematical Content	Group 1 - Improved reservoir compensation release	control												N N	N	N N	N N	N N	N	N N	N	Y		N	
Mathematical Content	Group 1 - Improved reservoir compensation release	control						, , , , , , , , , , , , , , , , , , , ,						N N	N	N N	N N	N N	N	N N	N	Y	•	N	
Mathematical Content	Group 1 - Improved reservoir compensation release	control						, , , , , , , , , , , , , , , , , , , ,						N N	N	N N	N N	N N	N .	N N	N	Y N		N N	
Mathematical Control of the contro	Group 1 - Improved reservoir compensation release	e control								Good				N N	N	N N	N N	N N	N .	N N	N	Y N		N U	
Mathematical Control	Group 1 - Improved reservoir compensation release	e control					Moderate n/o	Good by 2027 n/a		Good				N N	N	N N	N N	N N	N	N N	N	Y N	:	,	
Part	Group 1 - Improved reservoir compensation release	control					Moderate	riya Good		Cood				N N	N	N N	N N	N N	N	N N	N	, N			
Part	Group 1 - Improved reservoir compensation release	e control												N N	N	N N	N N	N N	N	N N	N	, N		, N	
Mathematical Control of the contro	Group 1 - Improved reservoir compensation releas	e control						, , , , , , , , , , , , , , , , , , , ,						N N	N N	N N	N N	N N	N	N N	N	, N	•		
Mathematical Control	Group 1 - Improved reservoir compensation release	e control						, , , , , , , , , , , , , , , , , , , ,		Good				AI N		N N	N N		N N	N N	N N				
Mathematical Content	Group 1 - Improved reservoir compensation release	control					Moderate			Good				N N	N	N N	N N	N N	N	N N	N	, N	No or minimal impact	N U	
Mathematical Control	Group 1 - Improved reservoir compensation release	control					moderate n/o	Moderate by 2015 fi/a		Boos		Noderate		N N	N N	N N	N N	N N	N	N N	N	, N	Me or minimal impact	,	
Mathematical Control	Group 1 - Improved reservoir compensation release	control					nyd Modoro**	1ya G000		FOOT		Moder		N N	N.	re N	N N	re N	N	N N	PA BA	v		N 	
Mathematical Control	Group 1 - Improved reservoir compensation release	e control												N N	N .	N N	re N	N N	N	n N	N	N		N	
Mathematical Control	Group 1 - Improved reservoir compensation release	e control						, , , , , , , , , , , , , , , , , , , ,						N N	N 	N N	N N	N N	N 	N N	N	v		Y	
Mathematical Control of the contro	Group 1 - Improved reservoir compensation release	e control			4	,	-9-	.,,-	uood by 2015	roor				N N	N .	N N	re N	N N	N	n N	N	N		N	
Mathematical Control	Group 1 - Improved reservoir compensation release	e control							nya n/-	Good				N N	N -	N N	n N	N N	N	rv N	N	N		N	
Mathematical Control	Group 1 - Improved reservoir compensation release	e control					moderate Mc done	, , , , , , , , , , , , , , , , , , , ,		Good				N N	N .	N N	re N	N N	N	n N	N	N		N	
Mathematical Control of the contro	Group 1 - Improved reservoir compensation release	e control					Moderate			Good				N N	N	N N	N N	N N	N	N N	N	Y N		Y	
Mathematical Content	Group 1 - Improved reservoir compensation release	control		-			n/a	,						N N	N .	N N	N N	N N	N	N N	N	Y N		N	
Mathematical Control of the contro	Group 1 - Improved reservoir compensation release	e control												N N	N .	N N	re N	N N	N	n N	N	N		N	
Mathematical Content	Group 1 - Improved reservoir compensation release	e control						, , , , , , , , , , , , , , , , , , , ,						N N	N .	N N	re N	N N	N	n N	N	N		N	
Mathematical Content	Group 1 - Improved reservoir compensation release	e control						, , , , , , , , , , , , , , , , , , , ,						N N	N	N N	N N	N N	N 	n N	N	N		Y	
Mathematical Control	Group 1 - Improved reservoir compensation release	e control	o Groundwater				-9-	,		roor				N N	N .	N N	re N	N N	N	n N	N	N		N	
Mathematical Control	Group 1 - Improved reservoir compensation release	control	Lake							Good				N N	N	N N	N N	N N	N	N N	N	Y N		N	
Mathematical Control	Group 1 - Improved reservoir compensation release	control			-									N N	N .	N N	N N	N N	N	N N	N	Y N		N	
Mathematical Control of the contro	Group 1 - Improved reservoir compensation release	e control												N N	N	N N	N N	N N	N	N N	N	Y		N	
Mathematical Control of the contro	Group 1 - Improved reservoir compensation release	e control			-0		Moderate							N N	N	N N	N N	N N	N	N N	N	Y		Y	
Mathematical Control of the contro	Group 1 - Improved reservoir compensation release	e control					n/a			Poor				N N	N	N N	N N	N N	N	N N	N	Y N		N	
Mathematical Control of the contro	Group 1 - Improved reservoir compensation release	control					Moderate			Good				N N	N	N N	N N	N N	N	N N	N	Y N		N	
Mathematical Control of the contro	Group 1 - Improved reservoir compensation release	control					Moderate			Good				N N	N	N N	N N	N N	N	N N	N	Y N		, ,	
	Group 1 - Improved reservoir compensation release	e control					n/a	,						N N	N	N N	N N	N N	N	N N	N	Y N		N	
	Group 1 - Improved reservoir compensation release	e control												N N	N	N N	N N	N N	N	N N	N	Y N		N	
Mathematical Control of the contro	Group 1 - Improved reservoir compensation release	e control			,		Moderate	, , , , ,						N N	N	N N	N N	N N	N	N N	N	Y N		, ,	
	Group 1 - Improved reservoir compensation release	e control				,	n/a							N N	N	N N	N N	N N	N .	N N	N	Y N		N N	
Mathematical Control of the contro	Group 1 - Improved reservoir compensation release	control								Good				N N	N	N N	N N	N N	N .	N N	N	Y N		N U	
. M.	Group 1 - Improved reservoir compensation release	e control								Good				N N	N	N N	N N	N N	N	N N	N	Y N		, ,	
	Group 1 - Improved reservoir compensation release	e control		-										N N	N	N N	N N	N N	N .	N N	N	Y N		N N	
	Group 1 - Improved reservoir compensation release	control			-									N N	N	N N	N N	N N	N	N N	N	, N			
Mathematical Control of the contro	Group 1 - Improved reservoir compensation release	e control			,			, , , , , , , , , , , , , , , , , , , ,						N N	N N	N N	N N	N N	N	N N	N	, N			
Part	Group 1 - Improved reservoir compensation release	e control			4		•	,		Poor				N N	N	N N	N N	N N	N	N N	N	, N	•		
Mathematical Control of the contro	Group 1 - Improved reservoir compensation release	control	Lake				Moderate	, , , , , , , , , , , , , , , , , , , ,	nya - (-	Good				N N	N	N N	N N	N N	N	N N	N	, N	•	, N	
Part	Group 1 - Improved reservoir compensation release	control	Lake				Moderate		nya - /-	Good				N N	N	N N	N N	N N	N .	N N	N	Y N		N N	
	Group 1 - Improved reservoir compensation release	control	Lake				Moderate			Good				N N	N.	re N	N N	re N	N	N N	PA BA	v		N 	
1	Group 1 - Improved reservoir compensation release	control												N N	N.	re N	N N	re N	N	N N	PA BA	v		N 	
	Group 1 - Improved reservoir compensation releas	control						, , , , , , , , , , , , , , , , , , , ,						N N	N 	N N	N N	N N	N 	N N	N	v	•	N	
Marked Properties Mark	Group 1 - Improved reservoir compensation release	control						, , , , ,						N N	N.	re N	N N	re N	N	N N	PA BA	v		N U	
**************************************	Group 1 - Improved reservoir compensation release	e control					Moderate			Good				N N	N.	re N	N N	re N	N	N N	PA BA	v		, ,	
Part	Group 1 - Improved reservoir compensation release	e control					Morlerate			Good				N N	N	N N	N N	re N	N Al	N N	N N	v		Ţ	
	Group 1 - Improved reservoir compensation release	control					n/c			Door				N N	N.	N N	N N	as N	N	N N	N N	V			
Part	Group 2 - Improved reservoir compensation release	control		-			nyd Modoro**	,						N N	N.	re N	N N	re N	N	N N	PA BA	v		N 	
Property of the property of	Group 2 - Improved reservoir compensation release	e control						, , , , , , , , , , , , , , , , , , , ,						N N	N.	N N	N N	re N	N	N N	PA BAI	V .		N U	
Part	Group 2 - Improved reservoir compensation release	e control												N N	N.	re N	N N	re N	N	N N	PA BA	v		, ·	
Control cont	Group 2 - Improved reservoir compensation release	e control	o oroundwater				Mode	.,,-		FOOT				N N	N	N N	N N	n N	N	N N	N	N		N	
Complete the content	Group 2 - Improved reservoir compensation release	control	Lake D Phon				Moderate			Good				N N	N.	N N	N N	re N	N	N N	PA BAI	V .		N U	
Control 2 - Property	Group 2 - Improved reservoir compensation release	e control					moderate n/c			Door				N N	N.	re N	N N	re N	N	N N	PA BA	v		, ·	
2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Group 2 - Improved reservoir compensation release	e control		-		-	nyd	,						N N	N .	N N	N N	re N	N	N N	N	N		N	
Conday Contay C	Group 2 - Improved reservoir compensation release	e control						, , , , , , , , , , , , , , , , , , , ,						N N	N 	N N	N N	N N	N 	N N	N	v		N U	
Confusion Fusion	Group 2 - Improved reservoir compensation release	e control					moderatë e/c							N N	N .	N N	N N	re N	N	N N	N	N		· ·	
Officings 2 - Improved reservoir compensation release control (Gal 1905/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/4019/888) River Heavily modified Control (Family moderate of Impact 1906/401	Group 2 - Improved reservoir compensation release	e control	o Groundwater				nya Moderni	,		Good				N N	N .	N N	re N	N N	N	n N	N	N		N	
Group 2 : Improved removir compersation release control of Ref 9000 4500 5 Foot Poor by 2015 Foot Poor Book Po	Group 2 - Improved reservoir compensation release	control	Lake							Good				N N	N	N N	N N	N N	N 	n N	N	N	Modium Issued of St	N U	
W/8800 River Bela to Thiifmere Aqueduct GB11277377170 River Heavily modified Bela Good Good by 2015 n/a Good Good by 2015 n/a n/a <td>Group 2 - Improved reservoir compensation release</td> <td>control</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>9000</td> <td></td> <td></td> <td></td> <td>N N</td> <td>N .</td> <td>N N</td> <td>N N</td> <td>re N</td> <td>N</td> <td>N N</td> <td>N</td> <td>N</td> <td>No or relative</td> <td>· ·</td> <td></td>	Group 2 - Improved reservoir compensation release	control								9000				N N	N .	N N	N N	re N	N	N N	N	N	No or relative	· ·	
W8800 River Bela to Thirdreen Aqueduct Third Party Option: Cow Green River Palaecook: and Carboniferous Aquillers W8800 River Bela to Thirdreen Aqueduct W8800 Rive														N N	N	N N	re N	N N	N	n N	N	N			
River Bela to Thirfmer Aqueduct Thirf Party Option: Cow Green IR To Hawwarder via WR810 Medium level of Impact Thirf Party Option: Cow Green IR To Hawwarder via Thirf Party Option: Cow Green IR To										Good				, Y	Y	Y N	N N	N Y	N	rv N	N	N N			
Third Party Option: Cow Green IR To Haweswater via WiR810 Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Haweswater via Hebrodie Aqueduct Third Party Option: Cow Green IR To Ha					, , , , , , , , , , , , , , , , , , , ,			, , , , , , , , , , , , , , , , , , , ,		Good				, Y	N	N N	N Y	N N	N	n N	N	N N		N	
Till Party Option: Cow Green IR To Hawewater via WiR810 Heltundia Aqueduct Till Party Option: Cow Green IR To Hawewater via WiR810 Heltundia Aqueduct Till Party Option: Cow Green IR To Hawewater via WiR810 Heltundia Aqueduct Till Party Option: Cow Green IR To Hawewater via WiR810 Heltundia Aqueduct Till Party Option: Cow Green IR To Hawewater via Wir810 Heltundia Aqueduct Till Party Option: Cow Green IR To Hawewater via Wir810 Heltundia Aqueduct Till Party Option: Cow Green IR To Hawewater via Wir810 Heltundia Aqueduct Till Party Option: Cow Green IR To Hawewater via Wir810 Heltundia Aqueduct Till Party Option: Cow Green IR To Hawewater via Wir810 Heltundia Aqueduct Till Party Option: Cow Green IR To Hawewater via Wir810 Heltundia Aqueduct Till Party Option: Cow Green IR To Hawewater via Wir810 Heltundia Aqueduct Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Option: Cow Green IR To Hawewater via Minor level of impact Till Party Opt	Third Party Option: Cow Green IR To Haweswater	ria						.,,-		roor Go-d				Y	Y	Y N	N Y	N Y	N	n N	N	N N		Y	
Third Party Option: Cow Green IR To Hawewster via WR810 Heltondiale Aqueduct Third Party Option: Cow Green IR To Hawewster via WR810 Heltondiale Aqueduct Third Party Option: Cow Green IR To Hawewster via WR810 Heltondiale Aqueduct Third Party Option: Cow Green IR To Hawewster via WR810 Heltondiale Aqueduct Third Party Option: Cow Green IR To Hawewster via WR810 Heltondiale Aqueduct G8 103025072440 River Heavily modified Maite Beck from Source to River Tees Tees Upper High Good by 2015 Good Good by 2015 Good Good by 2015 N N N N N N N N N N N N N N N N N N N	Third Party Option: Cow Green IR To Haweswater	ria						, , , , , , , , , , , , , , , , , , , ,		Good				N N	Y	N N	re N	N Y	N	n N	N	N N			
Third Party Option. Cow Green IR To Haweswater via WR810 Heltond Party Option. Cow Green IR To Haweswater via WR810 Heltond Party Option. Cow Green IR To Haweswater via Third Party Option. Cow Green IR To Haweswater via G8102076070910 River No designation Burthwaite Beck Eden Upper Good Good by 2015 n/a n/a	Third Party Option: Cow Green IR To Haweswater	ria								Good				Y	Y	Y N	re N	N Y	N	n N	N	N N			
Third Party Option: Cow Green IR To Haweswater via	Third Party Option: Cow Green IR To Haweswater	ria					High							Y	N .	N N	N N	N N	N	N N	N	N N			
THIRMAL PROBLEMS (SIGNAL) AND	Third Party Option: Cow Green IR To Haweswater	ria		-			G000							Y	N .	N N	re N	N N	N	n N	N	N N	,		
	vvno10 nettonasie Aquéduct	GB102076070960	Kiver	no designation	Swindare Beck fit Durton	coen Upper	9000	G000 by 2017 n/a	nya	Good	600d by 2015	G000	Good by 2027	Y	N	N N	re N	N N	N	re N	N	n N	rviinor level of impact	N	Minor level of impact

Option		WFD Water Body Info	rmation											0	ption Detail									Impacts			
														Part of the Part o	with water sssings saintied diffied ater (e.g.	ping station bdified water	all to river /	of water via nal / reased ater	on quantity of exisiting to surface	raction well nent raction well ss / surface	reased ater on quantity	to reservoir ation release	noir/ ent raising				
		_	_	Hydro - morphological				Ecological	Quantitative	Quantitative	Chemical	Chemical		Overall Objective	pe line v surse cro ew / mo irface wa	ew pumi ew / mo	ew stora ew outfa servoir,	ansfer o er/can lueduct ew/inc irface wa	sstractio sssation scharge ater	ew abstr illing / furbishn ew abstr sadwork ructures	ew / in a oundwa stractio	nanged t	ew reser	Sc	el 2 eening	Level 2 Screening	
Ref WR810	Option Name Third Party Option: Cow Green IR To Haweswater via Heltondale Aqueduct	GB102076070930	Type	Designation No designation	WB Name Trout Beck	Operational Catchment Eden Upper	Ecological Status Moderate		Status n/a	Objective n/a	Status	,		Good by 2027	* * * * * * * * * * * * * * * * * * *	2 2 5 N N	2 28	8 <u> </u>	# 3#¥	252 22 C	2 % G	5 8 N	ž ě	Level 1 Screening Results Re Minor level of impact	uired? Level 2 Screening R	esults Confidence	Combined Screening Re
WR810	Third Party Option: Cow Green IR To Haweswater via Heltondale Aqueduct	GB102076070880	River	No designation	Eden - Scandal Beck to Lyvennet	Eden Upper	Good		n/a	n/a	Good	Good by 2015 Go		Good by 2015	Y Y N	N N	N	N N	N N	N N		N N	l	Minor level of impact	N N		Minor level of impact
WR810	Third Party Option: Cow Green IR To Haweswater via Heltondale Aqueduct	GB102076070840	River	No designation	Lyvennet	Eden Upper	Poor	Good by 2027	n/a	n/a	Good	Good by 2015 Po	ır	Good by 2027	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR810	Third Party Option: Cow Green IR To Haweswater via Heltondale Aqueduct Third Party Option: Cow Green IR To Haweswater via	GB102076070830	River	No designation	Morland Beck	Eden Upper	Poor	Good by 2027	n/a	n/a	Good	Good by 2015 Por	ır	Good by 2027	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR810	Heltondale Aqueduct Third Party Option: Cow Green IR To Haweswater via Heltondale Aqueduct Third Party Option: Cow Green IR To Haweswater via	GB102076070900	River	No designation	Leith	Eden Upper	Good	Good by 2015	n/a	n/a	Good	Good by 2015 Go	od	Good by 2015	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR810	Heltondale Aqueduct Third Party Option: Cow Green IR To Haweswater via	GB102076071010	River	Heavily modified	Lowther (Lower)	Eamont	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015 Mo	derate	Good by 2027	Y Y N	N N	N	Y Y	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR810	Heltondale Aqueduct Third Party Option: Cow Green IR To Haweswater via	GB102076070720	River	heavily modified	Haweswater Beck	Eamont	Moderate		n/a	n/a	Good			Good by 2027	N N N	N N	N	N Y	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR810	Heltondale Aqueduct Third Party Option: Cow Green IR To Haweswater via	GB30229073	Lake	heavily modified	Haweswater Reservoir	Eamont	Moderate	Good by 2027	n/a	n/a	Good			Good by 2027	N N N	N N	N	Y N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR810 WR810	Heltondale Aqueduct Third Party Option: Cow Green IR To Haweswater via Heltondale Aqueduct	GB40302G700300 GB40202G102300	Groundwater Groundwater	No designation No designation	Tees Carb Limestone & Millstone Grit Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Tees Carb Limestone & Millstone Grit Eden and Esk Lower Palaeozoic and Carboniferous Aq	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Poor	Poor by 2015 Poor Good by 2015 Go		Poor by 2015 Good by 2015	YYY	Y N	N N	N N	Y N	N N	N	N	N	Medium level of impact Minor level of impact	Y No or minimal impa	tt Medium	No or minimal impact Minor level of impact
WR810	Third Party Option: Cow Green IR To Haweswater via Heltondale Aqueduct	GB40201G100400		No designation	Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Eden Valley and Carlisle Basin Permo-Triassic sandstone	n/a	n/a	Good	Good by 2015	Poor	Good by 2013 Go		Good by 2027	Y Y N	N N	N	N N	N N	N N	N N	N N	N N	Minor level of impact	N N		Minor level of impact
	Third Party Option: Kielder Water IR Transfer	GB102076070720	River	heavily modified	Haweswater Beck	Eamont	Moderate	Good by 2027	n/a	n/a	Good			Good by 2027	N N N	N N	N	N Y	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR812	Third Party Option: Kielder Water IR Transfer	GB102076070990	River	No designation	Eamont (Lower)	Eamont	Good	Good by 2027	n/a	n/a	Good	Good by 2015 Go	od	Good by 2027	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR812	Third Party Option: Kielder Water IR Transfer	GB102076071010	River	heavily modified	Lowther (Lower)	Eamont	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015 Mo	derate	Good by 2027	Y Y N	N N	N	Y Y	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR812	Third Party Option: Kielder Water IR Transfer	GB102076071020	River	No designation	Eamont (Upper)	Eamont	Good	Good by 2015	n/a	n/a	Good	Good by 2015 Go	od	Good by 2015	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR812	Third Party Option: Kielder Water IR Transfer	GB102076073840	River	No designation	Raven Beck	Eamont	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015 Mo	derate	Good by 2027	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR812	Third Party Option: Kielder Water IR Transfer	GB102076073850	River	No designation	Briggle Beck (Croglin)	Eden Lower	Poor	Good 2027	n/a	n/a	Good	Good by 2015 Po	ır	Good by 2027	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
	Third Party Option: Kielder Water IR Transfer	GB102076073860	River	No designation	Croglin Water (upper)	Eden Lower	Moderate	Good by 2027	n/a	n/a	Good			Good by 2027	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
	Third Party Option: Kielder Water IR Transfer	GB102076073940	River	No designation	Eden - Earmont to tidal	Eden lower	Good		n/a	n/a	Good	Good by 2015 Go		Good by 2015	YYN	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N N		Minor level of impact
WR812 WR812	Third Party Option: Kielder Water IR Transfer Third Party Option: Kielder Water IR Transfer	GB102076073981 GB102076073982	River	No designation No designation	Irthing DS Crammel Linn Waterfall Irthing US Crammel Linn Waterfall	Esk and Irthing Esk and Irthing	Good	Good by 2015 Good by 2027	n/a	n/a	Good	Good by 2015 Go Good by 2015 Po		Good by 2015 Good by 2027	Y N	N N	N Al	N N	N N	N N	N 	N	N	Minor level of impact Minor level of impact	N N		Minor level of impact Minor level of impact
WR812 WR812	Third Party Option: Kielder Water IR Transfer Third Party Option: Kielder Water IR Transfer	GB102076073982 GB102076074010		No designation No designation	Irthing US Crammel Linn Waterfall New Water	Esk and Irthing Esk and Irthing	Poor	Good by 2027 Good by 2027	n/a	n/a n/a	Good	Good by 2015 Po		Good by 2027 Good by 2027	Y Y M	n N	N N	N N	N	N N	N N	N N	N	Minor level of impact Minor level of impact	N N		Minor level of impact Minor level of impact
	Third Party Option: Kielder Water IR Transfer	GB102076074020	River	No designation	Old Water	Esk and Irthing	Moderate	Moderate by 2015			Good			Moderate 2015	Y Y N	N N	N	N N	N N	N N	N	N.	N	Minor level of impact	N		Minor level of impact
	Third Party Option: Kielder Water IR Transfer	GB102076074070	River	No designation	Butter Burn	Esk and Irthing	Poor		n/a	n/a	Good	Good by 2015 Po		Good by 2027	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR812	Third Party Option: Kielder Water IR Transfer	GB102076074100	River	No designation	Irthing (upstream Butter Burn)	Esk and Irthing	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015 Mo	derate	Good by 2027	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR812	Third Party Option: Kielder Water IR Transfer	GB103023074930	River	No designation	Chirdon Burn catch trib of N Tyne	North tyne upper	Good	Good by 2015	n/a	n/a	Good	Good by 2015 Go	od	Good by 2015	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR812	Third Party Option: Kielder Water IR Transfer	GB103023074940	River	No designation	Smales Burn Catch (trib of N Tyne)	North tyne upper	Good	Good by 2015	n/a	n/a	Good	Good by 2015 Go	od	Good by 2015	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
	Third Party Option: Kielder Water IR Transfer	GB103023075070	River	heavily modified	N Tyne from Lewis Burn to Tarset Burn	North tyne upper	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015 Mo	derate	Good by 2027	Y Y N	Y N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR812	Third Party Option: Kielder Water IR Transfer	GB103023075460	River	No designation	Black Burn Catchment (Trib of Hartley Burn)	South Tyne Upper	Poor	Good by 2027	n/a	n/a	Good	Good by 2015 Po	ır	Good by 2027	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
	Third Party Option: Kielder Water IR Transfer	GB103023075470	River	No designation	Hartley Burn from Source to Black Burn	South Tyne Upper	Moderate		n/a	n/a	Good			Good by 2027	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
	Third Party Option: Kielder Water IR Transfer	GB103023075510	River	No designation	Kellah Burn Catchment (Trib of Hartley Burn)	South Tyne Upper	Good		n/a	n/a	Good	Good by 2015 Go		Good by 2015	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
	Third Party Option: Kielder Water IR Transfer	GB103023075531	River	No designation	South Tyne from Black Burn to Tipalt Burn	South Tyne Upper	Moderate		n/a	n/a	Fail			Good by 2027	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N N		Minor level of impact
WR812 WR812	Third Party Option: Kielder Water IR Transfer Third Party Option: Kielder Water IR Transfer	GB103023075580 GB30229073	River Lake	No designation heavily modified	Tipalt Burn from Source to South Tyne Haweswater Reservoir	South Tyne Upper Eamont	Poor Moderate	Good by 2027 Good by 2027	n/a n/a	n/a	Good	Good by 2015 Po		Good by 2027 Good by 2027	N N N	N N	N N	N N	N N	N N	N	N N	N N	Minor level of impact Minor level of impact	N N		Minor level of impact Minor level of impact
	Third Party Option: Kielder Water IR Transfer	GB30327698	Lake	heavily modified	Kielder Water	North Tyne Upper	Moderate		n/a	n/a	Good			Good by 2027	N N Y	N N	N	N N	Y N	N N	N N	N	N.	Medium level of impact	Y Minor level of impa	t Low	Minor level of impact
	Third Party Option: Kielder Water IR Transfer	GB40201G100400	Groundwater	No designation	Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Eden Valley and Carlisle Basin Permo-Triassic Sandstone Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027 Po	ır	Good by 2027	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR812	Third Party Option: Kielder Water IR Transfer	GB40202G102300	Groundwater	No designation	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Eden and Esk Lower Palaeozoic and Carboniferous Aq	n/a	n/a	Good	Good by 2015	Good	Good by 2015 Go	od	Good by 2015	Y Y N	N N	N	Y Y	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR812	Third Party Option: Kielder Water IR Transfer	GB40302G701500	Groundwater	No designation	Tyne Carboniferous Limestone and Coal Measures	Tyne Carboniferous Limestone and Coal Measures	n/a	n/a	Good	Good by 2015	Poor	Poor by 2015 Poor	ır	Poor by 2015	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR812	Third Party Option: Kielder Water IR Transfer Third Party Option: Scammonden IR To Buckton Castle via	GB40302G702700	Groundwater	No designation	Tyne Carboniferous Limestone	Tyne Carboniferous Limestone	n/a	n/a	Good	Good by 2015	Good	Good by 2015 Go	od	Good by 2015	Y Y Y	Y N	N	N N	Y N	N N	N	N	N	Medium level of impact	Y No or minimal impa	t Low	No or minimal impact
WR813	Huddersfield Narrows Canal Third Party Option: Scammonden IR To Buckton Castle via	GB30431243	Lake	heavily modified	Scammonden Water	Calder Middle	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015 Mo	derate	Good by 2027	N N Y	N N	N	N N	Y N	N N	N	N	N	Medium level of impact	Y Minor level of impa	t Low	Minor level of impact
WR813	Huddersfield Narrows Canal Third Party Option: Scammonden IR To Buckton Castle via		River	heavily modified	Black Brook from Source to River Calder	Calder Middle	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015 Mo	derate	Moderate by 2015	YYY	Y N	N	N N	Y N	N N	N	N	N	Medium level of impact	Y Minor level of impa	t Low	Minor level of impact
WR813	Huddersfield Narrows Canal Third Party Option: Scammonden IR To Buckton Castle via			heavily modified	Colne from Wessenden Brook to R Holme	Colne and Holme	Moderate	Moderate by 2015		n/a	Good			Moderate by 2015	Y Y N	N N	N	Y N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR813	Huddersfield Narrows Canal Third Party Option: Scammonden IR To Buckton Castle via Huddersfield Narrows Canal	GB70410269 GB70410520	Canal	Artificial Artificial	Huddersfield Narrow Canal east section Huddersfield Narrow Canal summit section	Calder canals Calder canals	Good		n/a n/a	n/a	Good	Good by 2015 Go Good by 2015 Go		Good by 2015 Good by 2015	N N N	N N	N N	Y Y	N N	N N	N	N	N N	Minor level of impact Minor level of impact	N N		Minor level of impact
WR813	Third Party Option: Scammonden IR To Buckton Castle via Huddersfield Narrows Canal	GB70410520 GB71210268	Canal	Artificial	Huddersfield Narrow Canal west section	Calder canals	Moderate		n/a	n/a	Good	Good by 2015 Go		Good by 2015 Good by 2027	N N V	N N	N N	N Y	v N	N N	N N	N N	1	Medium level of impact	Y Minor level of impa	t Low	Minor level of impact
WR813	Third Party Option: Scammonden IR To Buckton Castle via Huddersfield Narrows Canal	GB112069061111	River	heavily modified	Tame (Chew Brook to Swineshaw Brook)	Goyt Etherow Tame	Moderate	Moderate by 2015		n/a	Good			Moderate by 2015	Y N Y	Y N	N	N N	Y N	N N	N	N	N	Medium level of impact	Y Minor level of impa		Minor level of impact
WR813	Third Party Option: Scammonden IR To Buckton Castle via Huddersfield Narrows Canal	GB40402G700400	Groundwater	No designation	Aire & Calder Carb Limestone / Millstone Grit / Coal Measures.	Aire and Calder Carb Limestone - Millstone Grit Coal - Measures	n/a	n/a	Good	Poor by 2015	Poor	Poor by 2015 Poor		Poor by 2015	Y Y Y	Y N	N	Y N	Y N	N N	N	N	N	Medium level of impact	Y No or minimal impa	t Medium	No or minimal impact
WR813	Third Party Option: Scammonden IR To Buckton Castle via Huddersfield Narrows Canal	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and East Cheshire Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027 Po	ır	Good by 2027	Y N Y	Y N	N	N N	Y N	N N	N	N	N	Medium level of impact	Y No or minimal impa	t Medium	No or minimal impact
WR814a	Increased Abstraction Capacity at Heronbridge	GB41101G202400	Groundwater	No designation	Dee Permo-Triassic Sandstone	Dee Permo-Triassic Sandstone	n/a	n/a	Good	Good by 2015	Good	Good by 2015 Go	od	Good by 2015	N N N	N Y	N	N N	Y N	N N	N	N	N	Medium level of impact	Y No or minimal impa	t High	No or minimal impact
WR814a	Increased Abstraction Capacity at Heronbridge	GB111067057080	River	Heavily modified	Dee- Chester Weir to Ceiriog	Dee	Moderate	Good by 2021	n/a	n/a	Fail	Good by 2021 Mo	derate	Good by 2021	N N N	N Y	N	N N	Y N	N N	N	N	N	Medium level of impact	Y No or minimal impa	t High	No or minimal impact
WR814b	Increased treatment capacity at Hurleston WTW via Canal		River	Heavily modified	Dee - Ceiriog to Alwen	Dee	Good	Good by 2015	n/a	n/a	Fail	Good by 2021 Mo	derate	Good by 2021	N N N	N N	N	N Y	Y N	N N	N	N	N	Medium level of impact	Y Medium level of im	lact Low	Medium level of impact
	Increased treatment capacity at Hurleston WTW via Canal		River	No designation	Ceiriog - confluence Dee to Teirw	Dee	Good		n/a	n/a	Good	Good by 2015 Go		Good by 2015	N N N	N N	N	N Y	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
	Increased treatment capacity at Hurleston WTW via Canal			No designation	Morlas Brook	Ceiriog	Good		n/a	n/a	Good	Good by 2015 Go		Good by 2015	N N N	N N	N	N Y	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
	Increased treatment capacity at Hurleston WTW via Canal			No designation	Perry - source to conf Common Bk	Perry Roden and Tern North Shropshire	Moderate		n/a	n/a	Good			Good by 2027	N N N	N N	N	N Y		N N	N	N	N	Minor level of impact	N N		Minor level of impact
	Increased treatment capacity at Hurleston WTW via Canal			No designation	Perry - conf Common Bk to conf Tetchill Bk Tetchill Bk - source to conf R Perry	Perry Roden and Tern North Shropshire Perry Roden and Tern North Shropshire	Moderate	Good by 2027 Moderate by 2027	n/a	n/a	Good	Good by 2015 Mo Good by 2015 Po		Good by 2027 Moderate by 2027	N N N	N N	N Al	N Y	N N	N N	N 	N	N N	Minor level of impact Minor level of impact	N N		Minor level of impact
	Increased treatment capacity at Hurleston WTW via Canal Increased treatment capacity at Hurleston WTW via Canal		River	No designation No designation	Tetchill Bk - source to conf R Perry Roden - source to conf unnamed trib	Perry Roden and Tern North Shropshire Perry Roden and Tern North Shropshire	Poor		n/a n/a	n/a n/a	Good	Good by 2015 Po		Moderate by 2027 Moderate by 2027	N N N	n N	N N		N N	N N	N N	N N	l	Minor level of impact Minor level of impact	N N		Minor level of impact Minor level of impact
	Increased treatment capacity at Hurleston WTW via Canal		River	No designation	Tributary - source to conf R Roden	Perry Roden and Tern North Shropshire	Bad		n/a	n/a	Good	Good by 2015 Bar		Good by 2027	N N N	N N	N.	N Y	N N	N N	N	N		Minor level of impact	N		Minor level of impact
	Increased treatment capacity at Hurleston WTW via Canal		River	No designation	Worthenbury Brook - upper	Worthenbury	Poor	Moderate by 2027		n/a	Fail	Good by 2027 Po		Moderate by 2027	N N N	N N	N	N Y	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
	Increased treatment capacity at Hurleston WTW via Canal			No designation	Bickley Brook	Weaver Upper	Moderate	Good by 2027	n/a	n/a	Good	Good by 2027 Mo	derate	Good by 2027	N N N	N N	N	N Y	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR814b	Increased treatment capacity at Hurleston WTW via Canal	GB112068055300	River	No designation	Weaver (Source to Marbury Brook)	Weaver Upper	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015 Mo	derate	Moderate by 2015	N N N	N N	N	N Y	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR814b	Increased treatment capacity at Hurleston WTW via Canal	GB112068055470	River	No designation	Weaver (Marbury Brook to Barnett Brook)	Weaver Upper	Poor	Moderate by 2027	n/a	n/a	Good	Good by 2015 Po	r	Moderate by 2027	N N N	N N	N	N Y	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR814b	Increased treatment capacity at Hurleston WTW via Canal	GB112068055250	River	No designation	Edleston Brook	Weaver Upper	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015 Mo	derate	Good by 2027	N N N	N N	N	N Y	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
	Increased treatment capacity at Hurleston WTW via Canal		River	No designation	Rookery Brook, Burland and Brindley Bk. to Weaver	Weaver Upper	Moderate	Good by 2021	n/a	n/a	Good			Good by 2021	Y Y N	N N	N	N Y	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
	Increased treatment capacity at Hurleston WTW via Canal			No designation	Weaver (Marbury Brook to Dane)	Weaver Upper	Poor		n/a	n/a	Good	Good by 2015 Por		Good by 2027	Y Y N	N N	N	N N	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
	Increased treatment capacity at Hurleston WTW via Canal			Artificial	Llangollen Canal	Perry Roden and Tern North Shropshire Canals	Good		n/a	n/a	Good	Good by 2015 Go		Good by 2015	N N N	N N	N	N Y	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
	Increased treatment capacity at Hurleston WTW via Canal				Dee Silurian/Ordovician	Dee Silurian/Ordovician	n/a		Good	None given	Good	Good by 2015 Go		Good by 2015	N N N	N N	N	N Y	N N	N N	N	N	I	Medium level of impact	Y Minor level of impa	t Low	Minor level of impact
	Increased treatment capacity at Hurleston WTW via Canal Increased treatment capacity at Hurleston WTW via Canal			No designation No designation	Dee Carboniferous Limestone Dee Carboniferous Coal Measures	Dee Carboniferous Limestone Dee Carboniferous Coal Measures	n/a n/a	n/a n/a	Good	None given	Good	Good by 2015 Go Poor by 2015 Po		Good by 2015 Poor by 2015	N N N	N N	N N	N Y	N N	N N	N	N		Minor level of impact Minor level of impact	N N		Minor level of impact Minor level of impact
	Increased treatment capacity at Hurleston WTW via Canal			No designation	Severn Uplands - Carboniferous Oswestry	Severn Uplands - Carboniferous Oswestry	n/a	n/a	Good	Good by 2015	Good	Good by 2015 Go		Good by 2015	N N N	N N	N N	N Y	N N	N N	N	N		Minor level of impact	N.		Minor level of impact
	Increased treatment capacity at Hurleston WTW via Canal		Groundwater	No designation	Dee Permo-Triassic Sandstone	Dee Permo-Triassic Sandstone	n/a	n/a	Good	Good by 2015	Good	Good by 2015 Go		Good by 2015	N N N	N N	N	N Y	N N	N N	N	N	l	Minor level of impact	N		Minor level of impact
WR814b		1			Shropshire Middle Severn - Secondary Mudrocks and Drift Wem	Severn Middle Shropshire - Secondary Mudrocks and Dri		n/a	Good		Good	Good by 2015 Go		Good by 2015	N N N	N N	N	N Y	N N	N N	N	N		Minor level of impact	N		Minor level of impact
	Increased treatment capacity at Hurleston WTW via Canal	GB40902G991800	Groundwater	140 deagnation																							
WR814b	Increased treatment capacity at Hurleston WTW via Canal Increased treatment capacity at Hurleston WTW via Canal			-	Weaver and Dane Quaternary Sand and Gravel Aquifers	Weaver and Dane Quaternary Sand and Gravel Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027 Po	r	Good by 2027	Y Y N	N N	N	N Y	N N	N N	N	N	N	Minor level of impact	N		Minor level of impact
WR814b		GB41202G991700	Groundwater	No designation		Weaver and Dane Quaternary Sand and Gravel Aq Dee Triassic Mercia Mudstone	n/a n/a	n/a n/a	Good	Good by 2015 None given	Poor	Good by 2027 Pool Good by 2015 Go		Good by 2027 Good by 2015	Y Y N	N N	N N	N Y	N N	N N	N N	N N		Minor level of impact Minor level of impact	N N		Minor level of impact Minor level of impact

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ption		WFD Water Body Info	rmation											Option Detail										Impacts				
														ate.	4	ation water s	ervoir ver/	rvia	atity itting face	well face	ıtıky	rvoir	8 us					
														on land with w rossings	odified vater (e. ake	nping st odified 1t work:	rage res fall to ri r/can al	of wate inal / it creased vater	on quar n of exis e to surf	traction iment traction rks / sur	areased rater on quar	to rese	ervolr / ment rai					
ef Option Name		ID	Туре	Hydro - morphological Designation	WB Name	Operational Catchment	Ecological Statu	Ecological Qua s Objective State	ntitative Quanti	ative Chemic	al Chemical Objective	Overall Sta	atus Overall Objective	ipe line ipe line ourse o	dew/m urface v iver) int	dew pur dew / m reatmer	dew sto dew out eservoil ng ued uc	ransfer Ner/ca queduc dew/in urface v	ib stracti Cessatio lischarg vater	firilling / efurbish dew abs	dew / in groundw ib stracti	Changed	dew res	Level 1 Screening Results	Level 2 Screening Required?	Level 2 Screening Results	Level 2 Screening Confidence	Combined Screening Resul
	ent capacity at Hurleston WTW via Canal	GB111067051910	River	No designation	Ceiriog - confluence Dee to Teirw	Dee	Good	Good by 2015 n/a	n/a	Good	Good by 2015		Good by 2015	y y	N N	N N	N N	N N	N N	N N	. 2 % 1	N	N N	Minor level of impact	N N	cerei 2 Secennig nesons	comucine	Minor level of impact
	ent capacity at Hurleston WTW via Canal		River	No designation	Morlas Brook	Dee	Good	Good by 2015 n/a	n/a	Good	Good by 2015		Good by 2015	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
R814c Increased treatmen	ent capacity at Hurleston WTW via Canal	GB109054055010	River	No designation	Perry - source to conf Common Bk	Perry Roden and Tern North Shropshire	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
R814c Increased treatmer	ent capacity at Hurleston WTW via Canal	GB109054054970	River	No designation	Perry - conf Common Bk to conf Tetchill Bk	Perry Roden and Tern North Shropshire	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
R814c Increased treatmen	ent capacity at Hurleston WTW via Canal	GB109054055000	River	No designation	Tetchill Bk - source to conf R Perry	Perry Roden and Tern North Shropshire	Poor	Moderate by 2027 n/a	n/a	Good	Good by 2015	Poor	Moderate by 2027	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
R814c Increased treatmen	ent capacity at Hurleston WTW via Canal	GB109054055020	River	No designation	Roden - source to conf unnamed trib	Perry Roden and Tern North Shropshire	Poor	Good by 2027 n/a	n/a	Good	Good by 2015	Poor	Moderate by 2027	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
R814c Increased treatmen	ent capacity at Hurleston WTW via Canal	GB109054054980	River	No designation	Tributary - source to conf R Roden	Perry Roden and Tern North Shropshire	Bad	Good by 2027 n/a	n/a	Good	Good by 2015	Bad	Good by 2027	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
R814c Increased treatmen	ent capacity at Hurleston WTW via Canal	GB111067052200	River	No designation	Worthenbury Brook - upper	Dee	Poor	Moderate by 2027 n/a	n/a	Fail	Good by 2027	Poor	Moderate by 2027	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
R814c Increased treatmen	ent capacity at Hurleston WTW via Canal	GB112068055260	River	No designation	Bickley Brook	Weaver Upper	Moderate	Good by 2027 n/a	n/a	Good	Good by 2027	Moderate	Good by 2027	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
/R814c Increased treatmer	ent capacity at Hurleston WTW via Canal	GB112068055300	River	No designation	Weaver (Source to Marbury Brook)	Weaver Upper	Moderate	Moderate by 2015 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
	ent capacity at Hurleston WTW via Canal			No designation	Weaver (Marbury Brook to Barnett Brook)	Weaver Upper	Poor	Moderate by 2027 n/a	n/a	Good	Good by 2015		Moderate by 2027	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
	ent capacity at Hurleston WTW via Canal		River	No designation	Edleston Brook	Weaver Upper	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015		Good by 2027	Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
	ent capacity at Hurleston WTW via Canal	GB112068055340 GB112068060460	River	No designation	Rookery Brook, Burland and Brindley Bk. to Weaver Weaver (Marbury Brook to Dane)	Weaver Upper Weaver Upper	Moderate	Good by 2021 n/a Good by 2027 n/a	n/a	Good	Good by 2015 Good by 2015	Moderate	Good by 2021	Y Y	N	N N	N N	N 	N N	N N	N	N	N	Minor level of impact Minor level of impact	N N			Minor level of impact Minor level of impact
	ent capacity at Hurleston WTW via Canal ent capacity at Hurleston WTW via Canal		Canal	No designation Artificial	Llangollen Canal	Perry Roden and Tern North Shropshire Canals	Good	Good by 2027 n/a Good by 2015 n/a	n/a	Good	Good by 2015 Good by 2015	Good	Good by 2027 Good by 2015	, ,	N N	N N	N N	N	N N	N N	N	N N	N N	Minor level of impact	N N			Minor level of impact
	ent capacity at Hurleston WTW via Canal		Groundwater	No designation	Dee Silurian/Ordovician	Dee Silurian/Ordovician	n/a	n/a Good by 2015 n/a			Good by 2015		Good by 2015 Good by 2015	, ,	N N	N N	N N	N N	v N	N N	N	N	N	Medium level of impact	, v	Minor level of impact	Low	Minor level of impact
	ent capacity at Hurleston WTW via Canal		Groundwater	No designation	Dee Carboniferous Limestone	Dee Carboniferous Limestone	n/a	n/a Goo			Good by 2015		Good by 2015	Y Y	N N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N	Willion level of migaet	LOW	Minor level of impact
	ent capacity at Hurleston WTW via Canal		Groundwater	No designation	Dee Carboniferous Coal Measures	Dee Carboniferous Coal Measures	n/a	n/a Goo	d None s		Poor by 2015	Poor	Poor by 2015	Y Y	N N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N N			Minor level of impact
	ent capacity at Hurleston WTW via Canal	GB40902G205400	Groundwater	No designation	Severn Uplands - Carboniferous Oswestry	Severn Uplands - Carboniferous Oswestry	n/a	n/a Goo	d Good b	2015 Good	Good by 2015	Good	Good by 2015	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
	ent capacity at Hurleston WTW via Canal	GB41101G202400	Groundwater	No designation	Dee Permo-Triassic Sandstone	Dee Permo-Triassic Sandstone	n/a	n/a Goo	d Good b	2015 Good	Good by 2015	Good	Good by 2015	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
R814c Increased treatmen	ent capacity at Hurleston WTW via Canal	GB40902G991800	Groundwater	No designation	Shropshire Middle Severn - Secondary Mudrocks and Drift Wem	Shropshire Middle Severn - Secondary Mudrocks and Dri Wem	ft n/a	n/a Goo	d Good b	2015 Good	Good by 2015	Good	Good by 2015	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
R814c Increased treatmen	ent capacity at Hurleston WTW via Canal	GB41202G991700	Groundwater	No designation	Weaver and Dane Quaternary Sand and Gravel Aquifers	Weaver and Dane Quaternary Sand and Gravel Aq	n/a	n/a Good	d Good b	2015 Poor	Good by 2027	Poor	Good by 2027	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
	ent capacity at Hurleston WTW via Canal	GB40902G991400	Groundwater	No designation	Dee Triassic Mercia Mudstone	Dee Triassic Mercia Mudstone	n/a	n/a Good	d None g	ven Good	Good by 2015	Good	Good by 2015	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
R816 Integrated Zone	on: Manchester Bolton Bury Canal To	GB112069060840	River	heavily modified	Irwell (Roch to Croal)	Croal Irwell	Moderate	Moderate by 2015 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	Y Y	Υ	Y Y	N N	Y	Y N	N N	N	N	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
R816 Integrated Zone		GB71210501	Canal	Artificial	Manchester, Bolton and Bury Canal (North)	Croal Irwell Canals	Moderate	Moderate by 2015 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	Y	N N	N N	Y	Y N	N N	N	N	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
R816 Integrated Zone	on: Manchester Bolton Bury Canal To	GB41202G101800	Groundwater	No designation	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a Good	d Good b	2015 Poor	Good by 2027	Poor	Good by 2027	Y Y	Y	Y Y	N N	Y	Y N	N N	N	N	N	Medium level of impact	Y	No or minimal impact	Medium	No or minimal impact
R816 Integrated Zone	on: Manchester Bolton Bury Canal To	GB112069064620	River	heavily modified	Irwell (Rossendale STW to Roch)	Croal Irwell	Moderate	Moderate by 2015 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
R816 Integrated Zone	on: Carr Mill Dam To Integrated Resource	GB112069064600	River	heavily modified	Roch (Spodden to Irwell)	Roch Irk Medlock	Moderate	Moderate by 2015 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	Y N	N	N N	N N	N	N N	N N	N	N	N	No or minimal impact	N			No or minimal impact
	on: Carr Mill Dam To Integrated Resource		River	Heavily modified	Black Brook (Mersey Estuary)	Sankey	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	Υ	Y Y	N N	Y	Y N	N N	N	N	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
	on: Carr Mill Dam To Integrated Resource	GB112069061220	River	Heavily modified	Millingford (Newton) Brook	Sankey	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y N	N	N N	N N	N	N N	N N	N	N	N	No or minimal impact	N			No or minimal impact
	on: Carr Mill Dam To Integrated Resource		Canal	Artificial	St Helens Canal	Sankey Canals	Moderate	Good by 2027 n/a	n/a	Good	Good by 2027	Moderate	Good by 2027	N N	Υ	N N	N N	Y	Y N	N N	N	N	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
	on: Shropshire Union Canal To Integrated	GB41202G100100	Groundwater	No designation	Sankey and Glaze Carboniferous aquifers	Sankey and Glaze Carboniferous Aq	n/a	n/a Good			Poor by 2015	Poor	Poor by 2015	Y Y	Υ	YY	N N	Y	Y N	N N	N	N	N	Medium level of impact	Υ	No or minimal impact	Medium	No or minimal impact
R820 Resource Zone Third Party Option: R820 Resource Zone	on: Shropshire Union Canal To Integrated	GB112068060460 GB71210133	River	No designation Artificial	Weaver (Marbury Brook to Dane) Shropshire Union Canal, Market Drayton to Ellesmere Port	Weaver Upper Canals	Poor Moderate	Good by 2027 n/a Good by by 2027 n/a	n/a	Good	Good by 2015 Good by 2015		Good by 2027 Good by by 2027	N N	N	N N	N N		N N	N N	N	N	N	Minor level of impact Medium level of impact	N Y	Minor level of impact	Low	Minor level of impact Minor level of impact
	on: Shropshire Union Canal To Integrated		River	No designation	Rookery Brook, Burland and Brindley Bk. to Weaver	Weaver upper	Moderate	Good by by 2021 n/a	n/a	Good	Good by 2015		Good by by 2027	N N	N	N V	N N	v	v N	N N	N	N	N	Medium level of impact	·	Minor level of impact	Medium	Minor level of impact
	on: Shropshire Union Canal To Integrated		Groundwater	No designation	Weaver and Dane Quaternary Sand and Gravel Aquifers	Weaver and Dane Quaternary Sand and Gravel Aq	n/a	n/a Goo			Good by 2027		Good by 2027	· ·	Y	N Y	N V	· ·	v N	N N	N N	N	N	Medium level of impact	· ·	No or minimal impact	Medium	No or minimal impact
R821 Shropshire Union C	n Canal		River	No designation	Weaver (Marbury Brook to Dane)	Weaver Upper	Poor	Good by 2027 n/a	n/a	Good	Good by 2015		Good by 2027	Y N	N	N N	N N	N	N N	N N	N	N	N	No or minimal impact	N N			No or minimal impact
R821 Shropshire Union C	ı Canal	GB112068055340	River	No designation	Rookery Brook, Burland and Brindley Bk. To Weaver	Weaver Upper	Moderate	Good by 2021 n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	Y Y	Y	N Y	N N	N	Y N	N N	N	N	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
R821 Shropshire Union C	ı Canal	GB71210133	AWB - Canal	Artificial	Shropshire Union Canal, Market Drayton to Ellesmere Port	Weaver Upper Canals	Moderate	Good by 2021 n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	N N	Y	N N	N N	Y	Y N	N N	N	N	N	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact
R821 Shropshire Union C	n Canal	GB41202G991700	Groundwater	No designation	Weaver and Dane Quaternary Sand and Gravel Aquifers	Weaver and Dane Quaternary Sand and Gravel Aq	n/a	n/a Good	d Good b	2015 Poor	Good by 2027	Poor	Good by 2027	Y N	γ	N Y	N N	Y	Y N	N N	N	N	N	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact
R824 Third Party Option:	on: Blenkinsopp Mine	GB103023075580	River	No designation	Tipalt Burn from Source to South Tyne	South Tyne Lower	Poor	Good by 2027 n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Y Y	N	N N	N N	N	N N	N N	Y	N	N	Medium level of impact	Y	No or minimal impact	Medium	No or minimal impact
R824 Third Party Option:	on: Blenkinsopp Mine	GB103023075531	River	No designation	South Tyne from Black Burn to Tipalt Burn	South Tyne Upper	Moderate	Good by 2027 n/a	n/a	Fail	Good by 2027	Moderate	Good by 2027	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
R824 Third Party Option	on: Blenkinsopp Mine	GB103023075510	River	No designation	Kellah Burn Catchment (Trib of Hartley Burn)	South Tyne Upper	Good	Good by 2015 n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
R824 Third Party Option:	n: Blenkinsopp Mine	GB103023075470	River	No designation	Hartley Burn from Source to Black Burn	South Tyne Upper	Moderate	Good by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
R824 Third Party Option	on: Blenkinsopp Mine	GB102076074040	River	No designation	Gelt	Esk and Irthing	Poor	Good by 2027 n/a	n/a	Good	Good by 2015		Good by 2027	Y Y	N	N N	N N	N	N N	N N	N	N	N	Minor level of impact	N			Minor level of impact
	on: Blenkinsopp Mine on: Blenkinsopp Mine	GB40202G102300 GB40302G701500	Groundwater Groundwater	No designation No designation	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers Tyne Carboniferous Limestone and Coal Measures	Eden and Esk Lower Palaeozoic and Carboniferous Aq Tyne Carboniferous Limestone and Coal Measures	n/a n/a	n/a Good			Good by 2015 Poor by 2015	Good	Good by 2015 Poor by 2015	Y Y	N N	N N N N	N N	N N	N N	N N N N		N N	N N	Minor level of impact Minor level of impact	N N			Minor level of impact Minor level of impact
R824 Third Party Option			Groundwater	No designation	Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Eden Valley and Carlisle Basin Permo-Triassic Sandstone	n/a	n/a Good			Good by 2027		Good by 2027	Y Y	N	N N	N N	N	N N	N N	Y	N	N	Medium level of impact	ν γ	Minor level of impact	Medium	Minor level of impact
Enabling Works		GB109054049880	River	Heavily modified	Vrynwy - Lake Vrynwy to conf Afon Cownwy	Vrynwy	Moderate	Good by 2021 n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	Y N	N	N N	N N	N	N N	N N	N	N	N	No or minimal impact	N			No or minimal impact
2 Enabling Works		GB109054049920	River	No designation	Hirnant - source to conf Afon Tanat	Tanat	Poor	Good by 2021 n/a	n/a	Fail	Good by 2021	Poor	Good by 2021	Y N	N	N N	N N	N	N N	N N	N	N	N	No or minimal impact	N			No or minimal impact
Enabling Works		GB109054049960	River	No designation	Afon Tanat - conf Hirnant to conf Afon Rhaeadr	Tanat	Moderate	Good by 2021 n/a	n/a	Fail	Good by 2021	Moderate	Good by 2021	Y N	N	N N	N N	N	N N	N N	N	N	N	No or minimal impact	N			No or minimal impact
Enabling Works		GB109054055040	River	No designation	Afon Rhaeadr - source to conf Afon Tanat	Tanat	Moderate	Good by 2021 n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	Y N	N	N N	N N	N	N N	N N	N	N	N	No or minimal impact	N			No or minimal impact
Enabling Works		GB109054055050	River	No designation	Afon Iwrch - source to conf Afon Tanat	Tanat	Moderate	Good by 2021 n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	Y N	N	N N	N N	N	N N	N N	N	N	N	No or minimal impact	N			No or minimal impact
Enabling Works		GB109054050050	River	No designation	Afon Tanat - conf Afon Rhaeadr to conf Afon Vyrnwy	Tanat	Moderate	Good by 2021 n/a	n/a	Fail	Good by 2021	Moderate	Good by 2021	Y N	N	N N	N N	N	N N	N N	N	N	N	No or minimal impact	N			No or minimal impact
Enabling Works		GB109054055060	River	No designation	Afon Cynllaith - source to conf Afon Tanat	Tanat	Moderate	Good by 2021 n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	Y N	N	N N	N N	N	N N	N N	N	N	N	No or minimal impact	N			No or minimal impact
Enabling Works			River	No designation	Morda - source to conf unnamed trib	Morda and Severn North Shropshire	Moderate	Good by 2021 n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	Y N	N	N N	N N	N	N N	N N	N	N	N	No or minimal impact	N			No or minimal impact
2 Enabling Works		GB109054050010	River	No designation	Oswestry Bk	Morda and Severn North Shropshire	Moderate	Good by 2021 n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y N	N	N Y	N N	N	N N	N N	N	N	N	No or minimal impact	N			No or minimal impact
2 Enabling Works			Groundwater	No designation	Severn Uplands - Lower Palaeozoic	Severn Uplands - Lower Palaeozoic	n/a	n/a Good			Poor by 2015	Poor	Poor by 2015	Y N	N	N N	N N	N	N N	N N	N	N	N	No or minimal impact	N			No or minimal impact
Enabling Works		GB40902G205400	Groundwater	No designation	Severn Uplands - Carboniferous Oswestry	Severn Uplands - Carboniferous Oswestry	n/a	n/a Goo	d Good b	2015 Good	Good by 2015	Good	Good by 2015	Y	N	N Y	N N	N	N N	N N	N	N	N	No or minimal impact	N			No or minimal impact

Appendix C Level 2 Detailed Assessments for Supply-demand Feasible Options

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	Water body ID:		GB112063061442	Scheme:		River Alt to	Prescot WTW	
	Water Body Name:		Alt DS Bull Bridge	Reference		W	R001	
	RBMP:		Alt and Crossens	Scheme Phase	Construction		Operational	
	Operational catchme	nt:	Alt	Impact potential	Direct		Direct	
	Designation (and us	es):	Heavily modified					
	Relevant upstream v	ater bodies:	Alt US Bull Bridge, Downho	lland Brook				
	Downstream water b	odies:	Alt					
	WFD Element	Status	RBMP objective	Alternate Objective if less	C	Confidence		Confidence
	(Receptor)			than Good		Jointaonoo		Communico
	Phytobenthos	Not provided						
	Macrophytes							
26 G	Macrophytes and phytobenthos	Good						
ers: Ecologic Biology	Bethic invertebrates	Poor					New surface water abstraction quantity.	
<u> </u>	Fish	Not provided			New /modified surface water intake. Minor level of impact.		Medium level of impact. New surface water abstraction from the River Alt near Maghull of 5-20 Ml/d. In the ALS water is identified as available at all flows (Q30, Q50, Q70 and Q95)	
norp	Hydrological regime					High	however the abstraction is moderate in size and could have a medium impact on the hydrological regime of the River Alt. A new abstraction licence would be required to be	Medium
<u> </u>	River continuity	Not provided			Transfer pipe line on land.		issued by the Environment Agency.	
Hyd Pier	Morphological conditions	Not provided			No or minimal impact.		Use of new transfer pipe line, and pumping station.	
hysico-	General physico- chemical	All high/good excep ammonia- moderate, Phosphate- poor	t .		New pumping station. Minor level of impact.		No or minimal impact.	
L .	Specific pollutants:	All high						
lements for Rivers: Chemical	Priority hazardous substances	Tributyltin Compounds- fail						
ele O	Priority substances	All good						
E S II	Ecological	Moderate	Good by 2027	N/A				
Status\ Potenti al	Chemical	Fail	Good by 2027	N/A				
o tt	Overall	Moderate	Good by 2027	NA				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Endineers Proforma: \text{WAR-FS1.dobal.amec.com/shared/Proicets/38671 UU WRMP SupportS Design\text{Feasible Options\text{North Eden\text{WR127}}
EA Abstraction Licence Strategy, https://www.gov.uk/government/upbads/system/uploads/attachment_data/file/300490/LIT_7881_35d3ed.pdf

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		Water body ID:		GB41201G101700	Scheme:		River Alt to F	Prescot WTW	
		Water body Name:		Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifer	Reference		WR	1001	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifer		Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo	dies:	N\A					
		Downstream water bodies:	1	N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
s for er: e	tatus	Quantitative Dependent Surface Water Body Status	Good						
ment	tive S	Quantitative GWDTEs test	Good					Use of new transfer pipe line, and pumping station.	
FD ele Grour Qua	antita	Quantitative Saline Intrusion	Poor			Transfer pipe line on land.		No or minimal impact.	
>	Qua	Quantitative Water Balance	Good			No or minimal impact.		New surface water abstraction quantity. Minor level of impact. New surface water abstraction from the River Alt near Maghull of 5 -	
or nical	tatus	Chemical Dependent Surface Water Body Status	Poor			Transfer pipe line with water course crossings. No or minimal impact.	High	20 Ml/d. The ALS highlights restricted availability of groundwater in the area. Due to the moderate size of the proposed abstraction there may be reductions in leakage from the river to the aquifer, however as the ALS indicates there is surface water available at all	Medium
ents for : Chemic	ical S	Chemical Drinking Water Protected Area	Poor			New pumping station. No or minimal impact.		flows its likely that any reductions in leakage would be minor and localised, and unlikely to have a sustained or wide spread impact on the quantitative water balance of the	
elem vater	le l	Chemical GWDTEs test	Good					groundwater body.	
lwa wa	ပ်	Chemical Saline Intrusion	Poor						
WFD		General Chemical Test	Good						
Grot <	uppo	Prevent and Limit Objective							
	ט ב	Trend Assessment	Upward trend						
verall tatus\	=	Quantitative	Poor	Good by 2027	N\A				
tatu	al	Chemical (GW)	Poor	Good by 2027	N\A				
6 \$ 6	1	Overall	Poor	Good by 2027	N\A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \www.explorers.planning/
Engineers Proforma: \www.explorers.planning/
EA Abstraction Licence Strategy: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300490/LIT_7881_35d3ed.pdf

\WAR-F51.global.amec.com\shared\Projects\38671_UU WRMP Support\\$ Design\Feasible Options\UU WRMP WFD\Report\CombinedReport_Aug2018\Appendices\38671cgos106i1_Combined_WFD_Report_Appendices_v1.xlsx

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	Water body ID:			Scheme:	FISHER TARN (KENDAL)	TO THIRLMERE AQUE	EDUCT AND LOSTOCK FOR TREATMENT	
	Water body Name:		Stainton Beck	Reference:			WR003	
	RBMP:		North West	Scheme Phase:	Construction		Operational	
	Operational catchment:		Bela	Impact potential:	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo	odies:	N/A					
	Downstream water bodies:		Bela					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confiden
	Phytobenthos	-						
	Macrophytes	-						
ogy	Macrophytes and phytobenthos	Moderate						
Bio	Benthic invertebrates	Good						
	Fish	-						
oko	Hydrological regime	High					New surface water abstraction quantity.	
<u>-</u>	River continuity	-			New transfer pipe line on land		Minor level of impact. A new abstraction licence would be granted by the Environment Agency	
Hydrom og	Morphological conditions	Supports good			No or minimal impact. New pumping station		(assuming the proposed abstraction quantity would not have a detrimental effect on WFD status). The yield of the reservoir is uncertain and is assumed to equate to the previous licence condition of 5 Mild. There is also a requirement to maintain an existing compensation flow condition of 0.273	
co-	General physico-chemical	All high			Minor level of impact.	High	Ml/d from the reservoir to the watercourse (Stainton Beck). The Environment Agency's Abstraction Licensing Strategy for South Cumbria shows water available at all flow regimes (Q95, Q70, Q50 and Q30).	Mediu
Physi	Specific pollutants:	-			No or minimal impact.		Use of pipe line, pumping station, and water treatment works. No or minimal impact.	
	Priority hazardous substances	Does not require assessment						
	Priority substances	Does not require assessment						
	Ecological	Moderate	Good by 2027	N/A	<u> </u>			

Assumptions

Chemical Overall

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2015 Good by 2027

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N/A

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water freatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

EA Abstraction Licence Strategy (South Cumbria): https://www.gov.uk/government/publications/south-cumbria-abstraction-licensing-strategy/

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	Water body ID:			Scheme:	FISHER TARN (KENDAL) TO THI		EDUCT AND LOSTOCK FOR TREATMENT	·
	Water body Name:			Reference		WR003		·
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Cumbria South Low	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo	dies:	N\A					
	Downstream water bodies:		N\A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
· Jarei	Quantitative Dependent Surface Water Body Status	Good						
i	Quantitative GWDTEs test	Good						
titive	Quantitative Saline	Good						
Quantitive	Quantitative Water Balance	Good			New transfer pipe line on land No or minimal impact.		New surface water abstraction quantity. No or minimal impact. As the abstraction is from a reservoir, and compensation flows will be maintained, there will be no or very minimal change in groundwater -	
atus	Chemical Dependent Surface Water Body Status	Poor			New pumping station No or minimal impact.	High	surface water interactions as a result of the new abstraction. The Environment Agency's Abstraction Licensing Strategy for South Cumbria shows water available at all flow regimes (Q95, Q70, Q50 and Q30).	High
ical St	Protected Area	Good			New / modified water treatment works No or minimal impact.		Use of pipe line, pumping station, and water treatment works.	
E		Good			and the state of t		No or minimal impact.	
= 5		Good						
5	General Chemical Test	Good						
Chemical	Prevent and Limit Objective	-			en e			
unoddns	Trend Assessment	No trend						
/erall \Potentia 	Quantitative	Good	Good by 2015	N/A				
Pote	Chemical (GW)	_	Good by 2027	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: WAR-FS1 global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options/IRZ/WR003/WR003 Fisher Tarn.xlsx

Tarn.xlsx

Good by 2027

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	V	Vater body ID:		GB112073071430	Scheme:		Longsleddale Reserv	voir	
		Vater body Name:			Reference			WR004	
		RBMP:			Scheme Phase	Construction		Operational	
	c	Operational catchment:		Kent	Impact potential	Direct		Direct	
	D	Designation (and uses):		No designation					
	R	Relevant upstream water bo	dies:	Not identified					
	D	Downstream water bodies:		Kent- conf Sprint to Tid	al				
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	P	Phytobenthos	Not provided						
	N	Macrophytes	Not provided			New transfer pipe line on land. No or minimal impact.			
ogical	Siology d	Macrophytes and phytobenthos	High			New transfer pipe line with water course crossings. Minor level of impact.		Use of new transfer pipe line and pumping station. No or minimal impact.	
Ecok	E	Benthic invertebrates	High			New pumping station.		New impounding reservoir.	
ivers	F	ish	High			Minor level of impact.		High level of impact. New impounding reservoir and abstraction of 25 M/d. Biology; long term habitat changes will result from the flooding of the Sprint valley.	
for R	H	lydrological regime	Supports good			New impounding reservoir. Medium level of impact on water body downstream of the proposed reservoir. The reach of the water body that will form part of the new reservoir is assessed in the		Hydromorphology: long term changes to the hydrological regime of the Sprint valley. Hydromorphology: long term changes to the hydrological regime of the Sprint valley from the presence of the reservoir. Both high and low flows will be changed. Changes to	
ments	Nor Bh	River continuity	Not provided			operation section. Biology: temporary habitat changes will result from the diversion of the Sprint during	Medium	sediment transport regime will change morphological conditions. River continuity will be interrupted by the embankment.	High
WFD ele	Hydron	Morphological conditions	Supports good			construction. There is the potential for suspended sediment to enter the Sprint and affect the ecology (i.e. smothering, reduction in light) including fish, macrophytes/phytobenthos and invertebrates. Sediment loss downstream of the		<u>Chemical and Physiochemical</u> : long term water quality changes are likely to occur due to the stilling and storage of water in the reservoir.	
	≅ .≅	General physico-chemical	All high			reservoir will deplete habitats, fish migration is likely to be affected and flow within the watercourse is also likely to decrease. <u>Hydromorphology</u> : diversion of the Sprint during construction will result in temporary		The construction of a new reservoir may result in the re-designation of the Sprint as a highly modified water body for water supply. It is unlikely that the reservoir could be constructed/operated without a deterioration of status in one or more elements.	
á	chen	Specific pollutants:	Not provided			changes to the hydrological regime, river continuity and morphological conditions. <u>Chemical and Physiochemical</u> : direct temporary effects could occur as a result of			
WFD ments for Rivers:		Priority hazardous substances	Does not require assessment			accidental spillage or leakage of chemicals such as Polycyclic Aromatic Hydrocarbons (PAHs) associated with construction vehicle/machinery fuels and oils, or metals (from machinery itself). The initial flooding of the valley may result in a "pulse" of poor quality water due to disturbance of contaminated sediment.			
elem Riv	S P	Priority substances	Does not require assessment						
a P a	E	cological	Good	Good by 2015	N/A		·		·
Overall Status\P otential	c	Chemical	Good	Good by 2015	N/A				
9 % 9	c	Overall	Good	Good by 2015	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
 5- A ground investigation will be carried out and will identify any contaminated and and any mitigation that may be required.
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment.planning/
Enginess Proforms: \WMAR-FS1.global amer.com\chares@Profocts186971U WRMMP Support\S Design\Feasible Options\RZ\WR004\WR004 Longsier
Abstraction Ucensing Strategies (South Cumbria): \Wmar.gov.uk/government/Ppublications/south-cumbria-abstraction-licensing-strategy

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	Water body ID:			Scheme:		Longsledda	ale Reservoir	
	Water body Name:		South Cumbria Lower Palaeozoic and Carboniferous Aquifer	Reference		WF	R004	
	RBMP:		North West GW	Scheme Phase	Construction		Operational	
	Operational catchment:		South Cumbria Lower Palaeozoic and Carboniferous Aquifer	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water		Not identified					
	Downstream water bodie	S:	Not identified					
	WFD Element (Receptor)		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
tatus	Quantitative Dependent Surface Water Body Status	Good						
rive S	Quantitative GWDTEs test	Good						
antita Ele	Quantitative Saline Intrusion	Good						
ð	Quantitative Water Balance	Good			New transfer pipe line on land.		Use of transfer pipe line and pumping station. No or minimal impact.	
ŧ	Chemical Dependent Surface Water Body Status	Poor			No or minimal impact. New transfer pipe line with water course crossings.		New impounding reservoir. Minor level of impact. New impounding reservoir and abstraction of 25 Ml/d.	
us Eleme	Chemical Drinking Water Protected Area	Good			No or minimal impact. New pumping station.	High	The presence of the new reservoir is unlikely to have widespread effects on the groundwater body. Localised recharge patterns and interaction with the surface water body are likely to change, but these changes are small in extent compared to the water body as a whole.	High
al Statu	Chemical GWDTEs test	Good			No or minimal impact. Construction of new impounding reservoir.		Changes to the classification and status of the Sprint surface water body may have implications for the status of this groundwater body (e.g. via the quantitative	
Chemic	Chemical Saline Intrusion	Good			Minor level of impact. Localised construction activities are unlikely to have a widespread or prolonged effect on the groundwater body.		dependent surface water body status).	
Ŭ	General Chemical Test	Good						
	Prevent and Limit Objective	-						
j i	Trend Assessment	No trend						
	Quantitative	Good	Good by 2015	N/A				
a	Chemical (GW)	Poor	Good by 2027	N/A				
	Overall	Poor	Good by 2027	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a cleared up of extensions, water treatment works, etc. would involve a cleared up of extensions, water treatment works, etc. would involve a cleared up of extensions, water treatment works, etc. would involve a cleared up of extensions would not require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. By Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EAVINEW. Well will be designed, occurrent, occurre

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \\WAR-F51.global.amec.com\shared\Projects\38671 UU WRMP Support\S Design\Feasible Options\RZ\WR004\WR004 Longsleddale Reservoir.x/sx

Abstraction Licensing Strategies (South Cumbria): https://www.gov.uk/government/publications/south-cumbria-abstraction-licensing-strategy

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	Water body ID:			Scheme:		Glaze Brook		
	Water body Name:			Reference		WR		
	RBMP:		Mersey Lower	Scheme Phase	Construction		Operational	
	Operational catchment:		Glaze	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo Downstream water bodies:	odies:	Bedford Brook and Pennington Brook (Glaze) Mersey/Manchester Sh	ip Canal (Irwell/Manchester Ship	Canal to Bollin)			
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confide
	Phytobenthos	Not provided						
	Macrophytes	Not provided						
_	Macrophytes and phytobenthos	Poor						
	Benthic invertebrates	Poor						
	Fish	Poor			Transfer pipe line on land.			
2 ~	Hydrological regime	Supports good			No or minimal impact.		New surface water abstraction quantity. Medium level of impact. New surface water abstraction from Glaze Brook near the village	
5 8	River continuity	Not provided			Transfer pipe line with water course crossings.		of Glaze Brook of 15 Ml/d. In the ALS water is identified as available at Q30, Q50 and	
Ž	Morphological conditions	Supports good			Minor level of impact.	High	Q70, but restricted at Q95 flows. The abstraction is moderate in size and could have a medium impact on the hydrological regime of Glaze Brook, particularly at low flows. A new abstraction licence would be required to be issued by the Environment Agency.	Medi
<u> </u>	General physico-chemical	All high/good except: Ammonia- moderate, BOD- poor, Phosphate- Poor			New surface water intake. Minor level of impact.		abstraction incence would be required to be issued by the Environment Agency. Use of new transfer pipe line. No or minimal impact.	
chen	Specific pollutants:	All high						
3	Priority hazardous substances	All good						
	Priority substances	All good						
	Ecological	Poor	Poor by 2015	N/A		•		
	Chemical	Good	Good by 2015	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Poor by 2015

- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

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		Water body ID:		GB41201G101700	Scheme:		Glaz	e Brook	
		Water body Name:		Merseyside Permo-Triassic Sandstone Aquifers	Reference		w	R006	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment:		Merseyside North Permo- Triassic Sandstone Aq	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water		Not identified					
		Downstream water bodie	s:	Not identified					
		WFD Element (Receptor)		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
s for er: ve	status	Quantitative Dependent Surface Water Body Status	Good						
element undwat antitati	ative S	Quantitative GWDTEs test	Good						
WFD ele Groun	lantita	Quantitative Saline Intrusion	Poor			New surface water intake.		New surface water abstraction quantity. Minor level of impact. New surface water abstraction from Glaze Brook near	
>	no	Quantitative Water Balance	Good			No or minimal impact. Transfer pipe line on land.		the village of Glaze Brook of 15 Ml/d. The ALS highlights water is available in East Glaze but not available in West Glaze groundwater. Due to the moderate	
ater:	ement	Chemical Dependent Surface Water Body Status	Poor			No or minimal impact. Transfer pipe line with water course crossings.	High	size of the proposed abstraction there may be reductions in leakage from the river to the aquifer. The principal aquifer is likely to be well connected to surface water bodies, but any changes in leakage are likely to be minor and localised,	Medium
wpunc	us Ele	Chemical Drinking Water Protected Area				No or minimal impact.		and not have a significant impact on the aquifers quantitative water balance.	
or Grour nical	I Stat	Chemical GWDTEs test	Good			New water treatment works. No or minimal impact.		Use of new transfer pipe line, surface water intake, and water treatment works	
ents for Chemic	emica	Chemical Saline Intrusion	Poor					No or minimal impact.	
elem	င်	General Chemical Test	Good						
WFD	uppo	Prevent and Limit Objective	-						
	8	Trend Assessment	Upward trend						
rall us/	2	Quantitative	Poor	Good by 2027	N/A				
tati	a g	Chemical (GW)	Poor	Good by 2027	N/A				
O M M	L	Overall	Poor	Good by 2027	N/A				

Assumptions

Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EANRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

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	Water body ID:			Scheme:		Sa	nkey Brook		
	Water body Name:		Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	Reference			WR007		
	RBMP:		North West	Scheme Phase	Construction		Operational		
	Operational catchment:		Merseyside Permo-Triassic Sandstone Aquifers	Impact potential	Direct		Direct		
	Designation (and uses):		No designation						
	Relevant upstream water bo	dies:	N/A						
	Downstream water bodies:		N/A						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Co	onfidence
Quantitive e Status	Quantitative Dependent Surface Water Body Status	good							
r: Qui	Quantitative GWDTEs test	good							
ntitat	Quantitative Saline Intrusion								
Quant	Quantitative Water Balance	good			Transfer pipe line with water course crossing. No or minimal impact.		New surface water abstraction quantity. No or minimal impact. New surface water abstraction from Sankey Brook near Great Sankey of 10 M/d. The ALS identifies restricted availability of groundwater		
Status	Chemical Dependent Surface Water Body Status	Poor			New water treatment works. No or minimal impact.	High	in the area. The abstraction is moderate in size, but is located in a transitional surface water body which has water available across all flows. Any reductions in flow as a result of the new abstraction are unlikely to have a significant impact on	ı	Medium
la de	Chemical Drinking Water Protected Area	Poor			New surface water intake.		leakage to the aquifer or on the quantitative water balance of the aquifer.		
- E	Chemical GWDTEs test	good			No or minimal impact.		New Transfer Pipe Line and Pumping Station		
1 5	Chemical Saline Intrusion	Poor					No or minimal impact.		
	General Chemical Test	good							
Ting Chemi	Prevent and Limit Objective	-							
Suppo	Trend Assessment	Upward trend							
ntial	Quantitative	Poor	Good by 2026	N/A					
Overall us\Poten	Chemical (GW)	Poor	Good by 2027	N/A					
Statu	Overall	Poor	Good by 2027	N/A					

1- Application of standard best practice construction and pollution prevention methods.

P- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water course will take no more than 30 days, and any in channel works will be used catalacted at a time which wo 4. New pipe line waters ownset would be installed with a trend and cover technique within a dry working area. New pipe line water course crossings would be installed with a trend and cover technique within and working area. New pipe line acrossings 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be represented.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
7- Dewatering of excusations would not require a permit man the Environment Agency/Maturial Resources Wales. Dewatering discharge of sufficient magnitude, duration, or sensitivity to require a permit man or sensitivity to require a permit man or sensitivity

Evidence
Catchment Data Explorer: http://enuforment.data.gov.uk/catchment.planning/
Engineers Proforma: <a href="http://enuforment.data.gov.uk/catchment.data.

EA Abstraction Licence Strategy: https://www.gov.uk/gover

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		Water body ID:		GB531206908100	Scheme:	Sankey Brook			
		Water body Name:		Mersey	Reference	· · · · · · · · · · · · · · · · · · ·	WR007		
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Sankey	Impact potential	Direct	Direct		
		Designation (and uses):		Heavily modified					
		Relevant upstream water bo	odies:	and Clatter Brook, Ditton Brook					
		Downstream water bodies:		Mersey Mouth					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good	Cont	onfidence		Confidence
		Phytobenthos	Moderate						
	_	Macrophytes	High	Good by 2015					
2	phytobenth Benthic inv Fish	Macrophytes and phytobenthos							
_ '		Benthic invertebrates	Good	Good by 2015				New surface water abstraction quantity.	
cal		Fish	-	-				Medium level of impact. New surface water abstraction from the Sankey	
		Hydrological regime	Supports good					Brook near Great Sankey of 10 M/d. In the ALS water is identified as available at all flows for the transitional water body. However the abstraction is moderate in size and could have an impact on the hydrological regime of lower part of the Sankey Brook. A new abstraction licence would be required to be issued by the Environment Agency.	
ы	e o	River continuity	-			New surface water intake.	High		Medium
1	hc	Morphological conditions	-			Minor level of impact.			
iysıc		General physico-chemical	Moderate	Good by 2027					
1	Ċ	Specific pollutants:	Moderate	Good by 2027					
for vers:	cal	Priority hazardous substances	Good						
3 4 5 5	5	Priority substances	Fail	Good by 2015					
Overall Status\Po tential		Ecological	Moderate	Good by 2027	N\A				
atu		Chemical	Fail	Good by 2027	N\A				
St		Overall	Moderate	Good by 2027	N\A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

2- I go mise with closes where courses where courses where courses where courses where courses where courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water courses weater courses would be installed via a terchnique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforms: WWAR-PS1.gbbalamec.com/shared/Projects/38671 UU WRMP SupportS Design\Feasible Options\RZWR007\WR007_Sankey Brook.docx
EA Abstraction Licence Strategy, https://www.gov.uk/government/upbads/system/uploads/attachment_data/file/300490/LIT_7881_35d2ed.pdf

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Water body Name: Reference: North West Scheme Phase: Operational catchment: Operational cat		Mara bask ID		GB112072071710	Scheme:	DIVED DAME	IEV TO WATCHOAT	-	
Rame: North West Scheme Phase: Construction Operational catchment: Greta and Rawhey impact potential: Direct Direct Direct Relevant upstream water bodies: Clough, Dee -conf Deepdale Bix to conf Rawhey, Rawhey - Upper Downstream water bodies: Lune - conf Rawhey to conf Greta and Rawhey - Upper Downstream water bodies: Lune - conf Rawhey to conf Greta and Rawhey - Upper Downstream water bodies: Lune - conf Rawhey to conf Greta and Rawhey - Upper Downstream water bodies: Lune - conf Rawhey to conf Greta and Rawhey - Upper Downstream water bodies: Lune - conf Rawhey to conf Greta and Rawhey - Upper Downstream water bodies: Lune - conf Rawhey to conf Greta and Rawhey - Upper Downstream water bodies: Confidence WFD Element (Receptor) Status RBMP objective files than Good Transfer pipe line on land. No or mineral impact. No or m		Water body ID:				RIVER RAWIT			
Operational catchment: Designation (and uses): Relevant upstream water bodies: Ocerta and Rewthey Relevant upstream water bodies: Uune - conf Rawthey to conf Gravethey, Rawthey - Upper Ownstream water bodies: WFD Element (Receptor) Status RBMP objective Nacrophytes Macrophytes and phytobenthos Benthic invertebrates High High Relevant upstream water bodies: Uune - conf Rawthey to conf Gravethey, Rawthey - Upper Confidence Transfer pipe line on tand. No or minmal impact. Transfer pipe line on tand. No or minmal impact. Transfer pipe line on tand. No or minmal impact. No or minmal impact. High Relevant upstream water bodies: Uune - conf Rawthey to conf Gravethey High Recophytes and phytobenthos Relevant upstream water bodies: Uune - conf Rawthey to confidence Uuse of new transfer pipeline, and pumping station. No or minmal impact. No or minmal impact. High Relevant upstream water bodies: Uuse of new transfer pipeline, and pumping station. No or minmal impact. No or minmal impact. High Relum level of impact. High Medium level of impact. High Medium level of impact. High Medium level of impact. The moderale size of the eleastestor (20 Mill) (20), this medium and low flowledged from the Rever Rawthey as Righlow (23), but medium and low flowledged from the Rever Rawthey as Righlow (23), but medium and low flowledged from the Rever Rawthey as Righlow (23), but medium and low flowledged from the Rever Rawthey as Righlow (23), but medium and low flowledged from the Rever Rawthey as Righlow (23), but medium and low flowledged from the Rever Rawthey as Righlow (23), but medium and low flowledged from the Rever Rawthey as Righlow (24), but medium and low flowledged from the Rever Rawthey as Righlow (24), but medium and low flowledged from the Rever Rawthey as Righlow (24), but medium and low flowledged from the Rever Rawthey as Righlow (24), but medium and low flowledged from the Rever Rawthey as Righlow (24), but medium and low flowledged from the Rever Rawthey as Righlow (24), but m						O	WR009		
Designation (and uses): Relevant upstream water bodies: Clough, Dec - conf Ceptable Bit to conf Gavehuy, Rawthey - Upper Downstream water bodies: WFD Element (Receptor) Status RBMP objective Areamic Objective if less than Good Areamic Objective if less than Good									
Relevant upstream water bodies: Ume - conf Rawthey to conf Greta Alternate Objective if less than Good No or minnal impact. No or		Operational catchment:		Greta and Rawthey	Impact potential:	Direct		Direct	
Downstream water bodies: Lune - conf Rawthey to confidence WFD Element (Receptor) Status RBMP objective Alternate Objective if less than Good Alternate Objective if less than Good Phytobenthos Benthic invertebrates Fish High Fish High Fish High Fish High No or maimal impact. No or maimal impact. Transfer pipe line on land. No or maimal impact. No or maimal impact. Transfer pipe line with water course crossings. Monor level of impact. Morphological regime Alternate Objective if less than Good Use of new transfer pipeline, and pumping station. No or maimal impact. No or maimal impact. No or maimal impact. No mone level of impact. High Morphological conditions Morphological conditions New mone level of impact. New surface water shate-one pice up to 200kid. Morphological conditions Morphological conditions New pumping station. More level of impact. High High Morphological conditions The moderate size of the abstraction (one of low (SGS), Q70, Q95) have lims and one low low (SGS), Q70, Q95) have lims and one low low (SGS), Q70, Q95) have lims and one low low (SGS), Q70, Q95) have lims and one low low (SGS), Q70, Q95) have lims and one low low (SGS), Q70, Q95) have lims and one low low (SGS), Q70, Q95) have lims and one low low (SGS), Q70, Q95) have lims and one low low (SGS), Q70, Q95) have lims and one low low (SGS), Q70, Q95) have lims and one low low (SGS), Q70, Q95) have lims and one low low (SGS), Q70, Q95) have lims and one low low (SGS), Q70, Q95) have lims and one low low (SGS), Q70, Q95) have lims and one low low (SGS), Q70,		Designation (and uses):		No designation					
WFD Element (Receptor) Phytobenthos Macrophytes and phytobenthos High			odies:			they - Upper			
Phytobenthos -		Downstream water bodies:	1	Lune - cont Rawtney to					
Macrophytes and hydrobenthos Benthic invertebrates High Fish High Abrophytes and hydrobenthos Benthic invertebrates High Fish High Abrophytes and hydrobenthos Benthic invertebrates High Fish High Abrophytes and hydrobenthos Benthic invertebrates High Byter continuity Abstraction increase of up to 20Mid Abstraction increase of up to 20Mid Medium level of impact. Byter continuity Abstraction increase of up to 20Mid Medium level of impact. Byter continuity Abstraction increase of up to 20Mid Medium level of impact. Byter continuity Abstraction increase of up to 20Mid Medium level of impact. By		, , ,	Status	RBMP objective			Confidence		Confidence
Accorphytes and phytobenthos High Benthic invertebrates High Fish			-						
Fish High			-						
Benthic invertebrates High Fish		Macrophytes and							
Benthic invertebrates High Fish	-	phytobenthos	High						
Fish High No or minimal impact. No or minim	cologica		High						
Hydrological regime High Five continuity New Fundified surface water intake. New modified surface water intake. New priority hazardous Priority hazardous High New surface water abstraction quantity. New minor level of impact. New pumping station. Minor level of impact. New pumping station. Minor level of impact. New priority hazardous New priority hazardous New priority hazardous New purpose place in the priority hazardous New pumping station. Minor level of impact. New pumping station. Medium level of impact. New pumping station. New pumping station. New pumping station. Medium level of impact. New pumping station. New pumping sta	livers: Ec	Fish	High						
Abstraction increase of up to 20 Mid. Morphological conditions Morph	for R	Hydrological regime	High					New surface water abstraction quantity.	
Morphological conditions New pumping station. Mew pumping station. Minor level of impact. New pumping station. Morphological conditions New pumping station. Minor level of impact. New pumping station. New pumping station. Minor level of impact. New pumping station. New	t E &	River continuity	-			Minor level of impact.			
Morphological conditions Second Morphological conditions Morphologic	୍ଷ ହେବ	•					High		Medium
Rew pumping station. Specific pollutants: Priority hazardous Priority hazardous Rew pumping station. Minor level of impact. Mew pumping station. Minor level of impact. Mew pumping station. Minor level of impact. Specific pollutants: Priority hazardous	F S	Morphological conditions	-				J	20 Ml/d. The ALS indicates that there is water available from the River Rawthey at high	
General physico-chemical Central physico-chemi	•					Minor level of impact.			
Figure 2 Specific pollutants:	TT .	General physico-chemical	-					The moderate size of the abstraction (20 Ml/d) could impact on the hydrological regime of the river. A new abstraction licence would be required to be issued by the	
	F. P.		-						
substances	s for s: cal	Priority hazardous substances	Does not require assessment						
Priority substances Does not require assessment	WFC element River Chemi	Priority substances	Does not require assessment						
Ecological Good Good by 2027 NIA Chemical Good Good by 2027 NIA	erall us/Po tial	•							
Chemical Good Good by 2027 NNA	at a	Chemical	Good	Good by 2027					
Overall Good Good by 2027 NIA	2 25 -	Overall	Good	Good by 2027	N\A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water freatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\\RZ\WR009\WR009_River Rawthey to Watchgate.docx

EA Abstraction Licence Strategy: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300485/LIT7917v1_161231.pdf

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		Water body ID:		GB41202G102700	Scheme:		RIVER RAWTHEY	TO WATCHGATE		
		Water body Name:		Lune and Wyre Carboniferous Aquifers	Reference		WR	009		
		RBMP:		North West	Scheme Phase	Construction		Operational		
		Operational catchment: Designation (and uses):		Lune and Wyre Carboniferous Aquifers No designation	Impact potential	Direct		Direct		
		Relevant upstream water	hodies:	N\A						
		Downstream water bodie		N\A						
		WFD Element (Receptor)		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
ō	-	Quantitative Dependent	Good							
WFD elements for Groundwater: Quantitative	Quantitativ Status Elem	Quantitative GWDTEs test Quantitative Saline Intrusion Quantitative Water Balance Chemical Drinking Water	Good Good Good Good			Transfer Pipe Line. No or minimal impact. Transfer pipe line with water course crossings. No or minimal impact. New pumping station. No or minimal impact.	High	Use of new transfer pipe line, and pumping station. No or minimal impact. New surface water abstraction quantity. Minor level of impact. New surface water abstraction from the River Rawthey near Sedburgh of 10 - 20 Mid. The ALS does not highlight any restricted or non availability of groundwater in the area. Due to the moderate size of the proposed abstraction there may be reductions in leakage from the river to the aquifer, however these would be localised, and the secondary aquifer is unlikely to be highly dependent on leakage		
or Groundwa	<u> </u>	Protected Area Chemical GWDTEs test Chemical Saline Intrusion	Good						Medium	
ents for Chem	ຮ	General Chemical Test	Good					from surface water courses to maintain its quantitative water balance.		
D elem	portin g	Prevent and Limit Objective	-							
WFD	idns	Trend Assessment	Upward Trend							
= a		Quantitative	Good	Good by 2027	N\A					
Overa	Overall Is\Poter	Chemical (GW)	Good	Good by 2027	N\A					
£ 50		Overall	Good	Good by 2027	N\A					

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Deveatering of excussions would not require a permit may thought require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EAVINEW. Wels will be designed, oorstructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment.planning/
Engineers Proforma: <a href="http://environment.data.gov.uk/government/projects/38671 UU WRMP Support/S Design/Feasible Options/URZ\WR009\WR009 River Rawthey to Watchgate.docx EA Abstraction Licence Strategy: https://www.gov.uk/government/puploads/system/fuploads/system/fuploads/statchment.data/file/300485/LIT7917v1_161231.pdf

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		Water body ID:		GB112072071770	Scheme:		Borrow Beck IR		
		Water body Name:		Borrow Beck	Reference			WR012	
		RBMP:		Lune	Scheme Phase	Construction		Operational	
		Operational catchment:		Lune Upper	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo	dies:	Not identified					
		Downstream water bodies:		Lune- conf Birk Beck					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Not provided						
		Macrophytes	Not provided			New transfer pipe line on land.			
	ogical	Macrophytes and phytobenthos	Good			No or minimal impact. New transfer pipe line with water course crossings.		Use of transfer pipe line.	
	elements for Rivers: Ecok	Benthic invertebrates	High			Minor level of impact.		No or minimal impact. New impounding reservoir.	
		Fish	Not provided			New impounding reservoir. Medium level of impact on water body downstream of the proposed reservoir. The	Mew impounding reservoir. High level of impact on water body downstream of the proposed reservoir. The body that will form part of the province of the proposed reservoir to be determined by the time of the province of the		
		Hydrological regime	High			operation section. Biology: temporary habitat changes will result from the diversion of the Borrow Beck	High	This may be partly mitigated by fish passes. Hydromorphology: long term changes to the hydrological regime of the Borrow Beck will result from the presence of the reservoir. Both high and low flows will be changed.	High
		River continuity	Not provided			during construction. There is the potential for suspended sediment to enter the Borrow Beck and effect the ecology (i.e. smothering, reduction in light) including fish, macrophytes/phytobenthos and invertebrates.	nigii	Changes to sediment transport regime will change morphological conditions. River continuity will be interrupted by the embankment.	nigii
	WFD	Morphological conditions	Supports good			Hydromorphology: diversion of the Borrow Beck during construction will result in temporary changes to the hydrological regime, river continuity and morphological		Chemical and Physiochemical: long term water quality changes are likely to occur due to the stilling and storage of water in the reservoir.	
	sico- nical		All high			conditions. <u>Chemical and Physiochemical</u> : direct temporary effects could occur as a result of accidental spillage or leakage of chemicals such as Polycyclic Aromatic		The construction of a new reservoir may result in the re-designation of the Borrow Beck as a highly modified water body for water supply. It is unlikely that the reservoir could be	
	Phy	Specific pollutants:	Not provided			Hydrocarbons (PAHs) associated with construction vehicle/machinery fuels and oils, or metals (from machinery itself). The initial flooding of the valley may result in a		constructed/operated without a deterioration of status in one or more elements.	
	FD ivers: nical	Priority hazardous substances	Does not require assessment			"pulse" of poor quality water.			
	wFL elemen for Rive Chemi	Priority substances	Does not require assessment						
	= 12 E	Ecological	Good	Good by 2027	N\A				
	verall atus\ tential	Chemical	Good	Good by 2015	N\A				

Assumptions

Ove Sta

1- Application of standard best practice construction and pollution prevention methods.

Good

- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

N\A

Good by 2027

- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proformas: \\\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\S Design\Feasible Options\IRZ\\WR075\\WR075 Stocks Reservior.xlsx

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		Water body ID:			Scheme:		Borrow B	eck IR	
		Water body Name:		South Cumbria Lower Palaeozoic and Carboniferous Aquifers	Reference		WR01	12	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment:		Cumrbia South Lower Paleozoic and Carboniferous Aq	Impact potential		Direct		
		Designation (and uses):		No designation					
		Relevant upstream water	bodies:	Not identified					
		Downstream water bodies	s:	Not identified					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
is for er: ve	Status	Quantitative Dependent Surface Water Body Status	Good						
WFD elements for Groundwater: Quantitative	tive S	Quantitative GWDTEs test	Good					Use of transfer pipe line and pumping station.	
FD ele Groui	Quantita	Quantitative Saline Intrusion	Good			New transfer pipe line on land.		No or minimal impact.	
>	ð	Quantitative Water Balance	Good			No or minimal impact.		New impounding reservoir. Minor level of impact. The presence of the new lake and embankment is unlikely to have widespread effects on the	
ter:	ment	Chemical Dependent Surface Water Body Status	Poor			New transfer pipe line with water course crossings. No or minimal impact.		groundwater body. Localised recharge patterns and interaction with the surface water body are likely to change, but these changes are small in extent compared to the water body as a	
ındwai	us Ele	Chemical Drinking Water Protected Area				New pumping station. No or minimal impact.	High	whole. The solid geology is primarily mudstones and siltstones (with some sandstone layers). The relatively low permeability and	High
. Groundw	Stat	Chemical GWDTEs test	Good			Construction of new impounding reservoir. Minor level of impact. Localised construction activities are unlikely		transmissivity of this secondary aquifer reduce the sensitivity of the groundwater body to impacts from the reservoir.	
nts for Chemi	emica	Chemical Saline Intrusion	Good			to have a widespread or prolonged effect on the groundwater body.		Changes to the classification and status of the Borrow Beck	
elemer	ភ	General Chemical Test	Good			555J.		surface water body may have implications for the status of this groundwater body (e.g. via the quantitative dependent surface	
WFD e	upporting	Prevent and Limit Objective	Not provided					water body status).	
>	6 ddns	Trend Assessment	No trend						
Pot	_	Quantitutive	Good	Good by 2015	N∖A				
vera	ıtis	Chemical (GW)	Poor	Good by 2027	N\A				
Stat	Overall Status\Pot ential	Overall	Poor	Good by 2027	N\A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for inchannel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proformas: \\WAR-FS1.global.amec.com\shared\Projects\38671_UU_WRMP_Support\5 Design\Feasible Options\\RZ\WR075\WR075 Stocks Reservior.xlsx

EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=floodmap#x=344705&y=511476&lg

EA Historical Landfill: http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=waste&layerGroups=default&lang=_e&ep=map&scale=1&x=357682.9999999994&y=355133.9999999994#x=322374&y=4979 EA aquifer designation mapping: http://apps.environment-agency.gov.uk/wiyby/default.aspx

BGS Geology Mapping: http://mapapps.bgs.ac.uk/geologyofbritain/home.html

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		Water body ID:		GB112071065612	Scheme:	RIVER RIBBL	E SUPPORT TO STOCKS R	ESERVOIR	
		Water body Name:		Ribble DS Stock Beck	Reference:		WR026	a	
		RBMP:		North West	Scheme Phase:	Construction		Operational	
		Operational catchment:		Ribble Middle - Settle t	Impact potential:	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo	dies:						
		Downstream water bodies:							
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos							
		Macrophytes	-						
cal	ology	Macrophytes and phytobenthos	Good						
Ecologie	Biol	Benthic invertebrates	High						
Rivers: I		Fish	-			Transfer pipe line on land. No or minimal impact.		Use of new transfer pipe line, pumping station and surface water intake.	
P. P.	oyd.	Hydrological regime	Supports good			· ·		No or minimal impact.	
ş	35	River continuity	-			Transfer pipe line with water course crossings. Minor level of impact.		New surface water abstraction quantity.	
D elemen	Hydron log	Morphological conditions	-			Minor level of impact. New surface water intake. Minor level of impact.	High	Medium level of impact. New surface water abstraction from the River Ribble nea Clitheroe of 5 - 10 MWd. In the ALS water is identified as available at all flows (Q30 Q50, Q70 and Q95) however the abstraction is moderate in size and could have a	Medium
WFD	ysico- amical	General physico-chemical	Good			New pumping station. Minor level of impact.		medium impact on the hydrological regime of the River Ribble. A new abstraction licence would be required to be issued by the Environment Agency.	
	유당	Specific pollutants:	High						
WFD lements for Rivers:	nical	Priority hazardous substances	Fail						
0		Priority substances	Good						
Overall Status\Po	utial	Ecological	Good	Good by 2015	N/A				
ta Q	ē	Chemical	Fail	Fail by 2015	N/A				
. 20		Overall	Moderate	Moderate by 2015	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which wo

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings

6- A ground investigation will be carried out and and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \text{\text{\text{W}/AR-FS1.0lobal.amec.com/shared/Projects/38671.UU WRMP_Support\text{

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[Water body ID:		GB41202G103000	Scheme:	RIV	VER RIBBLE SUPPO	RT TO STOCKS RESERVOIR											
	Water body Name:		Ribble Carboniferous Aquifers	Reference		v	VR026a											
Ì	RBMP:		North West	Scheme Phase	Construction Direct		Operational Direct											
	Operational catchment:		Ribble Carboniferous Aquifers No designation	Impact potential														
	Designation (and uses):																	
	Relevant upstream water boo	dies:																
ļ	Downstream water bodies:	stream water bodies:		tream water bodies:		tream water bodies:		stream water bodies:		tream water bodies:		water bodies:						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence										
	Quantitative Dependent Surface Water Body Status	Good																
ment	Quantitative GWDTEs test	Good			Transfer pipe line on land. No or minimal impact. Transfer pipe line with water course crossings. No or minimal impact. New /modified surface water intake. No or minimal impact.		Use of new transfer pipe line, pumping station, surface water intake, outfall No or minimal impact. New surface water abstraction quantity. Minor level of impact. New surface water abstraction from the River Ribble near Clitheroe of 5 - 10 Mild. The ALS does not highlight any restricted or non availability of groundwater in the area, or surface water in the River Ribble. Due to the moderate size of the proposed abstraction there may be reductions in leakage from the river to the adjuler, however these would be localised, and the secondary Carboniferous aquifer is unlikely to be highly dependent on leakage from surface water courses to maintain its quantitative water											
Eler	Quantitative Saline Intrusion																	
3	Quantitative Water Balance	Good																
	Chemical Dependent Surface Water Body Status	Good				High		Medium										
E I	Protected Area	Good			New pumping station. No or minimal impact.													
		Good			New outfall to reservoir.													
	Chemical Saline Intrusion	Good			New Outrail to reservoir. No or minimal impact.		balance.											
	General Chemical Test	Good			но от нишпантраст.		a anal 100											
	Prevent and Limit Objective	Good																
Eleme	Trend Assessment	No trend																
	Quantitative	Good	Good by 2015	N/A														
	Chemical (GW)	Good	Good by 2015	N/A														

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which w
4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossing

Good by 2015

5- A ground investigation will be carried out and routine and other technique will in a uty working area. New pipe his water towns of uses a required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/.
Engineers Proforma: http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300484/LIT7919v3_f8/.

EA Abstraction Licence Strategy (xxx): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300484/LIT7919v3_f8/

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	Water body ID:		GB30229073	Scheme:	HAWESWATER RESERVOIR -	RAISE EMBANKME	NT STRUCTURE	
	Water body Name:		Haweswater Reservoir	Reference		WR037b		
	RBMP:		Solway tweed	Scheme Phase	Construction		Operational	
	Operational catchment:		Eamont	Impact potential	Direct	Direct		
	Designation (and uses):		Heavily modified					
	Relevant upstream water b	odies:						
	Downstream water bodies:		-					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
_	Phytoplankton	High						
ogical	Macrophytes	-						
Ecok	Phytobenthos	-						
voirs:	Macrophytes and phytobenthos	-			Raise height of reservoir embankment.			
Reserv	Chironomids (CPET)	-			Minor level of impact. Biology: There is the potential for suspended sediment to enter the reservoir and effect the ecology		Operation of increased volume reservoir No or minimal impact. The reservoir water body would increase in size as a result of	
ke s\F	Fish	-			(i.e. smothering, reduction in light) including fish, macrophytes/phytobenthos and invertebrates. However any impacts would be temporary and restricted to the downstream section of the reservoir, close to the embankment. Hydromorphology: No longer term or extensive changes to the hydrological regime of the reservoir are expected. Chemical and Physiochemical: direct temporary effects could occur as a result of accidental spillage		the raised embankment. No or minimal impacts on biology, bydromorphology, chemical and physiochemical elements are espected, which would not cause a deterioration in WFD status. It is assumed that current compensation flow releases, fish pass arrangements and the characteristics of the banks of the reservoir would be maintained.	
for La	Hydrological regime	-				High		Medium
ents i	ਸ਼ੁੱਲ River continuity	-				<u>, </u>		
ele m	Morphological conditions	-			or leakage of chemicals such as Polycyclic Aromatic Hydrocarbons (PAHs) associated with construction vehicle/machinery fuels and oils, or metals (from machinery itself). The initial flooding of			
WFD	General physico-chemical	Moderate			the new reservoir volume may result in a "pulse" of poor quality water.			
•	Specific pollutants:	•						
FD nents or ss\Re	Priority hazardous substances	Does not require assessment						
W elen fe Lake	Priority substances	Does not require assessment						
Overall Status\ Potenti al	Ecological	Good	Good by 2027	N\A				
tatu ote	Chemical	Good	Good by 2027	N\A				
Owe	Overall	Good	Good by 2027	N\A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

3- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

4- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed.

Devatering would be of uncontaminated water, and water would be discharged within the same water body.

5- Reservoir compensation flows and fish pass arrangements will be maintained during construction and operation.

6- In-channel works will be undertaken at a time which work have a significant impact on fish communities

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \text{WAR-FS1.gbobal.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options/\text{VR037a}\text{WR037a}\text{WR037_Haweswater Reservoir.docx}
EA aquifer designation mapping: http://apps.environment.agency.gov.uk/wib/w/default.aspx
BGS Geology Mapping: http://mapapps.bgs.ac.uk/geologyothritain/home.html

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	Water body ID:		GB102076070720	Scheme:	HAWESWATER RES	ERVOIR - RAISE EM	BANKMENT STRUCTURE	
	Water body Name:		Haweswater Beck	Reference			WR037b	
	RBMP:		Solway tweed	Scheme Phase	Construction		Operational	
	Operational catchment:		Eamont	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	, ,							
	Relevant upstream water b	odies:	l <u>.</u>					
	Downstream water bodies:		Lowther (Lower)					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
	Macrophytes							
6	Macrophytes and	-						
cal iolo	phytobenthos							
.g. a		Good						
ğ	Benthic invertebrates				Raise height of reservoir embankment.			
ш	Fish	Moderate			Minor level of impact.			
<u> </u>					Biology: There is the potential for suspended sediment to enter the Haweswater Beck and			
<u>×</u>	Hydrological regime	II.			effect the ecology (i.e. smothering, reduction in light) including fish,			
똔 .	5 Trydrological regime				macrophytes/phytobenthos and invertebrates. However any impacts would be temporary.		Operation of increased volume reservoir	
& .	ŭ.	-			Hydromorphology: No long term or extensive changes to the hydrological regime of the		Minor level of impact. Part of the upper reaches of the Haweswater Beck will be flooded by the increased volume of the reservoir. This will result in changes to habitats, hydromorphology,	
ž	River continuity				Haweswater Beck are expected, as it is assumed that compensation flows from the reservoir	Medium	chemical and physiochemical elements in the effected reach. However this is expected to be a	Medium
e l	E				would be maintained during construction. Sediment release may have a short term impact on	wealum	small reach of water course, and an extension of the existing reservoir habitats so a deterioration	Wedium
<u> </u>	b	-			the morphological conditions of the Beck.		of the status of the WFD water body is unlikely. It is assumed that current compensation flow	
: ۾ ا	Morphological conditions				Chemical and Physiochemical: direct temporary effects could occur as a result of accidental		releases and fish pass arrangements would be maintained.	
 		Good			spillage or leakage of chemicals such as Polycyclic Aromatic Hydrocarbons (PAHs)		rolodoo diid ilai pada diidiigananta wada oo maintaira.	
ģ	General physico-chemical	Cood			associated with construction vehicle/machinery fuels and oils, or metals (from machinery			
Si.	i i				itself). The initial flooding of the new reservoir volume may result in a "pulse" of poor quality			
] A	Specific pollutants:	-			water.			
	o Specific pollutants:							
-	Priority hazardous	Does not require assessment						
a c								
WFD lements Rivers: Chemica	Substances							
≥ ñ š š	Data dia anti-dan	Does not require assessment						
ele o	Priority substances							
_ 0		Good	Good by 2027	N\A				
Overall tatus\Po tential	Ecological		,,					
atu:	Chemical	Good	Good by 2027	N\A				
Sta	Overall	Good	Good by 2027	N/A				
			, 202.	1	l .			

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

Se Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively smooth for print in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

4- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

5- Reservoir compensation flows and fish pass arrangements will be maintained during construction and operation.

6- In-channel works will be undertaken at a time which won't have a significant impact on fish communities

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: IWAR-FS1.gbbal.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options/IRZ/WR037a/WR037_Haweswater Reservoir.docx
EA aguifer designation mapping: http://apps.environment-agency.gov.uk/wiv/bv/default.aspx
BGS Geology Mapping: http://apapps.bgs.ac.uk/geology/ofbritain/home.html

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	Water body ID:		GB40201G102300	Scheme:	HAWESWA	ATER RESERVOIR - RA	AISE EMBANKMENT STRUCTURE	
	Water Body Name:		Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Reference		WR	037Ь	
	RBMP:		Solway Tweed	Scheme Phase	Construction		Operational	
	Operational catchme	ent:	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Impact potential	Direct		Direct	
	Designation (and use		No designation					
	Relevant upstream v		N\A					
	Downstream water b	odies:	N\A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
nents for water: itative	Quantitative GWDTEs test	Good						
WFD elemen Groundwa Quantitati Quantitati	Intrusion	Good						
_ ;	Chemical Dependent	Good						
Chemical	Chemical Drinking Water Protected Are				Raise height of reservoir embankment		Operation of increased volume reservoir No or minimal impact. The presence of the increased lake volume and raised embankment is unlikely to have widespread effects on the groundwater body.	
water:	Chemical GWDTEs test Chemical Saline	Good			Minor impact. Localised surface construction activities are unlikely to have a widespread or prolonged effect on the groundwater body.	High	Localised recharge patterns and interaction with the surface water body are likely to change, but these changes are very small in extent compared to the water	High
bund	Intrusion General Chemical	Good			,		body as a whole. The solid geology is igneous strata. The relatively low permeability and transmissivity of this secondary aquifer reduce the sensitivity of	
a G		Good					the groundwater body to impacts from the reservoir.	
S _	Objective	-						
WFD element	STATE OF THE PROPERTY OF THE P	Upward Trend						
oten	Quantitative	Good	Good by 2015	N\A			-	
Overall ttus\Pote tial	Chemical (GW)	Good	Good by 2015	N\A				
Stat	Overall	Good	Good by 2015	N\A				

Assumptions

- Application of standard best practice construction and pollution prevention methods.
 A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 3 Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively such and footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

 4- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed.
- Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 5- Reservoir compensation flows and fish pass arrangements will be maintained during construction and operation. 6- In-channel works will be undertaken at a time which won't have a significant impact on fish communities

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: IWAR-FS1.gbbal.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options/IRZ/WR037a/WR037_Haweswater Reservoir.docx
EA aquifer designation mapping: http://napapus.bus.ac.uk/geology/optor/tain/home.html
BGS Geology Mapping: http://mapapus.bus.ac.uk/geology/optor/tain/home.html

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	Water body ID:		GB30229073	Scheme:	HAWESWATER RESERVOIR			
	Water body Name:		Haweswater Reservoir	Reference		WR037		
	RBMP:		Solway Tweed	Scheme Phase	Construction		Operational	
	Operational catchment:		Eamont	Impact potential	Direct		Direct	
	Designation (and uses):		Heavily modified					
	Relevant upstream water bo	dies:	-					
	Downstream water bodies:		-					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
_	Phytoplankton	High						
ogica	Macrophytes	-						
Ecole	Phytobenthos	-						
oirs:	Macrophytes and phytobenthos	-						
kes\Reserv	Chironomids (CPET)	-			Raise height of reservoir embankment. Minor level of impact.		Operation of increased volume reservoir	
	Fish	-			Biology: There is the potential for suspended sediment to enter the reservoir and effect the ecology (i.e. smothering, reduction in light) including fish, macrophytes/phytobenthos and		No or minimal impact. The reservoir water body would increase in size as a result of the raised embankment. No or minimal impacts on biology, hydromorphology,	
for La romo ology	Hydrological regime	-			invertebrates. However any impacts would be temporary and restricted to the downstream section of the reservoir, close to the embankment.	High	chemical and physichemical elements are expected, which would not cause a deterioration in WFD status. It is assumed that current compensation flow	Medium
	River continuity	-			Hydromorphology: No longer term or extensive changes to the hydrological regime of the reservoir are expected.	riigii	releases, fish pass arrangements and the characteristics of the banks of the reservoir would be maintained.	mediam
elemo	Morphological conditions	-			Chemical and Physiochemical: direct temporary effects could occur as a result of accidental spillage or leakage of chemicals such as Polycyclic Aromatic Hydrocarbons (PAHs) associated		reservoir would be maintained.	
WFD hysic	General physico-chemical	Moderate			with construction vehicle/machinery fuels and oils, or metals (from machinery itself). The initial flooding of the new reservoir volume may result in a "pulse" of poor quality water.			
- ⊾5	Specific pollutants:	-						
WFD elements for Lakes\ Reservoirs: Chemical	WFD elements for Lakes\ Reservoirs: Chemical	Does not require assessment						
WFD el for L Reser Cher	Priority substances	Does not require assessment						
all Is\ tial	Ecological	Good	Good by 2027	N\A				
Overall Status\	Chemical	Good	Good by 2027	N\A				
0 57 6	Overall	Good	Good by 2027	N\A				

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 3- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 4- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 5- Reservoir compensation flows and fish pass arrangements will be maintained during construction and operation.
- 6- In-channel works will be undertaken at a time which won't have a significant impact on fish communities

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: WMAR-FS1.gbbal.amec.com/shared/Projects/336671 UU WRMP Support6 Design/Feasible Options/IRZ/WR037b/WR037_Haweswater Reservoir.docx
EA aquifer designation mapping: http://apps.environment-agency.gov.uk/wiy.by/default.aspx
BGS Geology Mapping: http://apapps.bgs.ac.uk/geologyofbritain/home.html

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Water body ID:		GB102076070720	Scheme:	HAWESWATER RESE	ERVOIR - RAISE EM	IBANKMENT STRUCTURE	
Water body Name:		Haweswater Beck	Reference			WR037b	
RBMP:		Solway Tweed	Scheme Phase	Construction		Operational	
Operational catchment:		Eamont	Impact potential	Direct		Direct	
Designation (and uses):		No designation					
Designation (and uses).		No designation					
Relevant upstream water bo	dies:	-					
Downstream water bodies:		Lowther (Lower)					
WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
Specific pollutants: Priority hazardous substances Priority substances	Good Moderate Good - Good - Does not require assessmen	ıt		Raise height of reservoir embankment. Minor level of impact. Biology: There is the potential for suspended sediment to enter the Haweswater Beck and effect the ecology (i.e. smothering, reduction in light) including fish, macrophytes/phytobenthos and invertebrates. However any impacts would be temporary. Hydromorphology. No long term or extensive changes to the hydrological regime of the Haweswater Beck are expected, as it is assumed that compensation flows from the reservoir would be maintained during construction. Sediment release may have a short term impact on the morphological conditions of the Beck. Chemical and Physiochemical; direct temporary effects could occur as a result of accidental spillage or leakage of chemicals such as Polycyclic Aromatic Hydrocarbons (PAHs) associated with construction vehicle/machinery fuels and oils, or metals (from machinery itself). The initial flooding of the new reservoir volume may result in a "pulse" of poor quality water.	Medium	Operation of increased volume reservoir Minor level of impact. Part of the upper reaches of the Haweswater Beck will be flooded by the increased volume of the reservoir. This will result in changes to habitats, hydromorphology, chemical and physiochemical elements in the effected reach. However this is expected to be a small reach of water course, and an extension of the existing reservoir habitats so a deterioration of the status of the WFD water body is unlikely. It is assumed that current compensation flow releases and fish pass arrangements would be maintained.	Medium
Ecological	Good	Good by 2027	N\A				
Chemical	Good	Good by 2027	N\A				

Assumptions

Overall

Application of standard best practice construction and pollution prevention methods.
 A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

3. Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

N\A

4- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than

assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 5- Reservoir compensation flows and fish pass arrangements will be maintained during construction and operation.

6- In-channel works will be undertaken at a time which won't have a significant impact on fish communities

Good

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforms: \text{WAR-FS1.global.amec.com\sharedProjects\s\s\s\s\colonger\s\colong

Good by 2027

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	Water body ID:		GB40201G102300	Scheme:	HAWESWA	TER RESERVOIR - RA	AISE EMBANKMENT STRUCTURE	
	Water Body Name:		Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Reference		WR	037Ь	
	RBMP:		Solway Tweed	Scheme Phase	Construction		Operational	
	Operational catchmer	ıt:	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Impact potential	Direct		Direct	
	Designation (and use:	s):	No designation					
	Relevant upstream wa	iter bodies:	N\A					
	Downstream water bo	dies:	N\A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
t	Quantitative	Good						
	Quantitative GWDTEs test	Good						
	Quantitative Saline Intrusion	Good						
	Balance	Good						
nt	Curfose Weter Body	Good						
	Chemical Drinking Water Protected Area	Good					Operation of increased volume reservoir No or minimal impact. The presence of the increased lake volume and raised embankment is unlikely to have widespread effects on the groundwater body.	
Statu	Chemical GWDTEs test	Good			Raise height of reservoir embankment Minor impact. Localised surface construction activities are unlikely to have a	High	Localised recharge patterns and interaction with the surface water body are likely to change, but these changes are very small in extent compared to the water	High
흗	Intrusion	Good			widespread or prolonged effect on the groundwater body.		body as a whole. The solid geology is igneous strata. The relatively low permeability and transmissivity of this secondary aquifer reduce the sensitivity of	
ర్	Test	Good					the groundwater body to impacts from the reservoir.	
	Prevent and Limit Objective	-						
Elements	Trend Assessment	Upward Trend						
	Quantitative	Good	Good by 2015	N\A				
	Chemical (GW)	Good	Good by 2015	N\A				

Assumptions

Overall

- Application of standard best practice construction and pollution prevention methods.
 A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 3 Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively such and footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

 4- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed.

N\A

- Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 5- Reservoir compensation flows and fish pass arrangements will be maintained during construction and operation. 6- In-channel works will be undertaken at a time which won't have a significant impact on fish communities

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: IWAR-FS1.gbbal.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options/IRZ/WR037b/WR037_Haweswater Reservoir.docx
EA aquifer designation mapping: http://napapus.bus.ac.uk/geology/optor/tain/home.html
BGS Geology Mapping: http://mapapus.bus.ac.uk/geology/optor/tain/home.html

Good by 2015

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		Water body ID:		GB102076070980	Scheme:	RIVER EDEN (TEN	MPLE SOWERBY) TO		
		Water body Name:		Eden Lyvennet to Eamont	Reference:		WRO		
		RBMP:		Solway Tweed	Scheme Phase:	Construction		Operational	
		Operational catchment:		Eden Upper	Impact potential:	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo	odies:	Crowdundle Beck - Lower, Eden - S	candal Beck to Lyvennet, Leith				
		Downstream water bodies:		Eden - Eamont to tidal					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
_	2	Macrophytes and phytobenthos	Moderate						
cologica	Biology	Benthic invertebrates	High						
ivers: Ec		Fish	High			Transfer pipe line on land. No or minimal impact.		Use of new transfer pipe line, pumping station and surface water intake.	
for R	rpho	Hydrological regime	High			Transfer pipe line with water course crossings.		No or minimal impact.	
ts	일 중	River continuity				Minor level of impact.		New surface water abstraction quantity.	
elemen	Hydror	Morphological conditions	-			New surface water intake. Minor level of impact.	High	High level of impact. New abstraction of 25 to 50 Ml/d from the river Eden near Temple Sowerby. In the ALS, water is identified as available at all flows (Q30, Q50, Q70 and Q95), however the abstraction quantity is large, and could have a high	Medium
WFD	/sico-	General physico-chemical	High			New pumping station. Minor level of impact.		impact on the hydrological regime of the river Eden. A new abstraction licence would be required to be issued by the Environment Agency.	
	Phy	Specific pollutants:	High						
D ts for	rs: ical	Priority hazardous substances	Good						
WFD	Rive	Priority substances	Good						
Overall	ntial	Ecological	Moderate	Good by 2015	N/A				
ŏ	te	Chemical	Good	Good by 2015	N/A				
Ü	5	Overall	Moderate	Good by 2015	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a sign

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries c

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6 - Extensions, modifications, or new pumping stations, water treatment works, etc. would involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer, http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: WK/Catchment-planning/
Engineers Proforma: https://www.gov.uk/catchment/uploads/system/uploads/attachment.data/file/300486/LIT_7889_1384b1.

Ed Abstraction Licence Strategy (Eden and Esk): https://www.gov.uk/government/uploads/system/uploads/attachment.data/file/300486/LIT_7889_1384b1.

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	Water body ID:		GB40201G100400	Scheme:	RIV	ER EDEN (TEMPLE	SOWERBY) TO WATCHGATE	
	Water body Name:		Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Reference		· · · · · · · · · · · · · · · · · · ·	WR039a	
	RBMP:		Solway Tweed	Scheme Phase	Construction		Operational	
	Operational catchment:		Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo	idies:						
	Downstream water bodies:	1						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Quantitative Dependent Surface Water Body Status							
ve St	Quantitative GWDTEs test	Good						
ntitati Elen	Quantitative Saline Intrusion	Good			Transfer pipe line on land.		Use of new transfer pipe line, pumping station, and surface water intake.	
Qua	Quantitative Water Balance	Good			No or minimal impact. Transfer pipe line with water course crossings.		No or minimal impact. New surface water abstraction quantity	
	Chemical Dependent Surface Water Body Status	Good			No or minimal impact. New surface water intake.	High	Medium level of impact. New surface water abstraction from the river Eden of 25-50 Ml/d near Temple Sowerby. The ALS does not highlight any restricted or non availability of groundwater in the area, or in the corresponding surface water body. However, due to the	Medium
em em	Chemical Drinking Water Protected Area	Poor			No or minimal impact.		significant size of the proposed abstraction there may be reductions in leakage form the river to the aquifer. The principal aquifer may be dependent on leakage from overlying	
	Chemical GWDTEs test	Poor			New pumping station.		water courses to maintain its quantitative water balance.	
	Chemical Saline Intrusion	Good			No or minimal impact.			
•	General Chemical Test	Good						
ents water)	Prevent and Limit Objective	-						
Suppo Eleme	Trend Assessment	Upward trend						
	Quantitative	Good	Good by 2015	N/A		•		
	Chemical (GW)	Poor	Good by 2027	N/A				
	0	FOOI	Good by 2027	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't he . New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of 6-5 a ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

3- A ground in thresting district will be call rised out and a win account and a rise and a property and a contraction will be call rised out and a win account will be call rised out and a win account and a rise and a contraction will be call rised out and a win account and a rise and a contraction will be call rised out and a win account and a rise and a contraction will be call rised on the call rised out and a win account and a rise and a contraction will be required and a contraction of in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EAVIRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer: https://two.uk/catchment-planning/
Engineers Proforma: https://two.uk/government/uploads/system/uploads/statchment_data/file/300486/LIT 788/
EA Abstraction Licence Strategy (Eden and Esk): <a href="https://two.uk/government/uploads/system/uploads/s

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	Water body ID:		GB102076073981	Scheme:	River Irthing t	to Cumwhinton Plus	Castle Carrock Link	
	Water body Name:		Irthing DS Crammel Linn Waterfall	Reference			WR041	
F	RBMP:		Eden and Esk	Scheme Phase	Construction		Operational	
c	Operational catchment:		Esk and Irthing	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
-	beorgination (and acce).		Gelt, Irthing US Crammel					
			Linn Waterfall, King Water					
F	Relevant upstream water bo	dies:	and Quarry Beck					
	Downstream water bodies:		Eden- Eamont to tidal					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confiden
	Phytobenthos	Not provided		Good				
		Not provided						
		Not provided						
	Macrophytes and	Good						
р	phytobenthos	3000						
	Benthic invertebrates Hig							
l le		High						
		, and the second						
F	Fish	Good						
					Transfer pipe line on land.			
					No or minimal impact.			
a F	Hydrological regime	Supports good			140 of Hilliania Impace.		New surface water abstraction quantity.	
2					Transfer pipe line with water course crossings.		Medium level of impact. A new abstraction licence would be granted by the Environment Agency	
Ĭ					Minor level of impact.		(assuming the proposed abstraction quantity would not have a detrimental effect on WFD status) on the	
F	River continuity	Not provided			William Lover of Impact.		River Irthing at Newby East, near Warwick Bridge of 6.5 Ml/d. The ALS (Abstraction Licensing Strategy)	
					New surface water intake.	Medium	indicates that there is restricted water available from surface water sources at all flow regimes (Q95,	Mediu
					Minor level of impact.		Q70, Q50 and Q30).	
٠,	Morphological conditions	Supports good			Willion level of impact.			
ı ın	wioi priologicai conditions	Supports good			New pumping station.		Use of new pipe lines, surface water intake and pumping station.	
					Minor level of impact.		No or minimal impact.	
_ _					Willion for or ampaor.			
cal	General physico-chemical	All high						
Ē								
2								
0 8	Specific pollutants:	All high						
P	Priority hazardous							
ı.		Does not require assessment						
s	ostances							
		L						
P	Priority substances	Does not require assessment						

Assumptions

Chemical

1- Application of standard best practice construction and pollution prevention methods.
2- Ppe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
3- Laying of the ppeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2015

Good by 2015

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the

N/A

N/A

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required. 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Abstraction Licensing Strategies (Eden and Esk): https://www.gov.uk/government/publications/eden-and-esk-abstraction-licensing

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	Water body ID:		GB40201G100400	Scheme:		River Irthing to Cum	whinton Plus Castle Carrock Link	
			Permo-Triassic Sandstone	Reference			WR041	
	Water body Name:		Aquifers					
	RBMP:		Solway Tweed GW	Scheme Phase	Construction		Operational	
			Eden Valley and Carlisle Basin	Impact potential	Direct		Direct	
	Operational catchment:		Permo-Triassic Sandstone Aq		Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water	bodies:	Not provided					
	Downstream water bodie	s:	Not provided					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Con
	Quantitative Dependent	Good		1000 11011 0000				
e aut		Good						
	test							
	Quantitative Saline	Good						
	Intrusion	1						
		Good						
	Balance	1						
		Good						
	Chemical Dependent	0000						
	Surface Water Body							
Chemical Dependent Surface Water Body Status								
	Status							
±		Poor					New surface water abstraction quantity.	
e		Poor					Minor level of impact. A new abstraction licence would be granted by the Environment Agency (assuming the	
em	Chemical Drinking Water				Transfer pipe line on land.		proposed abstraction quantity would not have a detrimental effect on WFD status) on the River Irthing at Newby	
⊞	Protected Area				No or minimal impact.		Fast, pear Warwick Bridge of 6.5 Ml/d. The ALS (Abstraction Licensing Strategy) indicates that there is restricted	
ns	Frotected Area					High	water available from surface water sources at all flow regimes (Q95, Q70, Q50 and Q30). There may be localised	N
tat					Transfer pipe line with water course crossings.		minor reductions in leakage from rivers to the aquifer.	
2		Poor			No or minimal impact.		3	
ics	Chemical GWDTEs test	1 001					Use of new pipe lines, surface water intake and pumping station.	
Ĕ	Chemical CVVD LS test						No or minimal impact.	
5		Good						
	Chemical Saline	1						
	Intrusion							
		Good						
	General Chemical Test	1						
	General Guernical Test							
	Prevent and Limit	[_						
nt	Objective							
me nd		Upward trend						
Ele	Trond Accomment	opward trend						
l ar	Frend Assessment							
	Quantitative	Good	Good by 2015	N/A				-
				1				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

Good by 2027

6- Extensions, modifications, or new pumping stations, water freatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \UWAR-FSI.global.amec.com/shared/Projects/38671 UU WRMP Support\S Design\Feasible Options\Cardisle\WR041\WR041. River Inthing to Cumwhinton.docx EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang==e&topic=floodmap#x=344705&y=511476&ig=1.2,10.&scale=7

Abstraction Licensing Strategies (Eden and Esk): https://www.gov.uk/government/publications/eden-and-esk-abstraction-licensing-strategy

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	Water body ID:			Scheme:		Milwr Tunnel, Bagillt (Trans	sfer to Huntington)	
	•		Non reportable WB at	Reference				
			the mouth of the River				WR047a	
	Water body Name:		Dee					
	RBMP:		N/A	Scheme Phase	Construction		Operational	
	Operational catchment:		N/A	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo	dies:	N/A					
	Downstream water bodies:		N/A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than		Confidence		Confidence
	WFD Element (Receptor)		RBMP objective	Good		Confidence		Confidence
	Phytobenthos	N/A						
>	Macrophytes	N/A						
og	Macrophytes and	N/A						
Biology	phytobenthos							
	Benthic invertebrates	N/A			Toronto de Processo de L			
	Fish	N/A			Transfer pipe line on land.			1
0 >	Hydrological regime	N/A			No or minimal impact.		New surface water abstraction quantity	
E 60	River continuity	N/A			The state of the s		Medium level of impact. A new abstraction licence would be granted by National Resources Wales	1
불교	•	N/A			Transfer pipe line with water course crossings.		(assuming the proposed abstraction quantity would not have a detrimental effect on WFD status) from	
출호	Morphological conditions	10/1			Minor level of impact.		the outfall of the Milwr tunnel at Bagillt up to 20 Ml/d even in dry summers, possibly more at other times).	
		N/A				High	There is no Abstraction Management Strategy (NRW) for this transitional waterbody.	Low
하	General physico-chemical	IN/A			New surface water intake.		5 55.	
: ic	General physico-chemical Specific pollutants:				Minor level of impact.		Use of new pipe lines, surface water intake and pumping station.	
ž e		N/A					No or minimal impact.	
급등	Specific pollutants:				New pumping station.		• • • • • • • • • • • • • • • • • • • •	
					Minor level of impact.			
ē	Priority hazardous	N/A						
흗	substances							
Ē		N/A						
Chemical	Priority substances							
		N/A	N/A	NA				
ntia	Ecological							
=		N/A	N/A	N\A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
 2- Pipe lines will cross water courses with existing readways where possible to limit the amount of new watercourse crossings.
 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

EA Historical Landfill: http://maps.environment-

NRW Catchment Abstraction Management Strategy (Dee): https://naturalresources.wales/media/674759/dee_cams_2015_english.pdf

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	Water body ID:			Scheme:	Milwr Tunnel, Bagillt (Transfer to Huntington)	
				Reference	WR047a	
	Water body Name:		Measures			
	RBMP:		Dee	Scheme Phase	Construction Operational	
			Dee Carboniferous Coal	Impact potential	Direct Direct	
	Operational catchment:		Measures			
	Designation (and uses):		No designation			
	Relevant upstream water		Not identified			
	Downstream water bodie	s:	Not identified			
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good	Confidence	Confidence
WFD elements for Groundwater: Chemical Support Chemical Status Element Chamical Status Element Chamical Status Element Chamical Status Element Chamical Status Element	Guantitative Saline Intrusion Quantitative Water Balance Chemical Dependent Surface Water Body Status Chemical Drinking Water Protected Area Chemical Saline Intrusion General Chemical Test Prevent and Limit Trend Assessment	High Good Good Good Good Good Good Not provided			Transfer pipe line on land. No or minimal impact. Transfer pipe line with water course crossings. No or minimal impact. No or minimal impact. New surface water intake. No or minimal impact. New pumping station. No or minimal impact. No or minimal impact.	Medium
all is/	Quantitative	Good	None provided.	N\A		
verall tatus\ tential	Chemical (GW)	Poor	Poor by 2015	N\A		

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not
- involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for inchannel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Poor by 2015

EA Historical Landfill: http://maps.environment

NRW Catchment Abstraction Management Strategy (Dee): https://naturalresources.wales/media/674759/dee_cams_2015_english.pdf

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	Water body ID:		GB112071065500	Scheme:		River Ribble (Transfe	r to Anglezarke ir)	
	Water body name:		Ribble-conf Calder to Tidal	Reference		•	WR049b	!
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchme	nt:	Big Ribble	Impact potential	Direct		Direct	
	Designation (and use		Heavily modified					
	Relevant upstream w			le Water to conf Ribble Ri	oble DS Stock Beck, Duddel Brook			
	Downstream water b		RIBBLE	le trater to com rabbiojra	SOLO DO OLOUR DOUNDAUGO DI OUR			
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos							
	Macrophytes	Moderate	Cood by 2007	N/A				
ogical	Macrophytes and phytobenthos	Moderate	Good by 2027	NVA				
rs: Ecol	Benthic invertebrates	Good	Good by 2015	N/A				
or Rive	Fish				Transfer pipe line on land. No or minimal impact.		New surface water abstraction quantity. Medium level of impact. A new abstraction licence would be granted by the Environment Agency (assuming the	
nents f	Hydrological regime	Supports Good	Supports Good by 2015	N\A	New surface water intake. Minor level of impact.	High	proposed abstraction quantity would not have a detrimental effect on WFD status) with an abstraction of up to 40 M/d. The ALS (Abstraction Licensing Strategy) indicates that there is water available from the Ribble (at 070, 050 and 030), however 40 M/d is a relatively large abstraction and impacts on the hydrological regime may occur.	Medium
WFD eler	River continuity				New pumping station.		Use of new pipe line, surface water intake and pumping station.	
8	ชื่ Morphological conditions			N\A	Minor level of impact.		No or minimal impact.	
	General physico- chemical	Moderate	Good by 2027	N\A				
	Specific pollutants:	High	High by 2015	NA				
WFD elements for Rivers:	Priority hazardous substances	Good	Good by 2015	N\A				
WFD e	Priority substances	Good	Good by 2015	NVA				
ote	Ecological	Moderate	Good by 2027	N\A				
iverall tus/Pote	Chemical	Good	Good by 2015	N\A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.

Good by 2027

- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer, http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \(\frac{1}{2}\text{MAR-FS1_olobal amec.com/shared/Projects/38671_UU_WRMP_SupportS_Design/Feasible_Options/IRZ\(\frac{1}{2}\text{WR049b}\)
Engineers Proforma: \(\frac{1}{2}\text{MAR-FS1_olobal amec.com/shared/Projects/38671_UU_WRMP_SupportS_Design/Feasible_Options/IRZ\(\frac{1}{2}\text{MAR-FS1_olobal amec.com/shared/Projects/38671_UU_WRMP_SupportS_Design/Feasible_Options/IRZ\(\frac{1}{2}\text{MAR-FS1_olobal amec.com/shared/Projects/38671_UU_WRMP_SupportS_Design/Feasible_Options/IRZ\(\frac{1}{2}\text{MAR-FS1_olobal amec.com/shared/Projects/38671_UU_WRMP_SupportS_Design/Feasible_Options/IRZ\(\frac{1}{2}\text{MAR-FS1_olobal amec.com/shared/Projects/38671_UU_WRMP_SupportS_Design/Feasible_Options/IRZ\(\frac{1}{2}\text{MAR-FS1_olobal amec.com/shared/Projects/38671_UU_WRMP_SupportS_Design/Feasible_Options/IRZ\(\frac{1}{2}\text{MAR-

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	Water body ID:			Scheme:		River Ribble	(Transfer to Anglezarke ir)	
	Water Body Name:		Fylde Permo-Triassi				WR049b	
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchmer		Fylde Permo-Triassi	ic Impact potential	Direct		Direct	
	Designation (and use:		No designation					
	Relevant upstream wa		N\A					
	Downstream water be	dies:	N\A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
t	Quantitativé	Good	Good by 2015	N/A				
ative ative emen	Quantitative GWDTEs	Good	Good by 2015	N/A				
uantit uantit tus El	Quantitative Saline Intrusion	Good	Good by 2015	N/A				
Quant Quant Status E	Quantitative Water Balance	Good	Good by 2015	N/A	Transfer pipe line on land.			
nemical Status Elemen	Chemical Drinking Water Protected Area Chemical GWDTEs test Chemical Saline Intrusion General Chemical	Good Good Good	Good by 2015 Good by 2015 Good by 2015	N/A N/A N/A	No or minimal impact. Transfer pipe line with water course crossings. No or minimal impact. New surface water intake. No or minimal impact.	High	New surface water abstraction quantity. Medium level of impact. A new abstraction loence would be granted by the Environment Agency (assuming the proposed abstraction quantity would not have a detrimental effect on WFD status) with an abstraction of up to 40 Mild. The ALS (Abstraction Licensing Strategy) indicates that there is water available from the Ribble (at Q70, Q50 and Q30). Due to the size of the proposed abstraction, there may be reductions in leakage from rivers to the aquifer, which could impact on the quantitative water balance of the water body. Use of new pipe lines, surface water intake and pumping station.	Medium
Ö	Test Prevent and Limit Objective		Good by 2015	N/A	New pumping station. No or minimal impact.		No or minimal impact.	
Supporting	Trend Assessment	No Trend	N/A					
= <u>=</u>	Quantitative	Good	Good by 2015	N/A				
atus/ ential	Chemical (GW)	Good	Good by 2015	N/A				
Sta	Overall	Good	Good by 2015	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

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		Water body ID:		GB112071065500	Scheme:	RIVER DA	RWEN (TRANSFER TO		
		Water body name:		Ribble-conf Calder to Tidal	Reference			WR074	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchmer	nt:	Big Ribble	Impact potential	Direct		Direct	
		Designation (and use	s):	Heavily modified					
		Relevant upstream wa	ater bodies:	Showley Brook, Calder - Pen	dle Water to conf Ribb	le,Ribble DS Stock Beck,Duddel Brook			
		Downstream water bo	odies:	RIBBLE					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos							
-	_ ≥	Macrophytes							
ologic	Biolog	Macrophytes and phytobenthos	Moderate	Good by 2027	N\A				
S: Ecc		Benthic invertebrates	Good	Good by 2015	N\A				
River		Fish				Transfer pipe line on land. No or minimal impact.		New surface water abstraction quantity. Medium level of impact. A new abstraction licence would be granted by the Environment Agency (assuming	
ts for	olodd	Hydrological regime	Supports Good	Supports Good by 2015	N\A	New surface water intake.		the proposed abstraction quantity would not have a detrimental effect on WFD status) with an abstraction of up to 10 Ml/d from the River Darwen near Roach Bridge. The ALS (Abstraction Licensing Strategy) indicates	
lemer	lowo.	River continuity				Minor level of impact.	High	that there is water available at all flow regimes (Q95, Q70, Q50 and Q30), however the abstraction is moderate in size and could have a medium impact on the hydrological regime of the River Darwen.	Medium
WFDe	Hydr	Morphological conditions	Supports Good	Supports Good by 2015	N\A	New pumping station. Minor level of impact.		Use of new pipe line, surface water intake and pumping station. No or minimal impact.	
	sico- mical	General physico- chemical	Moderate	Good by 2027	N\A			TO OF THE IMPACE.	
	Phy	Specific pollutants:	High	High by 2015	N\A				
WFD lements for	vers: emical	Priority hazardous substances	Good	Good by 2015	N\A				
Velem	중	Priority substances	Good	Good by 2015	N\A				
Status\	Te .		Moderate	Good by 2027	N\A				
all St	tenti	Chemical	Good	Good by 2015	N/A				

Assumptions

- 1- Application of standard best practice pollution prevention methods e.g. the GPPs
- Small scale shallow dewatering would take place
- 3- Stockpiling of resources or spoil near watercourse maybe required
- I- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required

- 5- Assumed all over ground pipelay will be along roads and over water crossings along exsisting bridges
 6- An abstraction licence can be granted that will ensure there is no significant environmental impact from the abstraction
 7- Dewatering of excavations would not require a permit from the Environment Agency. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed above. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Good by 2027

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		Water body ID:		GB41201G100500	Scheme:	RIVER DA	ARWEN (TRANSFER TO FISH	MOOR WTW)	
		Water Body Name:		Fylde Permo-Triassic Sandstone Aquifers	Reference		WF	R074	
		RBMP:		North West	Scheme Phase	Construction		Operational	
				Fylde Permo-Triassic Sandstone	Impact potential	Direct		Direct	
		Operational catchmen	t:	Aquifers		Direct		Direct	
		Designation (and uses		No designation					
		Relevant upstream war		N\A					
		Downstream water boo	dies:	N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	+		Good	Good by 2015	N/A				
ative	e ati	Quantitative GWDTEs test	Good	Good by 2015	N/A				
lantit		Quantitative Saline Intrusion	Good	Good by 2015	N/A			New surface water abstraction quantity.	
C		Quantitative Water Balance Chemical Dependent	Good	Good by 2015	N/A	Transfer pipe line on land.		Minor level of impact. A new abstraction licence would be granted by the Environment Agency (assuming the proposed abstraction quantity would not have a detrimental effect on WFD status) with an abstraction of up to 10 MI/d from the	
	s Elemer	Chamical Drinking	Good	Good by 2015	N/A	No or minimal impact. New surface water intake.	High	River Darwen near Roach Bridge. Due to the moderate size of the proposed abstraction, there may be reductions in leakage from the river to the aquifer, which could impact locally on the quantitative water balance of this principal	Medium
	Ste	test	Good	Good by 2015	N/A	No or minimal impact. New pumping station.		sandstone aquifer. However as the ALS indicates there is water available at all flow regimes (Q95, Q70, Q50 and Q30) in the surface water body, the flow is	
	mical	Intrusion	Good	Good by 2015	N/A	No or minimal impact.		unlikely to be reduced sufficiently to have a wide or significant impact on the water balance of the water body as a whole.	
	Che	General Chemical Test	Good	Good by 2015	N/A				
orting	ent	Prevent and Limit Objective						Use of new pipe line, surface water intake and pumping station. No or minimal impact.	
ddns	Elen	Trend Assessment	No Trend	N/A					
tential		Quantitative	Good	Good by 2015	N/A	·			
á		Chemical (GW)	Good	Good by 2015	N/A				

Assumptions

Over Statu Poten

- Environmental permitting will be adhered to and will stipulate appropriate conditions for water quality and quantity.
 Application of standard best practice pollution prevention methods e.g. the GPPs
 We will be added to the control of the control of
- 3- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required
- 4- Assumed all over ground pipelay will be along roads and over water crossings along exisiting bridges
 5- Dewatering of excavations would not require a permit from the Environment Agency. Dewatering and a corresponding discharge of sufficient

Good

magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed above. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer; http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: http://environment.data.gov.uk/catchment-planni

Good by 2015

N/A

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	Water body ID:		GB112069061382	Scheme:		River Bollin		
	Water body Name:		Bollin (Ashley Mill to Manchester Ship Canal)	Reference			WR076	
	RBMP:		Mersey Upper	Scheme Phase	Construction		Operational	
	Operational catchment:		Bollin Dean Mersey Upper	Impact potential	Direct		Direct	
	Designation (and uses):		Heavily modified					
	Relevant upstream water bo	dies:	Birkin Brook- Mobberley Br	rook to River Bollin (including Ros	stherne Brook)			
	Downstream water bodies:		Manchester Ship Canal		·			
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
	Macrophytes	Not provided						
logy	Macrophytes and phytobenthos	Not provided						
Biol	Benthic invertebrates	Good			Transfer pipe line on land. No or minimal impact.			
	Fish	Poor			Transfer pipe line with water course crossings.		Use of new transfer pipe line, pumping station and water treatment works. No or minimal impact.	
mor	Hydrological regime	Supports good			Minor level of impact.		New surface water abstraction quantity.	
dro	River continuity	Not provided			New surface water intake.	High	Medium level of impact. New surface water abstraction from the River Bollin	Medium
チョ	Morphological conditions	Not provided			Minor level of impact.	1.1.9.1	near Lymm of 25 M/d. In the ALS water is identified as available at all flows (Q30, Q50, Q70 and Q95) however the abstraction is relatively large in size and	moulum
ico-	General physico-chemical	All high/good except: Phosphate- poor			New pumping station. Minor level of impact.		could have a medium impact on the hydrological regime of the River Bollin. A new abstraction licence would be required to be issued by the Environment	
Phys	Specific pollutants:	Not provided			New water treatment works.		Agency.	
ical	Priority hazardous substances	Does not require assessment			No or minimal impact.			
Chemical	Priority substances	Does not require assessment						
Potential	Ecological	Moderate	Moderate by 2015	N\A				
ote	Chemical	Good	Good by 2015	N\A				
1	Overall	Moderate	Moderate by 2015	N\A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed. 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: WAR-P51_igbbaalmenc.com/sharedProjects/Sb88971 UU WRMP Support/S Designif-easible Options/IRZWR076/WR076 RIE EA Abstraction Licence Strategy (Upper Mersey): <a href="https://environment/uploads/system/upl

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		Water body ID:		GB41202G991700	Scheme:		River I	Rollin		
		water body ib.		Weaver and Dane	Reference		IXIVEI I	JOHN!		
				Quaternary Sand and	Keierence		WRO	76		
		Water body Name:		Gravel Aquifers			••••			
		RBMP:		North West GW	Scheme Phase	Construction		Operational		
		Kom .		Weaver and Dane	Impact potential	ono. uoton		Operational .		
				Quaternary Sand and	impact potential	Direct		Direct		
		Operational catchment:		Gravel Aquifers						
		Designation (and uses):		No designation						
		Relevant upstream water	bodies:	N\A						
		Downstream water bodie	s:	N\A						
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
'n		Quantitative Dependent	Good							
s fe	e e	Quantitative GWDTEs	01			Transfer pipe line on land. No or minimal impact. Transfer pipe line with water course crossings.				
ent	atj.	test	Good							
FD eleme Groundw Quantita	불교	Quantitative Saline	Good							
la la la	Qual	Intrusion	Good					the state of the first of the state of the s		
后ゆる	Sta	Quantitative Water	Good					Use of new transfer pipe line, pumping station and water treatment works. No or minimal impact.		
5		Balance			<u> </u>			140 of Hillillina Impact.		
Ë		O	Poor		X	No or minimal impact.		New surface water abstraction quantity. Minor level of impact. New surface water abstraction from the River Bollin near Lymm		
atc.	tus	Chemical Drinking Water Protected Area	Good				High			
츌	Status					New surface water intake. No or minimal impact.		of 25 Ml/d. The ALS does not define a groundwater management unit for this water	Medium	
ă	a a	Chemical GWDTEs test	Poor			No or minimal impact.		body, but there is no restricted or non availability of surface water in the overlying water		
<u>5</u> <u>7</u>	lie el	Chemical Saline			\	New pumping station.		body. Due to the relatively large size of the proposed abstraction there may be		
يَّ قِ	Sher _	Intrusion	Good			No or minimal impact.		reductions in leakage from the river to the aquifer, however these would be localised, and the secondary aquifer is unlikely to be highly dependent on leakage from surface		
nts for Chemi	ပ	General Chemical Test	Poor					water courses to maintain its quantitative water balance.		
ے او			FUUI			New water treatment works.		water courses to maintain its quantitative water balance.		
<u> </u>	un :	Prevent and Limit	Not provided			No or minimal impact.				
e	g	Objective	rtot providod							
WFD	ldn .	Trend Assessment	Upward trend							
_	י מ	Trend Adoccoment	орнага попа							
- 3		Quantitative	Good	Good by 2015	N\A					
= 5					-					
Overall		Chemical (GW)	Poor	Good by 2027	N\A					
6	3									
ž		Overall	Poor	Good by 2027	N\A					

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will acknow the on more than 30 days, and any in charnel works will be undertaken at a time which won't have a significant impact on fish communities.

4. New pipe line water course crossings would be installed via a terchal and cover technique within a dry working a rear. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6 - Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

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			GB31232665	Scheme:	APPLETON RI	ESERVOIR, WARRIN	GTON	
	Water body Name:		Appleton Reservoir	Reference:		WR07	9b	
	RBMP:		North West	Scheme Phase:	Construction	-	Operational	
	Operational catchment:		Weaver Lower	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily modified					
	Relevant upstream water bo	odies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Moderate						
	Macrophytes	-						
=	Phytobenthos	-						
Ecologica	Macrophytes and phytobenthos	-					Increased surface water abstraction quantity Medium level of impact. Reinstatement of surface water abstraction from the Appleton reservoir, near Warrington of 6 Mild.	
rvoirs: E	Chironomids (CPET)	-						
Rese	Fish	-					The ALS does not provided an assessment of the water availability of the reservoir itself, but the catchment in which Appleton Reservoir is located has no	
SS OF SE	Hydrological regime	-					water available at Q30 to Q70 and limited water available at Q95. This means	
for Lake Hydron rpholog	River continuity	-			Modified surface water intake. Minor level of impact.	High	that river flows are below the level required to support good ecological status. The required abstraction quantity is within the current abstraction licence (12 Ml/d) for the reservoir. Recent use of the reservoir has been for emergency fire fighting supply for an industrial customer. It is assumed that the reinstated potable water abstraction would involve higher abstraction rates than recent	Low
lements	Morphological conditions	-						
WFD e	General physico-chemical	Moderate					use, and as such, reinstatement of the abstraction may cause widespread or prolonged effects on the WFD status of the lake water body.	
£	Specific pollutants:	-						
WFD lements for akes\Reser voirs: Chemical	Priority hazardous substances	Does not require assessment						
9 7	Priority substances	Does not require assessment						
all is/		Moderate	Moderate by 2015	N/A				
Overall Status\ Potenti al	Chemical	Good	Good by 2015	N/A				
00.5	Overall	Moderate	Moderate by 2015	N/A				

Assumptions

Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have

Evidence

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	Water body ID:			Scheme:		APPLETON RESERVOIR,	WARRINGTON	
	Water body Name:		Not part of a river WB catchment	Reference:			WR079b	
	RBMP:		North West	Scheme Phase:	Construction		Operational	
	Operational catchment:		-	Impact potential:	Direct		Direct	
	Designation (and uses):		-					
	Relevant upstream water bodie:	s:	-					
	Downstream water bodies:		-					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confiden
	Phytobenthos -							
	Macrophytes -							
Biology	Macrophytes and phytobenthos						Use of new transfer pipe line, pumping station water treatment works, and surface water	
	Benthic invertebrates				Transfer pipe line on land.		intake. No or minimal impact.	
	- Fish				No or minimal impact.		Increased surface water abstraction quantity. Minor level of impact. Reinstatement of surface water abstraction from the Appleton reservoir, near	
0					Transfer pipe line with water course crossings. Minor level of impact.		Warrington of 6 Ml/d.	
鱼	Hydrological regime						The ALS states that the catchment in which Appleton Reservoir is located has no water available at	
اة ج	River continuity -				New surface water intake.		Q30 to Q70 and limited water available at Q95. This means that river flows are below the level	
ydron	Morphological conditions				Minor level of impact.	High	required to support good ecological status. However, the water body downstream of the reservoir has water available at all flows.	
-	-				New pumping station. Minor level of impact.		Reinstating the abstraction has the potential to reduce flows in the downstream part of the water	
/sico	General physico-chemical				New water treatment works.		body (assuming the reinstated abstraction would be greater than the current use as emergency fire lighting supply), but given the downstream surface water body has water available at all flows, the abstraction is from a reservoir rather than the "natural" water courses within the surface water body,	
Phy	Specific pollutants:				No or minimal impact.		abstraction is from a reservoir rather than the "natural water courses winnin the surface water body, the abstraction is within the current licenced quantity, and assuming compensation flows from the reservoir will be maintained, impacts on the surface water body are unlikely to be prolonged or	
; le	Priority hazardous - substances						widespread.	
Chemica	Priority substances							
la	- Ecological		-					

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which we

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossing
5- A ground investigation will be carried out and will identify any containminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small tootprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineer Proforms: http://www.ywkefs.ig/bobal.ame.com/sharet/Projects/3867.ju/bu/plants-planning/
EA Abstraction Licence Strategy (Lower Mersey & Alt): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/200490
EA Abstraction Licence Strategy (Lower Mersey & Alt): https://www.gov.uk/government/uploads/system/uploads/strachment_data/file/200490
EA Abstraction Licence Strategy (Lower Mersey & Alt): https://www.gov.uk/government/uploads/system/uploads/strachment_data/file/200490
EA Abstraction Licence Strategy (Lower Mersey & Alt): https://www.gov.uk/government/uploads/system/uploads/

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	Water body ID:		GB41202G991700	Scheme:		APPLETON RES	ERVOIR, WARRINGTON	·			
	Water body Name:		Weaver and Dane Quaternary Sand and Gravel Aquifers	Reference		WR079b					
	RBMP:		North West	Scheme Phase	Construction Operational						
	Operational catchment:		Weaver and Dane Quaternary Sand and Grave Aquifers	Impact potential	Direct	Direct					
	Designation (and uses):		No designation								
	Relevant upstream water bo	dies:									
	Downstream water bodies:	ream water bodies: -									
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence			
atus	Quantitative Dependent Surface Water Body Status	Good									
ve St	Quantitative GWDTEs test	Good									
ntitati Elen	Quantitative Saline Intrusion	Good			Transfer pipe line on land.		Use of new transfer pipe line, pumping station, surface water intake. No or minimal impact.				
Quai	Quantitative Water Balance	Good			No or minimal impact. Transfer pipe line with water course crossings.		Increased surface water abstraction quantity Minor level of impact. Reinstatement of surface water abstraction from the Appleton reservoir, near Warrington of 6 M/d. There may be localised or temporary effects on interactions between the reservoir, downstream water courses and groundwater, as the groundwater body comprises shallow sands and gravets which may be well connected to surface water courses. As the				
atus	Chemical Dependent Surface Water Body Status	Poor			No or minimal impact. Modified surface water intake.	High		Medium			
cal St ement	Chemical Drinking Water Protected Area	Good			No or minimal impact.						
ĒΞ		Poor			New pumping station.		proposed abstraction is from a reservoir, within the current abstraction licence (12 Ml/d),				
ř	Chemical Saline Intrusion	Good			No or minimal impact.		and downstream surface water bodies have water available at all flows, changes are				
	General Chemical Test	Poor					unlikely to be widespread or prolonged. There is no groundwater management unit defined				
rting ents water)	Prevent and Limit Objective	-					for this area.				
Sleme Eleme	Trend Assessment	Upward trend									
	Quantitative	Good	Good by 2015	N/A							
	Chemical (GW)	Poor	Good by 2027	N/A							
	Overall	Poor	Good by 2027	N/A							

- 1- Application of standard best practice construction and pollution prevention methods.

- 2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't he
 4. New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of c
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6. Extensions, modifications, or new pumping stations, water treatment works, etc. would involve the requirement for in-channel works.

 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer: https://environment.data.gov.uk/catchment-planning/
Engineers Proforma: <a href="https://www.gov.uk/government/uploads/system

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	Water body ID:		GB31232665	Scheme:	APPLETON RESE	ERVOIR, WARRING	GTON	
	Water body Name:		Appleton Reservoir	Reference:		WR079		
	RBMP:		North West	Scheme Phase:	Construction		Operational	
	Operational catchment:		Weaver Lower	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily modified					
	Relevant upstream water bo	odies:						
	Downstream water bodies:							
		_		Alternate Objective if less				
	WFD Element (Receptor)	Status	RBMP objective	than Good		Confidence		Confidence
	Phytoplankton	Moderate						
	Macrophytes	-						
_	Phytobenthos							
<u>5</u>								
igo y	Macrophytes and							
ğ ğ	phytobenthos							
: Eco Biolo		_					Increased surface water abstraction quantity	
	Chironomids (CPET)						Medium level of impact. Reinstatement of surface water abstraction from the	
ē	Cilifoliolillus (CFE1)						Appleton reservoir, near Warrington of 9 Ml/d.	
6								
88	Fish	-					The ALS does not provided an assessment of the water availability of the	
₩ <u> 0 3</u>	Hydrological regime	_					reservoir itself, but the catchment in which Appleton Reservoir is located has no	
<u> </u>	n yurologicar regime				Modified surface water intake.		water available at Q30 to Q70 and limited water available at Q95. This means	
ے ا او ا	River continuity				Minor level of impact.	High	that river flows are below the level required to support good ecological status.	Low
for L	Liver continuity			Million level of impact.				
- S							The required abstraction quantity is within the current abstraction licence (12	
g at	Morphological conditions	-					MI/d) for the reservoir. Recent use of the reservoir has been for emergency fire-	
Ĕ Ĕ	worphological conditions						fighting supply for an industrial customer. It is assumed that the reinstated	
e e e							potable water abstraction would involve higher abstraction rates than recent	
WFD ico-c	General physico-chemical	Moderate					use, and as such, reinstatement of the abstraction may cause widespread or	
<u> </u>	General physico-chemical						prolonged effects on the WFD status of the lake water body.	
sk.		_						
<u> </u>	Specific pollutants:							
		B						
= 8 ō	Priority hazardous	Does not require assessment						
□ S S S S S S S S S S S S S S S S S S S	substances							
AF Nen Soir								
WFD elements for Lakes/Reser voirs: Chemical	Priority substances	Does not require assessment						
e –								
verall tatus\ otenti al	Ecological	Moderate	Moderate by 2015	N/A				
atu al al	Chemical	Good	Good by 2015	N/A				
			Mandanata bar 0045					

Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Moderate by 2015

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

Moderate

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have

Evidence

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	Water body ID:		GB169	Scheme:	APPLETO	ON RESERVOIR, WARRIN	IGTON	
	Water body Name:		Not part of a river WB catchment	Reference:		WR07	79c	
	RBMP:		North West	Scheme Phase:	Construction		Operational	
	Operational catchment:		-	Impact potential:	Direct		Direct	
	Designation (and uses):		-					
	Relevant upstream water bodie	s:	-					
	Downstream water bodies:		-					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confid
	Phytobenthos -							
	Macrophytes -							
	Macrophytes and phytobenthos						Use of new transfer pipe line, pumping station water treatment works, and surface water	
Biolo	Benthic invertebrates				Transfer pipe line on land.		intake. No or minimal impact.	
	Fish				No or minimal impact. Transfer pipe line with water course crossings.		Increased surface water abstraction quantity. Minor level of impact. Reinstatement of surface water abstraction from the Appleton reservoir, near	
Ω.	Hydrological regime -				Minor level of impact.		Warrington of 9 Ml/d.	
흔듦	River continuity -				New surface water intake.		The ALS states that the catchment in which Appleton Reservoir is located has no water available at Q30 to Q70 and limited water available at Q95. This means that river flows are below the level	
Hydron	Morphological conditions				Minor level of impact.	High	required to support good ecological status. However, the water body downstream of the reservoir has water available at all flows.	Le
	- General physico-chemical				New pumping station. Minor level of impact.		Reinstating the abstraction has the potential to reduce flows in the downstream part of the water body (assuming the reinstated abstraction would be greater than the current use as emergency fire fighting	
Physic chemic					New water treatment works. No or minimal impact.		supply), but given the downstream surface water body has water available at all flows, the abstraction is from a reservoir rather than the "natural" water courses within the surface water body, the	
	Specific pollutants: Priority hazardous						abstraction is within the current licenced quantity, and assuming compensation flows from the reservoir will be maintained, impacts on the surface water body are unlikely to be prolonged or	
nical	substances						widespread.	
Chemica	Priority substances							
rial	- Ecological		-					

Chemical Overall

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which worl
4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6 - Extensions will be carried out and will be carried

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	Water body ID:		GB41202G991700	Scheme:		APPLETON RESI	ERVOIR, WARRINGTON	
	Water body Name:		Weaver and Dane Quaternary Sand and Gravel Aquifers			١	WR079c	
	RBMP:		North West	Scheme Phase	Construction		Operational Direct	
	Operational catchment:		Weaver and Dane Quaternary Sand and Gravel Aquifers	Impact potential	Direct			
	Designation (and uses):		No designation					
	Relevant upstream water bo	dies:	-					
	Downstream water bodies:	Downstream water bodies: - WFD Element (Receptor) Status RBMP objective						
	WFD Element (Receptor)			Alternate Objective if less than Good	Confidence			
for antitive atus	Quantitative Dependent Surface Water Body Status	Good						
WFD elements for undwater: Quantiti	Quantitative GWDTEs test	Good						
-D ele	Quantitative Saline Intrusion	Good			Transfer pipe line on land. No or minimal impact.		Use of new transfer pipe line, pumping station, surface water intake. No or minimal impact.	
Groun	Quantitative Water Balance	Good			Transfer pipe line with water course crossings.		Increased surface water abstraction quantity Minor level of impact. Reinstatement of surface water abstraction from the Appleton reservoir, near Warrington of 9 Ml/d. There may be localised or temporary effects on interactions between the reservoir,	
ater:	Chemical Dependent Surface Water Body Status	Poor			No or minimal impact. Modified surface water intake.	High		Medium
oundw ical S	Chemical Drinking Water Protected Area	Good			No or minimal impact.		downstream water courses and groundwater, as the groundwater body comprises shallow sands and gravels which may be well connected to surface water courses. As the	
Gro	Chemical GWDTEs test	Poor			New pumping station.		proposed abstraction is from a reservoir, within the current abstraction licence (12 Ml/d),	
2 등 유	Chemical Saline Intrusion	Good			No or minimal impact.		and downstream surface water bodies have water available at all flows, changes are	
Chemic	General Chemical Test	Poor					unlikely to be widespread or prolonged. There is no groundwater management unit defined	
eme	Prevent and Limit Objective	-					for this area.	
WFD el	Trend Assessment	Upward trend						
ntial	Quantitative	Good	Good by 2015	N/A				
Overall us\Poter	Chemical (GW)	Poor	Good by 2027	N/A				
atı								

Overall

- 1- Application of standard best practice construction and pollution prevention methods.
- 2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't he
 4. New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of c

Good by 2027

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

N/A

- 6. Extensions, modifications, or new pumping stations, water treatment works, etc. would involve the requirement for in-channel works.

 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer: https://environment.data.gov.uk/catchment-planning/
Engineers Proforma: <a href="https://www.gov.uk/government/uploads/system

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	Water body ID:		GB31232665	Scheme:	APPLETON RESERVOIF	DIR, WARRING	TON		
	Water body Name:		Appleton Reservoir	Reference:		WR0791			
	RBMP:		North West	Scheme Phase:	Construction		Operational		
	Operational catchment:		Weaver Lower	Impact potential:	Direct		Direct		
	Designation (and uses):		Heavily modified						
	Relevant upstream water bo	odies:							
	Downstream water bodies:								
				Alternate Objective if less					
	WFD Element (Receptor)	Status	RBMP objective	than Good	Confi	nfidence		Confidence	
	Phytoplankton	Moderate							
	Macrophytes	-							
_	Phytobenthos	_							
Ca									
ig ≥	Macrophytes and	-							
ĕ <u>3</u>	phytobenthos								
: Eco Biolo							Increased surface water abstraction quantity		
E	OLINA CORET	1					Medium level of impact. Reinstatement of surface water abstraction from the		
- -	Chironomids (CPET)						Appleton reservoir, near Warrington of 12 MVd.		
≥ 0							,, , ,		
SS	Fish	-					The ALS does not provided an assessment of the water availability of the		
ığı las	Hydrological regime						reservoir itself, but the catchment in which Appleton Reservoir is located has no		
Se le s	Hydrological regime	-					water available at Q30 to Q70 and limited water available at Q95. This means		
# E 8						Modified surface water intake.	High	that river flows are below the level required to support good ecological status.	Low
for L	River continuity	River continuity	River continuity		Minor level of impact.				
ž <u>T -</u>							The required abstraction quantity is within the current abstraction licence (12		
a #		-				l l	Ml/d) for the reservoir. Recent use of the reservoir has been for emergency fire-		
e si	Morphological conditions						fighting supply for an industrial customer. It is assumed that the reinstated		
<u> </u>							potable water abstraction would involve higher abstraction rates than recent		
9 5		Moderate					use, and as such, reinstatement of the abstraction may cause widespread or		
WFD	General physico-chemical						prolonged effects on the WFD status of the lake water body.		
> .5							prototiged effects on the TT B chalde of the take trater body.		
્રે ક	Specific pollutants:	-							
	opecine ponutants.								
2 5		Does not require assessment							
- 8 - E	Priority hazardous								
E # S E E	substances								
WFD lements for akes/Reser voirs: Chemical		Does not require assessment							
C a e	Priority substances	Does not require assessment							
	Factorical	Moderate	Moderate by 2015	N/A					
werall tatus\	Ecological	Good		N/A					
a a	Chemical	Good	Good by 2015	N/A					

Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Moderate by 2015

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

Moderate

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have

Evidence

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	Water body ID:			Scheme:		APPLETON RESERVOIR,	WARRINGTON	
	Water body Name:		Not part of a river WB catchment	Reference:			WR079b	
	RBMP:		North West	Scheme Phase:	Construction		Operational	
	Operational catchment:		-	Impact potential:	Direct		Direct	
	Designation (and uses):		-					
	Relevant upstream water bodies	s:	-					
	Downstream water bodies:		-					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confic
	Phytobenthos -							
	Macrophytes -							
Biology	Macrophytes and phytobenthos						Use of new transfer pipe line, pumping station water treatment works, and surface water	
	Benthic invertebrates				Transfer pipe line on land.		Use of new transfer pipe line, pumping station water treatment works, and surface water intake. No or minimal impact.	
	- Fish				No or minimal impact. Transfer pipe line with water course crossings.		Increased surface water abstraction quantity. Minor level of impact. Reinstatement of surface water abstraction from the Appleton reservoir, near	
oyd	Hydrological regime				Minor level of impact.		Warrington of 12 MVd.	
اة ج	River continuity -				New surface water intake.		The ALS states that the catchment in which Appleton Reservoir is located has no water available at	
lydrom	Morphological conditions				Minor level of impact.	High	Q30 to Q70 and limited water available at Q95. This means that river flows are below the level required to support good ecological status. However, the water body downstream of the reservoir has water available at all flows.	
. =	- General physico-chemical				New pumping station. Minor level of impact.		Reinstating the abstraction has the potential to reduce flows in the downstream part of the water	
ysico	General physico-chemical				New water treatment works. No or minimal impact.		body (assuming the reinstated abstraction would be greater than the current use as emergency fire fighting supply), but given the downstream surface water body has water available at all flows, the	
포 유	Specific pollutants:				TO ST TIME IMPACE.		abstraction is from a reservoir rather than the "natural" water courses within the surface water body, the abstraction is within the current licenced quantity, and assuming compensation flows from the	
cal	Priority hazardous - substances						reservoir will be maintained, impacts on the surface water body are unlikely to be prolonged or widespread.	
Chemi	- Priority substances							
ial Chemical	substances		-				widespread.	

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which we

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossing
5- A ground investigation will be carried out and will identify any containminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineer Proforms: http://www.ywkefs.ig/bobal.ame.com/sharet/Projects/3867.ju/bu/plants-planning/
EA Abstraction Licence Strategy (Lower Mersey & Alt): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/200490
EA Abstraction Licence Strategy (Lower Mersey & Alt): https://www.gov.uk/government/uploads/system/uploads/strachment_data/file/200490
EA Abstraction Licence Strategy (Lower Mersey & Alt): https://www.gov.uk/government/uploads/system/uploads/strachment_data/file/200490
EA Abstraction Licence Strategy (Lower Mersey & Alt): https://www.gov.uk/government/uploads/system/uploads/

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	Water body ID:		GB41202G991700	Scheme:		APPLETON RESI	ERVOIR, WARRINGTON	
	Water body Name:		Weaver and Dane Quaternary Sand and Gravel Aquifers			V	WR079b	
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Weaver and Dane Quaternary Sand and Gravel Aquifers	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo	dies:	-					
	Downstream water bodies:	Downstream water bodies:						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
atus	Quantitative Dependent Surface Water Body Status	Good						
tive Status	Quantitative GWDTEs test	Good						
antita	Quantitative Saline Intrusion	Good			Transfer pipe line on land. No or minimal impact.		Use of new transfer pipe line, pumping station, surface water intake. No or minimal impact.	
Ö	Quantitative Water Balance	Good			Transfer pipe line with water course crossings.		Increased surface water abstraction quantity Minor level of impact. Reinstatement of surface water abstraction from the Appleton	
atus	Chemical Dependent Surface Water Body Status	Poor			No or minimal impact. Modified surface water intake.	High	reservoir, near Warrington of 12 Ml/d. There may be localised or temporary effects on interactions between the reservoir,	Medium
ical St	Chemical Drinking Water Protected Area	Good			No or minimal impact.		downstream water courses and groundwater, as the groundwater body comprises shallow sands and gravels which may be well connected to surface water courses. As the	
- E -	Chemical GWDTEs test	Poor			New pumping station.		proposed abstraction is from a reservoir, is equal to the current abstraction licence (12	
င်	Chemical Saline Intrusion	Good			No or minimal impact.		Ml/d), and downstream surface water bodies have water available at all flows, changes are unlikely to be widespread or prolonged. There is no groundwater management unit defined	
-	General Chemical Test	Poor					for this area.	
rting Ch	Prevent and Limit Objective	-					ioi una dited.	
Suppo	Trend Assessment	Upward trend						
ntial	Quantitative	Good	Good by 2015	N/A				-
us/Poter	Chemical (GW)	Poor	Good by 2027	N/A				
at								

- 1- Application of standard best practice construction and pollution prevention methods.
- 2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't he
 4. New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of c

Good by 2027

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

N/A

6. Extensions, modifications, or new pumping stations, water treatment works, etc. would involve set.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Overall

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer: https://environment.data.gov.uk/catchment-planning/
Engineers Proforma: <a href="https://www.gov.uk/government/uploads/system

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		Water body ID:		GB102076073740	Scheme:		Ro	oughton Gill		
		Water body name:		Whelpo (Cald) Beck	Reference			WR095		
		RBMP:		Solway Tweed	Scheme Phase	Construction		Operational		
		Operational catchment:		Caldew	Impact potential	Direct		Direct		
		Designation (and uses):		No designation						
		Relevant upstream water bod	ies:	N\A						
		Downstream water bodies:		Caldew d/s Calderbeck						
_		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
		Phytobenthos	-					New groundwater abstraction quantity. Minor level of impact. Reinstatement of abstraction at Roughton Gill Mine. Maximum output of 1.5 Mild. The ALS does not define a groundwater management unit for this secondary aquifer. There is water available in the surface water body at all flows other than at OBS when there is limited water available. Given the relatively small size of the asbtraction, and the general availability of water, widespread or prolonged effects on the hydrologial regime of the surface water body are not anticipated. Use of new transfer pipe line, water treatment works and surface water intake.		
		Macrophytes	-							
Going	Biology	Macrophytes and phytobenthos	-							
		Benthic invertebrates	Good							
Divore o		Fish	Good			Transfer pipe line on land. No or minimal impact.				
و و	rpholog	Hydrological regime	High			Transfer pipe line with water course crossings. Minor level of impact.	High		Medium	
your	[River continuity	-			New surface water intake. Minor level of impact.	g.		medium	
WED	Hydro	Morphological conditions	Supports good			New water treatment works.				
	sico-		All high			Minor level of impact.		No or minimal impact.		
	Physi	Specific pollutants:	Copper and Zinc- high							
6	ivers: mical	Priority hazardous substances	Good							
>	element for River Chemic	Priority substances	Good							
	II ential	Ecological	Good	Good by 2015	N\A					
	Overall Status\Potential	Chemical	Good	Good by 2015	N\A					
		Overall	Good	Good by 2015	N\A					

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

For the states to consecutions where the state of the sta

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: www.natureorthemap.naturalengland.org.uk/MagicMap.aspx
EA Abstraction Licence Strategy (Eden & Ess.): http://www.natureorthemap.naturalengland.org.uk/MagicMap.aspx
EA Abstraction Licence Strategy (Eden & Ess.): http://www.natureorthemap.naturalengland.org.uk/MagicMap.aspx
EA Abstraction Licence Strategy (Eden & Ess.): http://www.natureorthemap.naturalengland.org.uk/MagicMap.aspx
EA Abstraction Licence Strategy (Eden & Ess.): https://www.natureorthemap.naturalengland.org.uk/MagicMap.aspx
EA Abstraction Licence Strategy (Eden & Ess.): https://www.natureorthemap.naturalengland.org.uk/MagicMap.aspx
EA Abstraction Licence Strategy (Eden & Ess.): https://www.natureorthemap.naturalengland.org.uk/MagicMap.aspx
EA Abstraction Licence Strategy (Eden & Ess.): https://www.natureorthemap.naturalengland.org.uk/MagicMap.aspx
EA Abstraction Licence Strategy (Eden & Ess.): https://www.natureorthemap.naturalengland.org.uk/MagicMap.aspx
EA Abstraction Licence Strategy (Eden & Ess.): https://www.natureorthemap.naturalengland.org.uk/MagicMap.aspx
EA Abstraction Licence Strategy (Eden & Ess.): <a href="https://www.natureort

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	Water body ID:		GB40201G102300	Scheme:		Rough	nton Gill	
	Water Body Name:		Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Reference		WF	R095	
	RBMP:		Solway Tweed	Scheme Phase	Construction		Operational	
	Operational catchme		Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Impact potential	Direct		Direct	
	Designation (and use		No designation					
	Relevant upstream w		N\A					
	Downstream water b	odies:	N\A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
its for fer: ive Status	Quantitative Dependent Surface Water Body Status	Good						
emen ndwa ntitat ntitat	Quantitative GWDTE:	Good						
WFD ell Grou Qua	Quantitative Saline Intrusion	Good						
, 0	Quantitative Water Good Balance Chemical Dependent Good		Transfer pipe line on land. No or minimal impact.		New groundwater abstraction quantity. Minor level of impact. Reinstatement of abstraction at Roughton Gill Mine.			
hemical	Chemical Drinking Water Protected Area	emical Drinking	Transfer pipe line with water course crossings. No or minimal impact.		Maximum output of 1.5 M/d. The ALS does not define a groundwater management unit for this secondary aquifer. Given the small size of the asbtraction, and that it is likely abstracting			
ster: C	Chemical GWDTEs test	Good			New/modified surface water intake. No or minimal impact.	High	water that would discharge to the Roughton Gill if not abstracted, widespread or prolonged effects on the quantitative water balance of the groundwater body are	Medium
undwa	Chemical Saline Intrusion	Good			New / modified water treatment works.		not anticipated.	
r Gro	General Chemical Test	Good			No or minimal impact.		Use of new transfer pipe line. No or minimal impact.	
nts fo	Prevent and Limit Objective	-						
WFD eleme Supportin	Trend Assessment	Upward Trend						
ial s	Quantitative	Good	Good by 2015	N\A				
Overall Status\ Potential	Chemical (GW)	Good	Good by 2015	N\A				
0.00	Overall	Good	Good by 2015	N\A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

5 × ground investigation will be carried up of a contractive and will be carried up of a contractive and a contractive a

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: http://www.netureortheap.neturalendor.gov.uk/catchment-planning/
Engineers Proforma: http://www.netureortheap.neturalendor.gov.uk/sagc/dap.aspx
Aquifer designation map: http://www.netureortheap.neturalendor.gov.uk/sagc/dap.aspx

Aquifer designation map: http://www.netureortheap.neturalendor.gov.uk/sagc/dap.aspx

EA Abstraction Licence Strategy (Eden & Esk): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300486/LIT_7889_1384b1.pdf

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	Water body ID:		GB112071065090	Scheme:	Worsthorne B	Sorehole (Compensat	ion)		
	Water body Name:		Brun- headwaters to conf Don	Reference		WR099a			
	RBMP:		Ribble	Scheme Phase	Construction		Operational		
	Operational catchment:		Calder	Impact potential	Direct		Direct		
	Designation (and uses):		Heavily modified						
	Relevant upstream water bo	odies:	None						
	Downstream water bodies:		Brun- conf Don to con						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
	Phytobenthos	Not provided							
	Macrophytes	Not provided							
Biology	Macrophytes and phytobenthos	Good					Changed groundwater abstraction quantity. Minor level of impact. Reinstatement of Worsthorne borehole. Maximum		
i iii	Benthic invertebrates	Moderate					output of 4 MI/d based on exisiting abstraction licence, discharged to		
	Fish	Good			At an artist and the first and the same		River Brun as compesation flow.		
Jo Mo	Hydrological regime	Not provided			Abstraction well refurbishment. No or Minimal Impact Expected.		The ALS shows that surface water is available at Q95 flows only, whilst		
일	River continuity	Not provided			Transfer pipe line on land.		limited at Q70 and not available at Q50 and Q30. Given that there is already an abstraction licence in place, the moderate size of the		
ξā	Morphological conditions	Not provided			No or minimal impact.	High	abstraction, that there are unlikely to be strong dependencies between	Medium	
sico-	General physico-chemical	All high/good			Transfer pipe line with water course crossings. Minor level of impact.		the secondary aquifer and the surface watercourses, and that the abstracted water is to be discharged to the River Brun as compensation flow, the use of the borehole is not expected to have a widespread or		
Phy	Specific pollutants:	Not provided					prolonged effect on the hydrological regime of this water body.		
or ers: mical	Priority hazardous substances	Does not require assessment					Use of new transfer pipe line. No or minimal impact.		
Riv Cher	Priority substances	Does not require assessment							
Status\	Ecological	Moderate	Good by 2027	N\A	·		·		
ote	Chemical	Good	Good by 2015	N\A					
-, σ	Overall	Moderate	Good by 2027	N\A					

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

A Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

 When pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
 A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proformas: http://www.lwf.environment.data.gov.uk/catchment.data.g

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		Water body ID:		GB41202G100300	Scheme:		Worsthorne Boreho	ple (Compensation)	
		raio. Doug ID.		Douglas, Darwen and	Reference				
				Calder Carboniferous			WRO	099a	
		Water body Name:		Aquifers					
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
				Douglas Darwen and Calder Carboniferous	Impact potential	Direct		Direct	
		Operational catchment:		Ag		Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water	bodies:	Not identified					
		Downstream water bodie	s:	Not identified					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	s	Quantitative Dependent							
ē	atn	Surface Water Body Status	Good						
ate	a St	Quantitative GWDTEs							
ndy ntit	ative	test	Good						
WFD elements for Groundwater:	antit	Quantitative Saline Intrusion	Good					Changed groundwater abstraction quantity. Minor level of impact. Reinstatement of Worsthorne borehole. Maximum output of 4	
¥ .	ð	Quantitative Water Balance	Good			Abstraction well refurbishment.		MI/d based on exisiting abstraction licence, discharged to River Brun as compesation flow.	
		Chemical Dependent				Minor level of impact.			
말	ž	Surface Water Body	Poor					The ALS does not identify a GWMU for this area, but does show that surface water is	
/ate	l E	Status				Transfer pipe line on land. No or minimal impact.	High	available at Q95 flows only, whilst limited at Q70 and not available at Q50 and Q30. Given there is already an abstraction licence in place, the abstraction is of moderate	Medium
ğ	ı i	Chemical Drinking Water	Good			No or minima impact.		size, and that the abstracted water is to be used as a compensation flow, there is	
Grou	l si	Protected Area				Transfer pipe line with water course crossings.		unlikey to be a widespread or prolonged effect on the quantitative water balance of the	
for G	I Sta	Chemical GWDTEs test	Good			No or minimal impact.		aquifer or on the quantitative dependent surface water body status.	
nts f	nica	Chemical Saline	Good					Use of new transfer pipe line.	
l e o	her	Intrusion						No or minimal impact.	
elen	5	General Chemical Test	Good						
Ē	po Ju	Prevent and Limit	Not provided						
>	Sup	Objective Trend Assessment	Upward trend						
	<u>-</u>	Quantitative	Good	Good by 2015	N\A				
Overall	antii	Chemical (GW)	Poor	Good by 2027	N\A				
S S	Pote	Overall	Poor	Good by 2027	N/A				
		Overall	FUUT	G000 by 2027	NVA				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

- S- A ground investigation will be carried out and will identify any contaminated land and any miligation that may be required.

 6- Extensions, modifications, or new pumping stations, water treatment with works, etc. would invoke a relatively small footpind in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales.

 8- Extensions, modifications, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

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		Water body ID:		GB112071065090	Scheme:	Worsthor	ne Borehole (Hurstwo	ood IR)		
		Water body Name:		Brun- headwaters to conf Don	Reference		WR	099b		
		RBMP:		Ribble	Scheme Phase	Construction		Operational		
		Operational catchment:		Calder	Impact potential	Direct		Direct		
		Designation (and uses):		Heavily modified						
		Relevant upstream water bo	odies:	Not identified						
		Downstream water bodies:		Brun- conf Don to con						
		WFD Element (Receptor) Status Phytobenthos Not provided		RBMP objective	Alternate Objective if less than Good		Confidence		Confider	nce
a	_	Macrophytes	Not provided							
logic	Biology	Macrophytes and phytobenthos	Good					Changed groundwater abstraction quantity. Minor level of impact. Reinstatement of Worsthorne borehole. Maximum		
Ecc	8	Benthic invertebrates	Moderate					output of 4 Ml/d based on existing abstraction licence. For transfer to		
-is		Fish	Good			No. of the Control of the Control		Hurstwood Impounding reservoir.		
River	mor	Hydrological regime	Not provided			Abstraction well refurbishment. No or Minimal Impact Expected.		The ALS shows that surface water is available at Q95 flows only whilst		
Į	drod	River continuity	Not provided			Transfer pipe line on land.		limited at Q70 and not available at Q50 and Q30. Given that there is		
nts	Hy p	Morphological conditions	Not provided			No or minimal impact.	High	already an abstraction licence in place, the moderate size of the abstraction, the abstraction is approx. 800m away from the River Brun,	Mediun	n
WFD eleme	sico- mical	General physico-chemical	All high/good			Transfer pipe line with water course crossings. Minor level of impact.		and that there are unlikely to be strong dependencies between the secondary aquifer and the surface watercourses, the use of the borehole is not expected to have a widespread or prolonged effect on the hydrological		
W	Phy	Specific pollutants:	Not provided					regime of this water body. Use of new transfer pipe line.		
WFD elements for	ars: nical	Priority hazardous substances	Does not require assessment					No or minimal impact.		
elerr	Che z	Priority substances	Does not require assessment							
lle /s	E III	Ecological	Moderate	Good by 2027	N\A					
Overall Status\	ten	Chemical	Good	Good by 2015	N\A					
0 %	ĭ	Overall	Moderate	Good by 2027	N\A					

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small loopfinit in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
7- Devastering of exavations would not require a permit from the Environment Agency/Natural Resources Wales. Devastering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

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		Water body ID:		GB41202G100300	Scheme:		Worsthorne Borehol	e (Hurstwood IR)		
		Water body Name:		Douglas, Darwen and Calder Carboniferous Aquifers	Reference	WR099b				
		RBMP:		North West GW	Scheme Phase	Construction		Operational		
		Operational catchment:		Calder Carboniferous Aq	Impact potential	Direct		Direct		
		Designation (and uses):		No designation						
		Relevant upstream water		Not identified						
		Downstream water bodie	s:	Not identified						
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
WFD elements for Groundwater:	Status	Quantitative Dependent Surface Water Body Status	Good							
ement ndwat ntitati		Quantitative GWDTEs test	Good					Changed groundwater abstraction quantity.		
FD ele Groun Quar	t o	Quantitative Saline Intrusion	Good					Minor level of impact. Reinstatement of Worsthorne boreholes. Maximum output of 4 Ml/d based on exisiting abstraction licence.		
8		Quantitative Water Balance	Good			Abstraction well refurbishment. Minor level of impact. Transfer pipe line on land.		For transfer to Hurstwood Impounding Reservoir. The ALS does not identify a GWMU for this area, but does show that surface water is available at 058 flows only, whilst limited to Q70 and not available at 050 and Q30. Pressures on baseflow		
er:		Chemical Dependent Surface Water Body Status	Poor				High			
elements for Groundwater: Chemical	us Ele	Chemical Drinking Water Protected Area	Good			No or minimal impact.		from the aquifer would likely show up as a water restriction at low flows (i.e. Q95) rather than higher flows. As there is already an	Medium	
Groun Sal	I Stat	Chemical GWDTEs test	Good			Transfer pipe line with water course crossings. No or minimal impact.		abstraction licence in place, the abstraction is of moderate size, and the water body is a secondary aquifer, widespread and prolonged effects on the quantitative water balance of the		
ts for hemic	emica	Chemical Saline Intrusion	Good			·		groundwater body are unlikely.		
S	Cherr	General Chemical Test	Good					Use of new transfer pipe line. No or minimal impact.		
WFD ele	rung	Prevent and Limit Objective	Not provided					No of Hilliana Impact.		
Š	Suppo	Trend Assessment	Upward trend							
ls al	ı	Quantitative	Good	Good by 2015	N\A					
- tat -	Poter	Chemical (GW)	Poor	Good by 2027	N\A					
O	ď	Overall	Poor	Good by 2027	N\A					

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water freatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EAINRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proformas: https://www.gov.uk/government/uploads/system/uploads/system/uploads/statchment-data/file/300484/LIT7919v3-l881c4.pdf

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		Water body ID:		GB112071065090	Scheme:	Worsthorne I	Borehole (Worsthorne	WTW)	
		Water body Name:		Brun- headwaters to conf Don	Reference		WR0	99c	
		RBMP:		Ribble	Scheme Phase	Construction		Operational	
		Operational catchment:		Calder	Impact potential	Direct		Direct	
		Designation (and uses):		Heavily modified					
		Relevant upstream water bo	odies:	Not identified					
		Downstream water bodies:		Brun- conf Don to con	of Calder				
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Not provided						
	_	Macrophytes	Not provided						
logica	3iology	Macrophytes and phytobenthos	Good						
.8	m	Benthic invertebrates	Moderate					Changed groundwater abstraction quantity.	
is:		Fish	Good					Minor level of impact. Reinstatement of Worsthorne borehole. Maximum output of 4 Ml/d based on exisiting abstraction licence.	
Rive	m or	Hydrological regime	Not provided			Reinstate and refurbish abstraction boreholes.		For transfer to Worsthorne WTW.	
٥	유	River continuity	Not provided			No or Minimal Impact Expected.		The ALS shows that surface water is available at Q95 flows only	
nts	호 a	Morphological conditions	Not provided			Modified water treatment works.	High	whilst limited at Q70 and not available at Q50 and Q30 (Note. this	
D eleme	sico- mical	General physico-chemical	All high/good			No or minimal impact.		need clarifying with the EA). Given that there is already an abstraction licence in place, the moderate size of the abstraction, and that there are unlikely to be strong dependencies between	
WFD	Phy	Specific pollutants:	Not provided					the secondary aquifer and the surface watercourses, the use of the borehole is not expected to have a widespread or prolonged effect on the hydrological regime of this water body.	
FD ients or	Kivers: Chemical	Priority hazardous substances	Does not require assessment						
elem	Cher	Priority substances	Does not require assessment						
= 's	la l	Ecological	Moderate	Good by 2027	N\A	·		•	
Overall Status\	oten	Chemical	Good	Good by 2015	N\A				
0 %	ĭ	Overall	Moderate	Good by 2027	N\A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proformas: \\\\WAR-FS1.global.amec.com\shared\Projects\\38671 UU WRMP Support\\$ Design\Feasible Options\\RZ\\WR075\WR075 Stocl
EA Abstraction Licence Strategy (Ribble, Douglas and Crossens): https://www.gov.uk/government/uploads/system/uploads/attachment_data

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		Water body ID:		GB41202G100300	Scheme:	We	orsthorne Borehole	(Worsthorne WTW)	
		Water body Name:		Douglas, Darwen and Calder Carboniferous Aquifers	Reference		WR09	,	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment:		Calder Carboniferous Aq	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water		Not identified					
		Downstream water bodie	s:	Not identified					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
s for er:	Status	Quantitative Dependent Surface Water Body Status	Good						
WFD elements f Groundwater: Quantitative	tive S	Quantitative GWDTEs test	Good						
FD ele Groui Quar	antitative Elemen	Quantitative Saline Intrusion	Good					Changed groundwater abstraction quantity. Minor level of impact. Reinstatement of Worsthome boreholes.	
3	ð	Quantitative Water Balance	Good					Maximum output of 4 M/d based on existing abstraction licence. For transfer to Worsthorne WTW. The ALS does not identify a GWMUI for this area, but does show that surface water is available at O95 flows only, whilst limited at O70 and not available at O50 and O30. Pressures on baseflow from the aquifer would likely show up as a water restriction at low	
::	ment	Chemical Dependent Surface Water Body Status	Poor			Abstraction well refurbishment. Minor level of impact.	High		
Groundwater: cal	tus Ele	Chemical Drinking Water Protected Area	Good			Modified water treatment works. No or minimal impact.			Medium
Grou	al Star	Chemical GWDTEs test	Good			No or minimai impact.		flows (i.e. Q95) rather than higher flows. As there is already an abstraction licence in place, the abstraction is of moderate size,	
nts for Chemi	Chemical	Chemical Saline Intrusion	Good					and the water body is a secondary aquifer, widespread and prolongued effects on the quantitative water balance of the	
elemen	_	General Chemical Test	Good					groundwater body are unlikely.	
WFD el		ਲ Prevent and Limit Objective	Not provided						
5	Elem	Trend Assessment	Upward trend						
all sis/	tia	Quantitative	Good	Good by 2015	N\A				
Overall Status\	oten	Chemical (GW)	Poor	Good by 2027	N\A				
0.00	20 0	Overall	Poor	Good by 2027	N\A				

Assumptions

- Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

- S A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

 6 Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relative work and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer; http://environment.data.gov.uk/catchment-planning/
Engineers Proformas: http://environment.data.gov.uk/catchment-planning/
Engineers Proformas: http://environment.data.gov.uk/catch

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	Water body ID:		344	Scheme:	THORNO	LIFFE ROAD BORE	HOLE, BARROW-IN-FURNESS		
	Water body Name:		Non reportable WB at the River Duddon Estuaryu			WF	R100		
	RBMP:		N/A	Scheme Phase	Construction		Operational		
	Operational catchment: Designation (and uses):				Direct		Direct		
			N/A						
	Relevant upstream water bo								
	Downstream water bodies:		N/A						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
=		N/A							
2 2	Macrophytes	N/A							
golo	Macrophytes and phytobenthos	N/A					Increased groundwater abstraction quantity to 4.5 MI/d.		
입 교	Benthic invertebrates	N/A					Minor level of impact. Increased groundwater abstraction from the Thorncliffe Road site due		
ers:	Fish	N/A			New water treatment works.		to construction of new borehole. Increase in abstraction from 4.5 Ml/d to 9.0 Ml/d. Current licenced rate is 4.5 Ml/d.		
هِ چَ	Hydrological regime	N/A			No or minimal impact.		licericed rate is 4.5 livilid.		
P 5 6 7	River continuity	N/A			· · · · · · · · · · · · · · · · · · ·		The Abstraction Licensing Strategy (ALS) indicates that there is no surface water available at		
ents f	Morphological conditions	N/A			New abstraction well drilling. No or minimal impact.	High	low flows (Q95 and Q70), and limited water available at medium and high flows (Q50 and Q30). However, as the increase in groundwater abstraction at Thorncliffe Road will be	Medium	
ico-	General physico-chemical	N/A			New abstraction well headworks / surface structures.		matched by a reduction in abstraction from Schneider Road (located approx. 600 m to the east and within the same groundwater body), any impacts on the surface water body are		
WFD Physic chemi	Specific pollutants:	N/A			No or minimal impact.		likely to be localised. Use of water treatement works and pumping station.		
for for tivers:	Priority hazardous substances	N/A					No or minimal impact.		
elem fc Rive Chen	Priority substances	N/A							
= < E	Ecological	N/A	N/A	N\A					
verall atus\ tential	Chemical	N/A	N/A	N\A					

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

N/A

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

N\A

- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

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		Water body ID:		GB41201G101900	Scheme:	THORNCI	LIFFE ROAD BOREH	OLE, BARROW-IN-FURNESS	
		Water body Name:		Furness Permo-Triassic sandstone aquifers	Reference		WR1	100	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Furness Permo-Triassic sandstone aquifers	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water	bodies:	N\A					
		Downstream water bodies	s:	N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ts for er: ve	Status	Quantitative Dependent Surface Water Body Status	Good	Good by 2015					
FD elements f Groundwater: Quantitative		test	Good	Good by 2015				Increased groundwater abstraction quantity to 4.5 Ml/d.	
WFD eler Groun	Quantitative Eleme	Intrusion	Good	Good by 2015				Minor level of impact. Increased groundwater abstraction from the Thorncliffe Road site due to construction of new borehole.	
>	lement	Quantitative Water Balance	Good	Good by 2015		New water treatment works.		Increase in abstraction from 4.5 MI/d to 9.0 MI/d. Current licenced tate is 4.5 MI/d.	
Chemical		Chemical Dependent Surface Water Body Status	Good	Good by 2015		No or minimal impact. New abstraction well drilling.	High	The Abstraction Licensing Strategy (ALS) indicates that there is limited water available (there is a licence restriction of 4.2 Ml/d water available from the South Furness groundwater management	High
ater:	S	Chemical Drinking Water Protected Area	Good	Good by 2015		Minor level of impact.	riigii	unit). However, as part of this option a reduction in abstraction from the Schneider Road boreholes (located approx. 600 m to the	•
Mpuna	al Statu	Chemical GWDTEs test	Good	Good by 2015		New abstraction well headworks / surface structures. No or minimal impact.		east and within the same groundwater body) would be implemented to avoid negative impacts on the quantitative water balance of the groundwater body. Therfore any impacts on the	
or Gro	Chemical	Chemical Saline Intrusion	Good	Good by 2015				groundwater body. Theriore any impacts on the	
ents f	O	General Chemical Test	Good	Good by 2015				Use of water treatement works and pumping station. No or minimal impact.	
elem	supportin g	g Prevent and Limit Objective	-					· ·	
WFD	ddns	Trend Assessment	No trend						
	antial	Quantitative	Good	Good by 2015	N\A				
Verall	s/Pote	Chemical (GW)	Good	Good by 2015	N\A				

Assumptions

o lls

1- Application of standard best practice construction and pollution prevention methods.

Good

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good by 2015

- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

N\A

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

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	Water body ID:		GB112072065822	Scheme:	FRA	NKLAW Z SITE PLUS INCR	EASED FRANKLAW WTW TREATMENT CAPACITY	
	Water body Name:		Wyre DS Grizedale Brook confl	Reference			WR101	
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Wyre and Calder	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water be	odies:	Calder (Wyre), Wyre - Upper					
	Downstream water bodies:		Wyre - conf R Brock to tidal					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
- A	Macrophytes	-					Increased groundwater abstraction quantity Medium level of impact. Increased abstraction of 30 Mild (from approximately 98 Mild recent use, to approx. 128 Mild), spik across several Franklaw and Broughton borehole sites. The increased abstraction	
cologic	Macrophytes and phytobenthos	Moderate					quantity is within the current licence quantity for the borehole group (maximum aggregated daily peak of 190 Ml/d).	
rs: E	Benthic invertebrates	High					The Abstraction Licensing Strategy (ALS) indicates that there is no water available for the groundwater	
Rive	Fish	High			Abstraction well refurbishment.		body in which the abstraction boreholes are located. This means that more water has been abstracted based on recent amounts than the amount available. In this surface water body there is no surface water	
nts for	Hydrological regime	Does not support good			No or minimal impact.	High	available at Q95, Q70 and Q50 but limited water available at Q30.	Low
elemen	River continuity	-			Modified abstraction well headworks / surface structures. No or minimal impact.	, ,	The Environment Agency have classified these abstractions as Category 3 which means that based on full use of the abstraction licence deterioration is likely after 2027. The recent actual abstraction rates are not causing deterioration. It is not clear at which abstraction rate between recent actual and fully licenced	
WFD	Morphological conditions	-					deterioration would start to occur.	
- Sico	General physico-chemical	Good					Based on the evidence above, that there may be good hydraulic connections between the principal sandstone aquifer and water courses, and that the Franklaw Z site (where an increase in abstraction of 18	
Phys	Specific pollutants:	High					Ml/d is proposed) is approx. 100 m from the River Wyre, it is considered that there is the potential for widespread or prolonged effects on the hydrological regime of the surface water body, although this is	
WFD elements for Rivers: Chemical	Priority hazardous substances	Does not require assessment					associated with a number of uncertainties (such as the abstraction rates at which deterioration would occur).	
elen for R Che	Priority substances	Good						
all IS\ tial	Ecological	Good	Good by 2027	N\A				
e 5 ±					Ţ			

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
 3 Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2027 Good by 2027

- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7. Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Catchment Data Explorer; http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: http://www.gov.uk/catchment-planning/
Engineers

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ſ	Water body ID:		GB112072065810	Scheme:	FRANKLAW	Z SITE PLUS INCREASED F	RANKLAW WTW TREATMENT CAPACITY	
	Water body Name:		Brock	Reference			WR101	
Į	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Brock and Trib	Impact potential	Direct		Direct	
Į	Designation (and uses):		No designation					
	Relevant upstream water bo	dies:	New Draught Brook					
	Downstream water bodies: WFD Element (Receptor)	Status	Wyre - conf R Brock to tidal RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos							
gy	Macrophytes						Increased groundwater abstraction quantity Minor level of impact. Increased abstraction of 30 Ml/d (from approximately 98 Ml/d recent use, to approx.	
Biolo	Macrophytes and phytobenthos	Good	Good by 2015				128 MI/d), split across several Franklaw and Broughton borehole sites. The increased abstraction quantity is within the current licence quantity for the borehole group (maximum aggregated daily peak of 190 MI/d).	
	Benthic invertebrates	High	Good by 2015		Abstraction well refurbishment.		The Abstraction Licensing Strategy (ALS) indicates that there is no water available for the groundwater body in which the abstraction boreholes are located. This means that more water has been abstracted based on	
ס	Fish		7		No or minimal impact. Modified abstraction well headworks / surface structures.		recent amounts than the amount available. In this surface water body there is no surface water available at Q95, Q70 and Q50 but limited water available at Q30.	
듄	,	Does not support good	Supports good by 2027		No or minimal impact.	High	The Environment Agency have classified these abstractions as Category 3 which means that based on full use of the abstraction licence deterioration is likely after 2027. The recent actual abstraction rates are not	Medium
om v	River continuity				Modified water treatment works.		causing deterioration. It is not clear at which abstraction rate between recent actual and fully licenced	
Hydro	Morphological conditions	Supports good.	-		No or minimal impact.		deterioration would start to occur. In this water body, the abstraction locations are some distance from the mapped WFD water course, and	
sico- nical	General physico-chemical	All high or good	Good by 2015				the increase in abstraction for any one location is relatively small (<4Ml/d), therefore impacts on the hydrological regime of the surface water body are unlikely to be widespread or prolonged.	
Phy	Specific pollutants:	Copper: high	High by 2015				Modified water treatment works.	
mical	Priority hazardous substances	Does not require assessment	Does not require assessment				No or minimal impact.	
Chemica	Priority substances	Does not require assessment	Does not require assessment					
1	Ecological	Good	Good by 2015	N\A				

Assumptions

Chemical

1- Application of standard best practice construction and pollution prevention methods.

Good

Good

- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good by 2015

Good by 2015

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N\A

N\A

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

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		Water body ID:		GB112072066220	Scheme:	FRANKLAW	Z SITE PLUS INCREASED	FRANKLAW WTW TREATMENT CAPACITY	
		Water body Name:		Calder (Wyre)	Reference			WR101	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Wyre and Calder	Impact potential	Direct		Direct	
		Designation (and uses):		Heavily Modified					
		Relevant upstream water bo	dies:	-					
		Downstream water bodies:		Wyre DS Grizedale Brook co	onfi				
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos							
	~	Macrophytes	-	-				Increased groundwater abstraction quantity	
logical	Biolog	Macrophytes and phytobenthos	Good	Good by 2015				Medium level of impact. Increased abstraction of 30 Mild (from approximately 98 Mild recent use, to approx. 128 Mild), split across several Franklaw and Broughton borehole sites. The increased abstraction quantity is within the current licence quantity for the borehole erroup (maximum aggregated daily peak of 190).	
Eco		Benthic invertebrates	Good	Good by 2015				MI/d).	
ivers		Fish	Moderate	Good by 2027				The Abstraction Licensing Strategy (ALS) indicates that there is no water available for the groundwater body in which the abstraction boreholes are located. This means that more water has been abstracted based on	
s for R	holog	Hydrological regime	Not assessed			Abstraction well refurbishment. No or minimal impact.		recent amounts than the amount available. In this surface water body there is no surface water available at any flow.	
ments	omorp	River continuity	Not assessed			Modified abstraction well headworks / surface structures.	High	The Environment Agency have classified these abstractions as Category 3 which means that based on full	Low
WFD ele	Hydr	Morphological conditions	Not assessed			No or minimal impact.		use of the abstraction licence deterioration is likely after 2027. The recent actual abstraction rates are not causing deterioration. It is not clear at which abstraction rate between recent actual and fully licenced deterioration would start to occur.	
W	Physico- themical	General physico-chemical	All good or high apart from phosphate and biochemical oxygen demand at moderate	Good by 2027				Based on the evidence above, that there may be good hydraulic connections between the principal sandstone aquifer and water courses, and that the Franklaw R site is approx. 600 m from the River Calder, it is considered that there is the potential for widespread or prolonged effects on the hydrological regime of	
		Specific pollutants:	Not assessed					It is considered that there is the potential for widespread or prototiged effects on the hydrological regime of the surface water body, although this is associated with a number of uncertainties (such as if abstraction will increase at the Franklaw R site).	
WFD elements for Rivers:	mical	Priority hazardous substances	Does not require assessment					norded at the Halmad K She).	
W elen for R	Che	Priority substances	Does not require assessment						
all si	<u>a</u>	Ecological	Moderate	Good by 2027	N\A				
@ 20 3	+								

- 1- Application of standard best practice construction and pollution prevention methods.
- P- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good by 2015 Good by 2027

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N\A

N\A

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

Good

- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Catchment Data Explorer: http://environment.data.gov.uk/catchment.planning/
Engineers Proforma: WAR-FS1.global.amec.com/sharangers/
Engineers Proforma: WAR-FS1.global.amec.com/sharangers/
Engineers Proforma: WAR-FS1.global.amec.com/sharangers/
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		Water body ID:		GB112072065790	Scheme:	FRANKLAW	Z SITE PLUS INCREASED F	RANKLAW WTW TREATMENT CAPACITY	
		Water body Name:		New Draught Brook	Reference			WR101	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Brock and Trib	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo	dies:	Barton (Westfield) Brook, Wo	odplumpton Brook				
		Downstream water bodies:		Brock					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos							
_) A	Macrophytes	-	-				Increased groundwater abstraction quantity	
ologica	Biolo	Macrophytes and phytobenthos	Poor	Good by 2027				Medium level of impact. Increased abstraction of 30 Mild (from approximately 98 Mild recent use, to approx. 128 Mild), split across several Franklaw and Broughton borehole sites. The increased abstraction quantity is within the current licence quantity for the borehole group (maximum aggregated daily peak of 190	
S: Ecc		Benthic invertebrates						Ml/d).	
Sivers		Fish	Poor	Good by 2027				The Abstraction Licensing Strategy (ALS) indicates that there is no water available for the groundwater body in which the abstraction boreholes are located. This means that more water has been abstracted based on	
s for F	holog	Hydrological regime	Supports good	Supports good by 2015		Abstraction well refurbishment. No or minimal impact.		recent amounts than the amount available. In this surface water body there is no surface water available at Q95, Q70 and Q50 but limited water available at Q30.	
ement	omorp	River continuity				Modified abstraction well headworks / surface structures. No or minimal impact.	High	The Environment Agency have classified these abstractions as Category 3 which means that based on full use of the abstraction licence deterioration is likely after 2027. The recent actual abstraction rates are not	Low
WFD el	Hydr	Morphological conditions	Supports good	-		No or minima impact.		causing deterioration. It is not clear at which abstraction rate between recent actual and fully licenced deterioration would start to occur.	
>	hysico- hemical	General physico-chemical	All good or high apart from dissolved oxygen and phosphate which are poor.	Good by 2027.				Based on the evidence above, that there may be good hydraulic connections between the principal sandstone aquifer and water courses, and that the Franklaw K and J sites are within 500 m of the River	
	문중	Specific pollutants:	Copper: high	High by 2015				Brock ad the Old River Brock, it is considered that there is the potential for widespread or prolonged effects on the hydrological regime of the surface water body, although this is associated with a number of	
WFD	ivers: mical	Priority hazardous substances	Does not require assessment	t Does not require assessment				uncertainties (such as if abstraction will increase at the Franklaw K and J sites).	
Welen	for R	Priority substances	Does not require assessment	t Does not require assessment					
≡ 5	<u>.</u>	Ecological	Poor	Good by 2027	N\A				

Assumptions

Chemical

Overall

- 1- Application of standard best practice construction and pollution prevention methods.

Good

Poor

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2015

Good by 2027

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N\A

N\A

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming
- polluted, and in line with best practice.

Evidence

Abstraction license strategy (Lune and Wyre): https://www.gov.uk/government

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		Water body ID:		GB112072065800	Scheme:	FRANKLAW	Z SITE PLUS INCREASED I	FRANKLAW WTW TREATMENT CAPACITY	
		Water body Name:		Barton (Westfield) Brook	Reference			WR101	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Brock and Trib	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo	dies:	-					
		Downstream water bodies:		New Draught Brook					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos							
	λ£	Macrophytes							
igical		Macrophytes and phytobenthos	Poor	Good by 2027				Increased groundwater abstraction quantity Medium level of impact. Increased abstraction of 30 Ml/d (from approximately 98 Ml/d recent use, to approx. 128 Ml/d), split across several Franklaw and Broughton borehole sites. The increased abstraction	
9000		Benthic invertebrates	Moderate	Good by 2027				quantity is within the current licence quantity for the borehole group (maximum aggregated daily peak of 190 Ml/d).	
ars: E		Fish	Poor	Good by 2027				The Abstraction Licensing Strategy (ALS) indicates that there is no water available for the groundwater body	
or Rive	pholog	Hydrological regime	Does not support good	Supports good by 2027		Abstraction well refurbishment.		in which the abstraction boreholes are located. This means that more water has been abstracted based on recent amounts than the amount available. In this surface water body there is no surface water available at	
nents f	_	River continuity				No or minimal impact. Modified abstraction well headworks / surface structures.	High	Q95, Q70 and Q50 but limited water available at Q30. The Environment Agency have classified these abstractions as Category 3 which means that based on full	Low
) elem	Hydr	Morphological conditions	Supports good	-		No or minimal impact.		use of the abstraction licence deterioration is likely after 2027. The recent actual abstraction rates are not causing deterioration. It is not clear at which abstraction rate between recent actual and fully licenced	
WFD	Physico-chemical	General physico-chemical	All high or good apart from biochemical oxygen demand which is moderate and phosphate which is poor	Good by 2027				deterioration would start to occur. Based on the evidence above, that there may be good hydraulic connections between the principal sandstone aquifer and water courses, and that the Broughton G, E and D sites are within between 400 m and 700 m of the Barton Brook, it is considered that there is the potential for widespread or prolonged	
		Specific pollutants:	Copper: high	High by 2015				effects on the hydrological regime of the surface water body, although this is associated with a number of uncertainties (such as if abstraction will increase at the Broughton G, E and D sites).	
WFD elements for Rivers:	mical	Priority hazardous substances	Does not require assessment	Does not require assessment					
W _I elem	Chei	Priority substances	Does not require assessment	Does not require assessment					
= \s	al	Ecological	Poor	Good by 2027	N\A				

Chemical

- 1- Application of standard best practice construction and pollution prevention methods.
- P- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2015

Good by 2027

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N\A

N\A

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Catchment Data Explorer, http://environment.data.gov.uk/catchment-planning/
https://environment.data/mis/shared/Projects/88671 UU WRMP Support\S Design\Feasible Options\RZ\WR101\WR101\Frankiaw Z site_increased WTW capacity.docx.
Abstraction license strategy (Lune and Wyre): https://www.gov.uk/government/juploads/system/uploads/strachment_data/file/300485/LIT7917v1_161231.pdf

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		Water body ID:		GB112072065760	Scheme:	FRANKLAW	Z SITE PLUS INCREASED I	FRANKLAW WTW TREATMENT CAPACITY	
		Water body Name:		Woodplumpton Brook	Reference			WR101	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Brock and Trib	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo	dies:	-					
		Downstream water bodies:		New Draught Brook					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos							
	AG	Macrophytes	-	-					
gical	Biolo	Macrophytes and phytobenthos	Moderate	Good by 2027				Increased groundwater abstraction quantity Medium level of impact. Increased abstraction of 30 M/ld (from approximately 98 M/ld recent use, to approx. 128 M/ld), split across several Franklaw and Broughton borehole sites. The increased abstraction	
8		Benthic invertebrates	Moderate	Good by 2027				quantity is within the current licence quantity for the borehole group (maximum aggregated daily peak of 190 Ml/d).	
ars:		Fish						The Abstraction Licensing Strategy (ALS) indicates that there is no water available for the groundwater body	
or Rive	pholog	Hydrological regime	Does not support good	Supports good by 2027		Abstraction well refurbishment.		in which the abstraction boreholes are located. This means that more water has been abstracted based on recent amounts than the amount available. In this surface water body there is no surface water available at	
nents f	_	River continuity				No or minimal impact. Modified abstraction well headworks / surface structures.	High	Q95, Q70 and Q50 but limited water available at Q30. The Environment Agency have classified these abstractions as Category 3 which means that based on full	Low
D elen	Hydr	Morphological conditions	Supports good	-		No or minimal impact.		use of the abstraction licence deterioration is likely after 2027. The recent actual abstraction rates are not causing deterioration. It is not clear at which abstraction rate between recent actual and fully licenced	
WFD	mical	General physico-chemical	All high apart from amonia which is moderate, and biochemical oxygen demand and phosphate which are poor	Good by 2027				deterioration would start to occur. Based on the evidence above, that there may be good hydraulic connections between the principal sandstone aquifer and water courses, and that the Broughton A site is within 200 m of the Woodplumpton Brook, it is considered that there is the potential for widespread or prolonged effects on the hydrological	
	Phys	Specific pollutants:	-	Not assessed				regime of the surface water body, although this is associated with a number of uncertainties (such as if abstraction will increase at the Broughton A site).	
WFD	ivers: mical	Priority hazardous substances	Does not require assessment	Does not require assessment					
elen V	for R	Priority substances	Does not require assessment	Does not require assessment					
= \s	<u>=</u>	Ecological	Moderate	Good by 2027	N\A				

Chemical

- 1- Application of standard best practice construction and pollution prevention methods.
- P- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2015

Good by 2027

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a trench and cover technique that does not involve disturbance of the bed.

N\A

N\A

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

Good

Moderate

- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Catchment Data Explorer. http://environment.data.gov.uk/catchment-planning/ Engineers Proforma: \\WAR-FS1.global.amec.com\shared/Projects\38671 UU WRMP Support\5 Design\Feasible Options\\RZ\\WR101\\WR101_Franklaw Z site_increased WTW capacity.docx

Abstraction license strategy (Lune and Wyre): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300485/LIT7917v1_161231.pdf

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		Water body ID:		GB41201G100500	Scheme:	FRANKLAW Z SITE PI	LUS INCREASED FRANK	KLAW WTW TREATMENT CAPACITY	
		Water body Name:		Fylde Permo-Triassic Sandstone Aquifers	Reference		WR101		
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Fylde Permo-Triassic Sandstone Aquifers	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water		N\A					
		Downstream water bodie	s:	N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
WFD elements for Groundwater: Quantitative	Status	Quantitative Dependent Surface Water Body Status	Good					Increased groundwater abstraction quantity Medium level of impact. Increased abstraction of 30 Ml/d (from approximately 98 Ml/d	
lemer Indwa	tative	Quantitative GWDTEs test	Good					recent use, to approx. 128 Ml/d), split across several Franklaw and Broughton borehole sites. The increased abstraction quantity is within the current licence quantity for the	
VFD e Grou	Quantit	Quantitative Saline Intrusion	Good					borehole group (maximum aggregated daily peak of 190 Ml/d).	
>	g	Quantitative Water Balance	Good			Modified water treatment works.		The Abstraction Licensing Strategy (ALS) indicates that there is no water available for the groundwater body in which the abstraction boreholes are located. This means that more	
hemical	ement	Chemical Dependent Surface Water Body Status	Good			No or minimal impact. Abstraction well refurbishment.	High	water has been abstracted based on recent amounts than the amount available. Therefore the increased abstraction could cause deterioration in the quantitative water balance of the aquifer.	Low
ater: C	ns Ele	Chemical Drinking Water Protected Area	Good			Minor level of impact.		The Environment Agency have classified these abstractions as Category 3 which means that based on full use of the abstraction licence deterioration is likely after 2027. The recent actual abstraction rates are not causing deterioration. It is not clear at which	
mpun	al Stat	Chemical GWDTEs test	Good			New abstraction well headworks / surface structures. No or minimal impact.		abstraction rate between recent actual and fully licenced deterioration would start to occur.	
or Gro	hemica	Chemical Saline Intrusion	Good					Based on the evidence above, it is considered that there is the potential for widespread or prolonged effects on WFD status, although this is associated with a number of	
ents f	0	General Chemical Test	Good					uncertainties (such as the exact location of abstraction increases, and the abstraction rates at which deterioration would occur)	5
elem	ortin	Prevent and Limit Objective	-					Use of water treatment works.	
WFD	6 G	Trend Assessment	No trend					No or minimal impact.	
ntial		Quantitative	Good	Good by 2027	N\A				
= = e					1				

Chemical (GW)

1- Application of standard best practice construction and pollution prevention methods.

Good

- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

N\A

- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for inchannel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Good by 2027

Good by 2027

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		Water body ID:		GB112069061210	Scheme:	ECCLESTON	HILL BOREHOLE TO I	PRESCOT WTW	
		Water body Name:		Hardshaw (Windle) Brook	Reference		w	R102d	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Sankey	Impact potential	Direct		Direct	
		Designation (and uses):		Heavily modified					
		Relevant upstream water bo	dies:	N/A					
		Downstream water bodies:		Sankey Brook (Hardshaw Brook to Rainford Brook					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
	>	Macrophytes	-						
ivers:	Biology	Macrophytes and phytobenthos	Moderate			Transfer pipe line on land.		Increased groundwater abstraction quantity.	
ا <u>ج</u>	ω	Benthic invertebrates	Moderate			No or minimal impact.		Minor level of impact. Increase in daily peak abstraction rates at	
ica fo		Fish	-			New / modified water treatment works.		Eccleston Hill borehole, but no change to overall annual licence	
활양	o >	Hydrological regime	Does not support good			No or minimal impact.		quantity or other conditions. There may short term localised	
eme	E 2	River continuity	-			140 of Hilling Impact.		impacts on the hydrological regime of surface water courses due to	
FD ele	Hydr	Morphological conditions	-			Abstraction refurbishment. No or minimal impact.	High	increased daily abstraction rates but as the overall abstraction quantity is unchanged these should not have a long term impact on	Medium
¥	ysıc o-	General physico-chemical	All high except Phosphate- moderate			New / modified abstraction well headworks / surface		the status of the water body as a whole.	
	4	Specific pollutants:	Triclosan is high			structures.		Use of pipelines.	
WFD ements for	ers:	Priority hazardous substances	Does not require assessment			No or minimal impact.		No or minimal impact.	
W elem fo	Rive	Priority substances	Does not require assessment						
erall s\Pot	ia	Ecological	Moderate	Good by 2027	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good

Moderate

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2015

Good by 2027

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N/A

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/wiyby/Controller?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=floodmap#x=344705&y=511 EA Historical Landfill: http://maps.environment-

EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-licensing-strategy

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		Water body ID:		GB41201G101700	Scheme:	EC	CLESTON HILL BO	REHOLE TO PRESCOT WTW	
		Water body Name:		Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	Reference		٧	WR102d	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Mersey Basin Lower and Merseyside North Permo-Triassic Sandstone Aq	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water boo	ties:	N\A					
		Downstream water bodies:		N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ts for ter:	Status	Quantitative Dependent Surface Water Body Status	Good						
emen ndwaf intitiv	ative (Quantitative GWDTEs test	Good						
VFD eld Groui Que	antita	Quantitative Saline Intrusion	Poor			Transfer pipe line on land.		Increased groundwater abstraction quantity. Minor level of impact. Increase in daily peak abstraction rates at Eccleston Hill borehole, but	
>	ð	Quantitative Water Balance	Good			No or minimal impact.		no change to overall annual licence quantity or other conditions. The abstraction licensing strategy (ALS) indicates that there is restricted water available in the groundwater body. The may be localised temporary changes to the status of the groundwater body, but as the	
for	tatus	Chemical Dependent Surface Water Body Status	Poor			Abstraction well refurbishment. Minor level of impact	High	overall abstraction quantity is unchanged these should not have a long term impact on the status of the water body as a whole.	Medium
ents f	ical S	Protected Area	Poor			Abstraction well headworks / surface structures. No or minimal impact.		Use of pipeline. No or minimal impact.	
te ii	1 90 1		Good						
wa e	ວັ	Chemical Saline Intrusion	Poor						
WFD		General Chemical Test	Good						
Grou	uppo	Prevent and Limit Objective	-						
	8 -		Upward trend						
erall atus\	= =		Poor	Good by 2027	N/A				
		Chemical (GW)	Poor	Good by 2027	N/A				
6 %	ĭ	Overall	Poor	Good by 2027	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EANRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line

with best practice.

Evidence

EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-licensing-strategy

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	Water body ID:		170	Scheme:		Milwr Tunnel, Bagillt (Tra	nsfer to Huntington)	
	Water body Name:		Non reportable water body to north of River Mersey				WR047a	
	RBMP:		N/A	Scheme Phase	Construction		Operational	
	Operational catchment:		Sankey	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo	odies:	N/A					
	Downstream water bodies:		N/A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confiden
	Phytobenthos	N/A						
>	Macrophytes	N/A						
Biol	Macrophytes and phytobenthos	N/A			Transfer pipe line on land.		New groundwater abstraction quantity.	
	Benthic invertebrates	N/A			No or minimal impact.		Minor level of impact. New groundwater abstraction of 1.35 Ml/d annual average and 9 Ml/d peak	
	Hydrological regime	N/A N/A			Transfer pipe line with water course crossings.		capacity from the Bold Heath boreholes. A new abstraction licence would be required from the Environment Agency.	
	River continuity	N/A			Minor level of impact.		Environment Agency.	
	Morphological conditions	N/A			Abstraction well refurbishment.	High	The Abstraction Licensing Strategy (ALS) for Lower Mersey and Alt indicates that there is restricted water available in the groundwater body, but there is water available at all flows in the surface water	High
	General physico-chemical	N/A			No or minimal impact.		body. Impacts on the hydrological regime of the surface water body are likely to be localised and temporary.	
Physi chemi	Specific pollutants:	N/A			Abstraction well headworks / surface structures. No or minimal impact.		Transfer pipe line.	
ical	Priority hazardous substances	N/A					No or minimal impact.	
Cher	substances Priority substances N/A	N/A						
,	Ecological	N/A	N/A	N\A				
	Chamical	N/A	N/A	N\A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not nvolve disturbance of the bed.

N\A

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for inchannel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-licensing-strategy

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	Water body ID:			Scheme:		BOLD HEATH BORE	HOLES TO PRESCOT WTW		
	Water body Name:		Lower Mersey Basin and North Merseyside Permo- Triassic Sandstone Aquifers	Reference		,	WR102e		
	RBMP:		North West	Scheme Phase	Construction		Operational		
	Operational catchment:			Impact potential	Direct		Direct		
	Designation (and uses):		No designation						
	Relevant upstream water bo Downstream water bodies:	ales:	N\A N\A						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
Adment Element Element	Quantitative Saline Intrusion Quantitative Water Balance Chemical Dependent Surface Water Body Status Chemical Drinking Water Protected Area Chemical GWDTEs test	Good Poor Good Poor Poor Good			Transfer pipe line on land. No or minimal impact. Transfer pipe line with water course crossings. No or minimal impact. Abstraction well refurbishment. Minor level of impact. Abstraction well headworks / surface structures.	High	New groundwater abstraction quantity. Minor level of impact. New groundwater abstraction of 1.35 Mi/d annual average and 9 Mi/d peak capacity from the Bold Heath boreholes. A new abstraction licence would be required from the Environment Agency. The Abstraction Licensing Strategy (ALS) for the Lower Mersey and Alt indicates that there is restricted water available in the groundwater body. Communication from the Environment Agency to UI indicates that there is 3 Mi/d of available resource in the Groundwater Management Unit (annual daily average volume) and that a peak abstraction rate of 9 Mi/d may be possible. The proposed annual average abstraction is less than the available resource so this new abstraction would not have have a widespread or prolonged impact on the WFD status of the groundwater body.	High	
Cherring	Chemical Saline Intrusion	Poor			No or minimal impact.				
د	General Chemical Test	Good					Transfer pipe line.		
Supportin g	Prevent and Limit Objective	- Upward trend					No or minimal impact.		
la la	Quantitative	Poor	Good by 2027	N/A					
tus\ ntial	Chaminal (CM)	Poor	Good by 2027	N/A					

Assumptions

Sta

1- Application of standard best practice construction and pollution prevention methods.

Poor

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good by 2027

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

N/A

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-licensing-strategy Personal email communication email between the EA and UU 20/12/2016.

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	Water body ID:		GB112068060520	Scheme:	WALTON AND DAR	ESBURY BOREHOLE	S	
	Water body name:		Keckwick Brook	Reference		WR106		
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchmer	nt:	Weaver Lower	Impact potential	Direct		Direct	
	Designation (and uses	s):	heavily modified					
	Relevant upstream wa	ater bodies:	n/a					
	Downstream water bo		Mersey					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos							
	Macrophytes							
A Sign	Macrophytes and phytobenthos							
Biole	Benthic invertebrates	Bad	Good by 2027	N/A				
	Fish	Poor	Good by 2027	N/A			New/increased groundwater abstraction quantity.	
polodo	Hydrological regime	Supports Good	Supports Good by 2015	N\A	Reinstate and refurbish abstraction boreholes. No or Minimal Impact Expected.		Minor level of impact. Reinstatement of boreholes at Daresbury. Maximum output of 4.5 M/d based on existing abstraction licence. The ALS does not identify a GWMU for this area, but does show that surface water is available across the full flow regime. Given that	
l p v	River continuity				Transfer pipe line on land.		there is already an abstraction licence in place, the moderate size of the abstraction, the	
Hydrom	Morphological conditions	Supports Good	Supports Good by 2015	N/A	No or minimal impact.	High	availability of surface water, and that there are unlikely to be strong dependencies between the secondary aquifer and the surface watercourses, the use of the borrholes is not expected to have a widespread or prolonged effect on the hydrological regime of this water	Medium
sico- mical	General physico- chemical	Moderate	Good by 2027	NA	Transfer pipe line with water course crossings. Minor level of impact.		body. Use of new transfer pipe line.	
Physichemi	Specific pollutants:	High	High by 2015	NA			No or minimal impact.	
for Rivers: Chemical	Priority hazardous substances	Good	Good by 2015	N/A				
for F	Priority substances	Good	Good by 2015	N/A				
ntial	Ecological	Moderate	Good by 2027	N\A		•	-	
us/Poter	Chemical	Good	Good by 2015	N\A				
Statu	Overall	Moderate	Good by 2027	N\A				

Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4 New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed. 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6 - Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works. 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body

Catchment Data Explorer. http://environment.data.gov.uk/catchment.planning/
Engineers Proforma: \(\frac{\text{WAR-F51.plbcal.amec.com/shared/\text{Profess/S9671 UU WRMP SupportS Design/Feasible Options\(\text{RZ/WR106}\)
Abstraction Libence Strategy (Lower Mersey and Alt): \(\text{https://www.gov.uk/government/uplbcafs/system/uplbcafs/attachment_datafile/300490/LIT_7881_35d3ed.pdf\)

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	Water body ID:		GB169	Scheme:	WALTO	N AND DARESBURY	BOREHOLES	
	Water body Name:		Non-reportable water	Reference:			WR106	
	RBMP:		North West	Scheme Phase:	Construction		Operational	
	Operational catchment:		Weaver Lower	Impact potential:	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo	dies:	-					
	Downstream water bodies:		-					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
1	Phytobenthos	-						
	Macrophytes	-						
ogical	Macrophytes and phytobenthos Benthic invertebrates	-						
vers: Ecolo	Fish	-			Reinstate and refurbish abstraction boreholes. No or Minimal Impact Expected.		New/increased groundwater abstraction quantity. Minor level of impact. Reinstatement of boreholes at Whalton. Maximum output of 3.9 Mild based on existing abstraction licence. The ALS does not identify a GWMU for this	
for Riv	Hydrological regime	-			Transfer pipe line on land. No or minimal impact.		area, but does show that surface water is available across the full flow regime. Given that there is already an abstraction licence in place, the moderate size of the abstraction, the	
\$ \$	River continuity	-					availability of surface water, and that there are unlikely to be strong dependencies	
elemen	Morphological conditions	-			Transfer pipe line with water course crossings. Minor level of impact.	High	between the secondary aquifer and the surface watercourses, the use of the boreholes is not expected to have a widespread or prolonged effect on the hydrological regime of the non reportable water body.	Medium
WFD	General physico-chemical	-			New water treatment works. No or minimal impact.		Use of new transfer pipe line and water treatment works. No or minimal impact.	
i di	Specific pollutants:	-						
D ts for rs:	Priority hazardous substances	-						
WFD elements Rivers:	Priority substances	-						
Overall Status/Po tential	Ecological	-	-					
te at O	Chemical	-	-					
S	Overall	I -	-					

1- Application of standard best practice construction and pollution prevention methods.

Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
 Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6 - Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \www.lwAR.FSi.global amec.com/shared/Projects/38671.UU wRMP Support\S Design\Feasible Options\RR\WR105b\WR105b - Lymm BHs (Hill Cliffe).xbx.

Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300490/LIT_7881_35d3ed.pdf

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		Water body ID:		GB41202G991700	Scheme:		WALTON AND DARE	ESBURY BOREHOLES	
				Weaver and Dane	Reference		14/7	2400	
		Water Body Name:		Quaternary Sand and Gravel Aquifers			WF	R106	
		RBMP:		Gravei Aquilers	Scheme Phase	Construction		Operational	
		KDIIII .		Weaver and Dane	Impact potential	0010111011011		oporaziona:	
				Quaternary Sand and		Direct		Direct	
		Operational catchme		Gravel Aquifers					
		Designation (and use		No designation					
		Relevant upstream w Downstream water be		N\A N\A					
		WFD Element	oales:		Alternate Objective if less than				
		(Receptor)	Status	RBMP objective	Good		Confidence		Confidence
<u>ة</u>	=		Good	Good by 2015	N/A				
ents water tative	tative	Quantitative GWDTEs test	Good	Good by 2015	N/A				
WFD elements for Groundwater: Quantitative	uantif tus E	Quantitative Saline Intrusion	Good	Good by 2015	N/A				
WFD Gr	Sta	Quantitative Water Balance	Good	Good by 2015	N/A				
	Ħ	Curlane Mater De du						New/increased groundwater abstraction quantity.	
əmical	Eleme	Chemical Drinking Water Protected Area	Good	Good by 2015	N/A	New abstraction well drilling / refurbishment. Minor level of impact.		Minor level of impact. Reinstatement of boreholes at Whalton and Daresbury. Maximum output of 8.45 Ml/d based on existing abstraction licence. The ALS does not identify a GWMU for this area, but does show that surface water is	
e: C	Status	Chemical GWDTEs test	Poor	Good by 2027	N/A	Transfer pipe line on land. No or minimal impact.	High	available across the full flow regime. Given that there is already an abstraction licence in place, the moderate size of the abstraction, and the availability of	Medium
ndwat	mical	Chemical Saline Intrusion	Good	Good by 2015	N/A	Transfer pipe line with water course crossings.		surface water the use of the boreholes in expected to only have a minor localised and temporary effect on the quantitative status of the groundwater body.	
Groun	Chei	General Chemical Test	Poor	Good by 2027	N/A	No or minimal impact.		Use of new transfer pipe line.	
nents for	porting ments	Prevent and Limit Objective						No or minimal impact.	
WFD elen	Suppor	Trend Assessment	Upward trend						
= entia		Quantitative	Good	Good by 2015	N/A				
Overall itus\Potent		Chemical (GW)	Poor	Good by 2027	N/A				
Statu		Overall	Poor	Good by 2027	N/A				

Assumptions

- Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: Engineers Proforma: WAR-FS1 (abbalames: comshared/Projects/38671 UU WRMP SupportS Design/Feasible Options/NZWR106
Abstraction Licence Strategy (Lower Mersey and All): https://www.gov.uk/gov.uk/gov.uk/gov.uk/gov.mment/uploads/system/uploads/attachment_data/file/300490/LIT_7881_35d3ed.pdf

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	1	Water body ID:		GB112069060640	Scheme:	Aughton Park &	Moss End Boreholes	(Royal Oak WTW)	
		Water body Name:		Downholland (Lydiate/Cheshires Lines) Brook	Reference		WF	R107a	
		RBMP:		Alt and Crossens	Scheme Phase	Construction		Operational	
		Operational catchment:		Alt	Impact potential	Direct		Direct	
		Designation (and uses):		Heavily modified					
		Relevant upstream water bo Downstream water bodies:	dies:	Not identified Downholland Brook					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
cological	ology o	Phytobenthos Macrophytes Macrophytes and phytobenthos Benthic invertebrates	Not provided Not provided Moderate Poor			Transfer pipe line on land. No or minimal impact.			
or Rivers: E	,	Fish Hydrological regime	Good Does not support good			Transfer pipe line with water course crossings. Minor level of impact.		Increased groundwater abstraction quantity to (44Ml/d to 54Ml/d). Medium level of impact. New abstraction of 10 Ml/d from two refurbished boreholes at Aughton Park and Moss End. There may	
ş E	5 0	River continuity	Not provided			Modified water treatment works.		be effects on the quantitative water balance of the aquifer as the	
HVQ.	ار ا	Morphological conditions	Not provided			No or minimal impact.	High	abstraction licensing strategy (ALS) indicates that there is restricted water available in the groundwater body. There is water available	Medium
WFD ele	co- ical	General physico-chemical	All high/good excep: Phosphate- moderate			New abstraction well drilling / refurbishment. No or minimal impact.		in the surface water body at Q30, Q50 and Q70.	
W Physi	chem	Specific pollutants:	Not provided			New / modified abstraction well headworks / surface structures.		Use of pipe lines and water treatment works. No or minimal impact.	
elements for Rivers: Chemical	S	Priority hazardous substances	Does not require assessment			No or minimal impact.			
element for River Chemic	2	Priority substances	Does not require assessment						
erall Is\Pot tial		Ecological	Poor	Good by 2027	N/A				

Assumptions

Chemical

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good

Poor

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2015

Good by 2027

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N/A

N/A

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for inchannel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proforma: \\WAR-F51.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\RZ\WR107a\WR107a Aughton Park Moss End Boreholes (Royal Oak WTW).xltx

EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang==e&topic=floodmap#x=344705&y=511476&EA Historical Landfill: http://maps.environment-

EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-licensing-strategy

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		Water body ID:		GB41201G101700	Scheme:	Aughton	Park & Moss End Bo	oreholes (Royal Oak WTW)		
		Water body Name:		Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	Reference	-	WR10	07 a		
		RBMP:		North West GW	Scheme Phase	Construction		Operational		
		Operational catchment:		Mersey Basin Lower and Merseyside North Permo- Triassic Sandstone Aquifers	Impact potential	Direct		Direct		
		Designation (and uses):		No designation						
		Relevant upstream water		N\A						
		Downstream water bodies	3:	N\A						
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
WFD elements for Groundwater: Quantitative	ative		Good Good							
elemo oundv uantit	uantit:	Intrusion	Poor			Transfer pipe line on land. No or minimal impact.				
N P Q	ο έ	Balance	Good			Transfer pipe line with water course crossings.		New groundwater abstraction quantity.		
		Ountree Water Darks	Poor			No or minimal impact.		Medium level of impact. New abstraction of 10 Ml/d from two refurbished boreholes at Aughton Park and Moss End. There may		
Iwate	Status	Chemical Drinking Water Protected Area				Modified water treatment works.	High	be effects on the quantitative water balance of the aquifer as the abstraction licensing strategy (ALS) indicates that there is restricted		
Groundwater: cal	ical Si	Chemical GWDTEs test	Good			No or minimal impact.	i iigii	water available in the groundwater body.	Medium	
nts for G Chemica	Chemi	Intrusion	Poor			Abstraction well refurbishment. Minor level of impact.		Transfer pipe line and water treatment works. No or minimal impact.		
nents		General Chemical Test	Good			Abstraction well headworks / surface structures.				
D elemen	upportin g	Prevent and Limit Objective	Not provided			No or minimal impact.				
WFD	ddns	Trend Assessment	Upward trend							
_ ta	E .	Quantitative	Poor	Good by 2027	N\A					
Overall	SILOIE	Chemical (GW)	Poor	Good by 2027	N\A					

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

Poor

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good by 2027

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

N\A

- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
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Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proforma: \\WAR-F51.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\\RZ\\WR107a\WR107a\WR107a Aughton Park Moss End Boreholes (Royal Oak WTW).xltx
EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/ointroller?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=floodmap#x=3447

EA Historical Landfill: http://maps.environment-

Overall

EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-licensing-strategy

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		Water body ID:		GB112069060640	Scheme:	Aughton Park & I	Moss End Boreholes	(Royal Oak WTW)	
		Water body Name:		Downholland (Lydiate/Cheshires Lines) Brook	Reference			R107ai	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Alt	Impact potential	Direct		Direct	
		Designation (and uses):		Heavily modified					
		Relevant upstream water be	odies:	Not identified Downholland Brook					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Not provided						
=		Macrophytes	Not provided						
logica	Biology	Macrophytes and phytobenthos	Moderate			Transfer pipe line on land.			
ECO	ĕ	Benthic invertebrates	Poor			No or minimal impact.		Increased groundwater abstraction quantity to (44MI/d to 54MI/d).	
Rivers		Fish	Good			Transfer pipe line with water course crossings.		Medium level of impact. New abstraction of 10 Ml/d from two refurbished boreholes at Aughton Park and Moss End. There may be effects on the	
for R	ogy	Hydrological regime	Does not support good			Minor level of impact.		quantitative water balance of the aquifer as the abstraction licensing strategy (ALS) indicates that there is restricted water available in the groundwater	
ıts	불	River continuity	Not provided			Modified water treatment works.	High	body. There is water available in the surface water body at Q30, Q50 and Q70.	Medium
a mer	후 a	Morphological conditions	Not provided			No or minimal impact.	J	Q70.	
WFD ele	ico-	General physico-chemical	All high/good excep: Phosphate- moderate			New abstraction well drilling / refurbishment. No or minimal impact.		Use of pipe lines and water treatment works. No or minimal impact.	
	_	Specific pollutants:	Not provided			New / modified abstraction well headworks / surface structures. No or minimal impact.			
TD ents vers:	nical	Priority hazardous substances	Does not require assessment			но от тиштантраст.			
WFD elements for Rivers:		Priority substances	Does not require assessment						
Overall Status\Po		Ecological	Poor	Good by 2027	N/A		•		
ove atu		Chemical	Good	Good by 2015	N/A				
, w		Overall	Poor	Good by 2027	N/A				

Assumptions

Application of standard best practice construction and pollution prevention methods.
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Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: http://environment.data.gov.uk/catchment-planni

EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-licensing-st

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		Water body ID:		GB41201G101700	Scheme:	Aughton Pa	ark & Moss End Bore	holes (Royal Oak WTW)	
					Reference		WR107ai		
		Water body Name:		Merseyside Permo-			***************************************		
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
				Lower and Merseyside North	Impact potential	Direct		Direct	
		Operational catchment: Designation (and uses):		No designation			1		ı
		Relevant upstream water	hadias	N\A					
		Downstream water bodies		N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
=		Quantitative Dependent	Good		less trail Good				
ints for ater: itive	ative		Good						
WFD elements for Groundwater: Quantitative	antita us Ele		Poor			Transfer pipe line on land. No or minimal impact.			
WFD Gre	Statu	Quantitative Water Balance Chemical Dependent	Good			Transfer pipe line with water course crossings.		New groundwater abstraction quantity.	
		Chemical Dependent	Poor			No or minimal impact.		Medium level of impact. New abstraction of 10 MI/d from two	
vater:	Status	Chemical Drinking Water Protected Area	Poor			Modified water treatment works.		refurbished boreholes at Aughton Park and Moss End. There may be effects on the quantitative water balance of the aquifer as the abstraction licensing strategy (ALS) indicates that there is restricted water available in the groundwater body. Transfer pipe line and water treatment works.	
wpuno	al Sta ment		Good			No or minimal impact.	High		Medium
ਲੂ ਨੂੰ	Chemic	Chemical Saline Intrusion	Poor			Abstraction well refurbishment. Minor level of impact.			
nents for Chemic		General Chemical Test	Good			Abstraction well headworks / surface structures.		No or minimal impact.	
) elem	ortin	Prevent and Limit Objective	Not provided			No or minimal impact.			
WFD	6 B		Upward trend						
_	8	Quantitative	Poor	Good by 2027	N\A				
Overall		Chemical (GW)	Poor	Good by 2027	N\A				
		Overall	Poor	Good by 2027	N/A				

Assumptions

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- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
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- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, ar 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.
- 8- Construction, returns simment, and testing or groundwater abstraction wells will be undertaken under consent from the EANKW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proforma: \\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\IRZ\WR107a\WR107a\WR107a Aughton Park Moss End Boreholes (Royal Oak WTW).xltx

EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-licensing-strategy

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		Water body ID:		GB112063060610	Scheme:	Rand	es Bridge, Knowsley	/, Primrose Hill	
		Water body Name:		Croxteth/ Knowsley Brook	Reference			WR107b	
		RBMP:		Alt and Crossens	Scheme Phase	Construction		Operational	
		Operational catchment:		Alt	Impact potential	Direct		Direct	
		Designation (and uses):		Heavily modified					
		Relevant upstream water bo	dies:	Not identified					
		Downstream water bodies:		Alt US Bull Bridge					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
=		Phytobenthos	Not provided						
Ë	>	Macrophytes	Not provided					Reinstated groundwater abstraction quantity.	
òloo	Biology	Macrophytes and phytobenthos	Not provided			Abstraction well refurbishment.		Minor level of impact. Reinstatement of boreholes at Randles Bridge, and Knowsley (Primrose Hill also reinstated but located	
	ш	Benthic invertebrates	Poor			No or minimal impact.		approx. 14 km to the north). Maximum combined output of 8	
9		Fish	Not provided					Ml/d (at Randles Bridge, and Knowsley) based on exisiting	
훒	و ۾	Hydrological regime	Supports good			Transfer pipe line on land. No or minimal impact.		abstraction licence.	
5	5 6	River continuity	Not provided						
ants f	Hydr	Morphological conditions	Not provided			Transfer pipe line with water course crossings.	High	The ALS indicates that groundwater is limited in this area, but also shows that surface water is available across the full flow	Medium
eleme	ico-	General physico-chemical	All high/good except: Phosphate- moderate			Minor level of impact.		regime. Given that there is already an abstraction licence in place, and the availability of surface water, the use of the	
WFD	Phys	Specific pollutants:	Not provided			Modified water treatment works. No or minimal impact.		boreholes is not expected to have a widespread or prolonged effect on the hydrological regime of this water body.	
무호노	ers: mical	Priority hazardous substances	Does not require assessment					Use of new transfer pipe line and water treatment works. No or minimal impact.	
e c	Chen	Priority substances	Does not require assessment						
= \s	a	Ecological	Moderate	Good by 2027	N/A				
Overall Status\	ten	Chemical	Good	Good by 2015	N/A				
O M	9	Overall	Moderate	Good by 2027	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

- Daying it in place actuates making colorated with installed via a trench and cover technique within and via working actual. New pipe line crossings of estuaries or coastal waters would be installed via a terchiad cover technique within a dry working actual. New pipe line crossings of estuaries or coastal waters would be installed via a terchiad cover technique within a dry working actual. New pipe line crossings of estuaries or coastal waters would be installed via a terchiad cover technique within a dry working actual. New pipe line crossings of estuaries or coastal waters would be installed via a terchiad cover technique within a dry working actual. New pipe line crossings of estuaries or coastal waters would be installed via a terchiaque of the bed. 5- A ground investigation will be carried out and will desired in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/30t 06/08/2018 Page 73 of 201

		Water body ID:		GB112070064830	Scheme:	Randles	s Bridge, Knowsley, F	Primrose Hill	
		Water body Name:		Three Pool's Waterway	Reference			WR107b	
		RBMP:		Alt and Crossens	Scheme Phase	Construction		Operational	
		Operational catchment:		Crossens System	Impact potential	Direct		Direct	
		Designation (and uses):		Heavily modified					
		Relevant upstream water bo	dies:	Not identified					
		Downstream water bodies:		Back Drain and Sluice					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
_		Phytobenthos	Not provided						
gica	66	Macrophytes	Not provided					Reinstated groundwater abstraction quantity.	
Ecolo	Biolog	Macrophytes and phytobenthos	High			Abstraction well refurbishment.		Minor level of impact. Reinstatement of boreholes at Primrose Hill (Randles Bridge and Knowsley also reinstated but located approx.	
55		Benthic invertebrates	Moderate			No or minimal impact.		14 km to the south). Maximum output of 4 Ml/d (at Primrose Hill)	
Rive		Fish	Poor			Transfer pipe line on land.		based on exisiting abstraction licence.	
for	orp V	Hydrological regime	Supports good			No or minimal impact.		The ALS indicates that groundwater is limited in this area, but also	
ents	rom olog	2	Not provided			Transfer pipe line with water course crossings.	High	shows that surface water is available across the full flow regime. Given that there is already an abstraction licence in place, and the	Medium
je B	F	Morphological conditions	Not provided			Minor level of impact.		availability of surface water, the use of the borehole is not	
WFD	ysico- emic	General physico-chemical	All high/good except: Phosphate- moderate			Modified water treatment works. No or minimal impact.		expected to have a widespread or prolonged effect on the hydrological regime of this water body.	
	Phy che	Specific pollutants:	All high					Use of new transfer pipe line and water treatment works.	
WFD ements for	ers: mical	Priority hazardous substances	Good					No or minimal impact.	
elen	River	Priority substances	Does not require assessment						
II 's	Eg .	Ecological	Moderate	Good by 2027	N/A				
Overall Status\	ten	Chemical	Good	Good by 2015	N/A				
0 0	<u>۲</u>		Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7. Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering would be discharged within the same water body.

Evidence

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		Water body ID:		GB41201G101700	Scheme:	Ra	andles Bridge, Knov	vsley, Primrose Hill		
		Water body Name:		Lower Mersey Basin and North Merseyside Permo- Triassic Sanstone Aquifers	Reference		WR10)77b		
		RBMP:		North West GW	Scheme Phase	Construction		Operational		
		Operational catchment:		Mersey Basin Lower and Merseyside North Permo- Triassic Sandstone Aq	Impact potential	Direct		Direct		
		Designation (and uses):		No designation Not identified						
		Relevant upstream water Downstream water bodie		Not identified						
		WFD Element (Receptor)		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
is for er: ve	Status	Quantitative Dependent Surface Water Body Status	Good							
ement ndwat ntitati		Quantitative GWDTEs test	Good					Reinstated groundwater abstraction quantity.		
WFD elements for Groundwater: Quantitative	Quantitative	Intrusion	Poor			Abstraction well refurbishment.		Medium level of impact. Reinstatement of boreholes at Randles Bridge, Knowsley and Primrose Hill. Maximum combined output of		
\$	ā	Quantitative Water Balance	Good			Minor level of impact.		11 MI/d based on exisiting abstraction licence.		
/ater:	ment	Chemical Dependent Surface Water Body Status	Poor			Transfer pipe line on land. No or minimal impact.	High	The ALS indicates that groundwater is limited in this area, but also shows that surface water is available across the full flow regime. Although there is an abstraction licence in place, it is assumed that	Low	
Groundwater:	tus Ele	Chemical Drinking Water Protected Area	Poor			Transfer pipe line with water course crossings. No or minimal impact.		the abstractions have not been used in recent time. The moderate size of the abstraction, and the limited availability of groundwater,		
for Gre	al Stati	Chemical GWDTEs test	Good			Modified water treatment works.		means that there may be widespread or prolonged impacts on the on the quantitative status of the groundwater body.		
elements f	Chemical	Chemical Saline Intrusion	Poor			No or minimal impact.		Use of new transfer pipe line and water treatment works. No or minimal impact.		
elem	5	General Chemical Test	Good					No or minima impact.		
WFD	uppo	Prevent and Limit Objective	Not provided							
	8 -	Trend Assessment	Upward trend							
rall us\		Quantitative	Poor		N\A					
Over	g 76	Chemical (GW)	Poor		N\A					
000		Overall	Poor	Good by 2027	N\A					

Assumptions

1 - Application of standard best practice construction and pollution prevention methods.
2 - Ppe lines will cross water courses with existing road-ways where possible to limit the amount of new watercourse crossings.
3 - Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EAVIRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Catchment Data Explorer; https://environment.data.gov.uk/catchment-planning/
Engineers Proformas; https://www.ncbrusk/actchment-planning/
Engineers Proformas; https://www.ncbrusk/actchment-planning/
EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/uploads/system/uploads/attachment_data/filer/300490/LIT_7881_35d3ed.pdf

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	Water body ID:		GB112069061111	Scheme:			HOLES (BUCKTON CASTLE WTW)	•
	Water body name:		Tame (Chew Brook to Swines			W	R109	
	RBMP:		Mersey Upper	Scheme Phase	Construction		Operational	
	Operational catchmen	nt:	Goyt Etherow Tame	Impact potential	Direct		Direct	
	Designation (and uses	s):	heavily modified					
	Relevant upstream wa	ater bodies:	Tame (Source to Chew Brook),Chew Brook				
	Downstream water bo	dies:	Tame (Swineshaw Brook to M	Mersey)				
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos							
	Macrophytes							
Biology	Macrophytes and							
90	phytobenthos							
m	Benthic invertebrates	Moderate	Good by 2027	N\A	New outfall to river.			
	Fish				Minor level of impact.		Increased groundwater abstraction quantity.	
چ					Transfer of water via river.		Minor level of impact. New abstraction of 4 MI/d from refurbished	
0 2	Hydrological regime				Minor level of impact.		boreholes at Swineshaw. Previous abstraction licence revoked in	
l m o	River continuity				Willion level of impact.		1992. The surface water body has water available across all	
₹ °	Morphological			N\A	New abstraction well drilling / refurbishment.	High	flows, indicating that any reduction in surface water flow due to this	Medium
£	conditions				No or minimal impact.		new relatively small abstraction may not cause a deterioration in water body status. The abstracted water is discharged to the	
SIC .	General physico-		Good by 2015	N\A			surface water system, further limiting any impacts of reduced	
٥٩	chemical	Good			New / modified abstraction well headworks / surface		baseflow.	
	Specific pollutants:	High	High by 2015	N\A	structures.		baconom:	
nical	Priority hazardous substances	Does not require assessment	Does not require assessment	N\A	No or minimal impact.			
Chemical	Priority substances	Does not require assessment	Does not require assessment	N\A				
	Ecological	Moderate	Moderate by 2015	N\A				
Status/Potential	Chemical	Good	Good by 2015	N\A				
atn			Moderate by 2015	N\A				
ξ	Overall	Moderate						

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning.

Engineers Proforma: \\WAR-FS1.global.amec.com\shared\Projects\\38671 UU WRMP Support\5 Design\Feasible Options\IRZ\WR049b

 $\textbf{EA Abstraction Licence Strategy (Upper Mersey): } \underline{\text{https://www.gov.uk/government/publications/upper-mersey-abstraction-licensing-strategy}}$

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	Water body ID:		GB41202G102900	Scheme:		SWINESHAW BOREH	OLES (BUCKTON CASTLE WTW)	·
	Water Body Name:		Manchester and East Cheshire Carboniferous Aquifers	Reference		WF	2109	
	RBMP:		North West GW	Scheme Phase	Construction		Operational	
	Operational catchme		Manchester and East Cheshire Carboniferous Aquifers	Impact potential	Direct		Direct	
	Designation (and use		No designation					
	Relevant upstream w		N∖A					
	Downstream water b	odies:	N\A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
-	Danandant Curtage	Good	Good by 2015	N/A				
ative	Quantitative GWDTEs test	Good	Good by 2015	N/A				
Quantitativ	Quantitative Saline Intrusion	Good	Good by 2015	N/A				
Sta	Quantitative Water Balance	Good	Good by 2015	N/A				
s Elemen	Chemical Drinking Water Protected Area	Poor	Good by 2027	N/A	Abstraction well refurbishment. Minor level of impact.		Increased groundwater abstraction quantity. Minor level of impact. New abstraction of 4 Ml/d from refurbished boreholes at Swineshaw. Previous abstraction licence revoked in 1992. There is no groundwater management unit defined in the ALS for this location. The surface	
Statu	test	Good	Good by 2015	N/A	Abstraction well headworks / surface structures.	High	water body has water available across all flows, indicating that groundwater may be available for this relatively small new licence.	Medium
nical	Chemical Saline Intrusion	Good	Good by 2015	N/A	No or minimal impact.		Transfer pipe line.	
Cher	General Chemical Test	Good	Good by 2015	N/A			No or minimal impact.	
١.	Prevent and Limit							
ents	Objective	Upward trend						
Supp	Trend Assessment							
	Quantitative	Good	Good by 2015	N/A				
	Chemical (GW)	Poor	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

Poor

- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2027

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N/A

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: https://www.natchment-planning/
Engineers Proforma: <a href="https://www.na

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	Wa	ater body ID:		GB112068060180	Scheme:		Ruston Spencer	Boreholes	
	Wa	ater body Name:		Dane (Clough Brook to Cow Brook)	Reference			WR110	
	RB	BMP:		Weaver Gowy	Scheme Phase	Construction		Operational	
	Op	perational catchment:		Dane	Impact potential	Direct		Direct	
	De	signation (and uses):		No designation					
		elevant upstream water bo	dies:	Clough Brook and Dane (Source to Clough Brook)					
	Do	wnstream water bodies:		Dane (cow Brook to Wheelock					
	V	NFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Ph	ytobenthos	Not provided						
L			Not provided						
Biology	Ma phy	acrophytes and ytobenthos	High						
m	Bei	enthic invertebrates	Good						
4	Fis	sh	Poor					Increased groundwater abstraction quantity. Medium level of impact. Increase in groundwater abstraction of 2	
rph	Hy	urological regime	Supports good						
١ĕ	စ် Riv		Not provided					MI/d from Rushton Spencer boreholes. The ALS does not identify a	
Hydro	Mo	orphological conditions	Supports good			No construction activities.	High	groundwater management unit in this area, but the surface water body has limited water available at Q95 and Q50 (water available at Q70	Medium
sico-	Ë	eneral physico-chemical	All high/good					and Q30), indicating there is some pressure on water resources in the area. However the new licence quantity is relatively small.	
		ecific pollutants:	All high						
vers:	Pri sul	iority hazardous bstances	Does not require assessment						
for Rivers: Chemical	Pri	iority substances	Does not require assessment						
ıtial	Ec	ological	Poor	Good by 2027	N/A				
=									

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2015

Good by 2027

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N/A

N/A

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning

Engineers Proformas: \WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\IRZ\WR075\WR075 Stocks Reservior.xlsx

EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.08y=355134.08scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=floodmap#x=34

EA Historical Landfill: http://maps.environment-

Weaver and Dane ALS: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/319959/lit_7884_52dcff.pdf

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		Water body ID:		GB41202G102900	Scheme:		Ruston Sp	pencer Boreholes	
		Water body Name:		Manchester and East Cheshire Carboniferous Aquifer	Reference		,	WR110	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment:		Manchester and Cheshire East Carboniferous Aquifer	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water		Not identified					
		Downstream water bodies	:	Not identified					
		WFD Element (Receptor)		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
WFD elements for Groundwater:	status	Quantitative Dependent Surface Water Body Status	Good						
D elements sroundwater Quantitative	itive S	test	Good						
FD ela Groun		Intrusion	Good						
>	ng	Balance	Good					Increased groundwater abstraction quantity.	
rater:	ement	Chemical Dependent Surface Water Body Status	Good			No construction activities.	High	Medium level of impact. Increase in groundwater abstraction of 2 MVd from Rushton Spencer boreholes. The ALS does not identify a groundwater management unit in this area, but the surface water body has limited water	Medium
Groundw	us Ele	Chemical Drinking Water Protected Area	Poor					available at Q95 and Q50 (water available at Q70 and Q30), indicating there is some pressure on water resources in the area. However the new licence	
or Gro	Stat	Chemical GWDTEs test	Good					quantity is relatively small.	
ents for Chemic	emica	Chemical Saline Intrusion	Good						
eleme	ဗ်	General Chemical Test	Good						
	uppo	Prevent and Limit Objective	Not provided						
	,,		Upward trend						
all sy		Quantitative	Good	Good by 2015	N/A				
Overall Status\	<u>a</u>	Chemical (GW)	Poor	Good by 2027	N/A				
ο 8 6	<u> </u>	Overall	Poor	Good by 2027	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proformas: \\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\S Design\Feasible Options\RZ\WR075\WR075 Stocks Reservior.xlsx

EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=floodmap#x= EA Historical Landfill: http://maps.environment-

Weaver and Dane ALS: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/319959/lit_7884_52dcff.pdf

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		Water body ID:		GB112069061360	Scheme:	WOODFORD	BOREHOLE		
		Water body name:		Dean (Bollington to Bollin)	Reference		WR111		
		RBMP:		Mersey Upper	Scheme Phase	Construction		Operational	
		Operational catchmer		Bollin Dean Mersey Upper	Impact potential	Direct		Direct	,
		Designation (and use:		not designated artificial or heavily					
		Relevant upstream wa		Dean (Lamaload to Bollington),Har	rop Brook				
		Downstream water bo	odies:	Bollin (River Dean to Ashley Mill)					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos							
		Macrophytes							
	ogy	Macrophytes and phytobenthos	Poor	Good by 2027	N\A				
gical	Biol	Benthic invertebrates	Moderate	Moderate by 2015	N\A				
Ecolog		Fish	Good	Good by 2015	N/A				
Rivers:	Hydromorphology H	Hydrological regime	Supports Good	Supports Good by 2015	N\A			New groundwater abstraction quantity.	
s for		River continuity				New abstraction well drilling / refurbishment.		Minor level of impact. Increase in abstraction quantity at Woodford borehole from current licensed quantity of 9 MVd to 12 MVd. ALS indicates restricted water available from the	
) element		Morphological conditions	Supports Good		N∖A	New abstraction will infinity / reprosentent. No or minimal impact. New / modified abstraction well headworks / surface structures.	High	GWMU for this area. Surface water is available at high flows (Q30 and Q50, but has limited availability at lower flows (Q70 and Q55). Lower flows are likely to be dependent on baseflow from the underlying Permo-Triassic aquifer which could be reduced by additional abstraction. However, given that there is an existing abstraction licence, the additional volume required is	Medium
WFD	sico- mical	General physico- chemical	Moderate	Good by 2027	N∖A	No or minimal impact.		rollwever, given in at here is an existing addition licence, in eardinative victime required relatively small, and that the ALS indicates there is some water available, it is unlikely that it increased abstraction would have widespread or prolonged effects on the hydrological regind of surface watercourses. A variation to the abstraction licence would be required from the	
	Phys	Specific pollutants:			N∖A			Environment Agency.	
ents for	WFD elements for tial Rivers: Chemical Laborate	Priority hazardous substances	Does not require assessment	Does not require assessment	N\A				
WFD elem		Priority substances	Does not require assessment	Does not require assessment	NVA				
		Ecological	Poor	Moderate by 2027	N\A				
Overall	us\Pote	Chemical	Good	Good by 2015	N\A				
	Stat	Overall	Poor	Moderate by 2027	N\A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer: https://environment.data.gov.uk/catchment-planning/
Engineers Proforma: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: http://environment.data.gov.uk/catc

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		Water body ID:		GB41201G101100	Scheme:		WOODFORI	D BOREHOLE		
		Water Body Name:		Manchester and East Cheshire Permo-Triassic Sandstone Aquifers	Reference		WF	R111		
		RBMP:		North West GW	Scheme Phase	Construction		Operational		
		Operational catchme		Manchester and Cheshire East Permo-Triassic Sandstone Aquifers	Impact potential	Direct		Direct		
		Designation (and use		No designation						
		Relevant upstream wa		N\A						
		Downstream water be	odies:	N\A						
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
		Qualitiative	Poor	Good by 2021	N/A					
water:	<u>a</u> a	Quantitative GWDTEs	Good	Good by 2015	N/A					
Groundy	uan	Quantitative Saline Intrusion	Poor	Good by 2021	N/A					
_		Quantitative Water Balance Chemical Dependent	Good	Good by 2015	N/A			New groundwater abstraction quantity.		
S	e	A						Minor level of impact. Increase in abstraction quantity at Woodford borehole from		
: Chemi	us Elem	Chemical Drinking Water Protected Area	Good	Good by 2015	N/A	New abstraction well drilling / refurbishment. Minor level of impact.		current licensed quantity of 9 Ml/d to 12 Ml/d. ALŚ indicates restricted water available from the GWMU for this area. Surface water is available at high flows (Q30 and Q50, but has limited availability at lower flows (Q70 and Q95). Given		
water	l Statu	Chemical GWDTEs test	Good	Good by 2015	N/A	Modified abstraction well headworks / surface structures. No or minimal impact.	High	the existing abstraction licence, the relatively small additional volume required, and that the ALS indicates there is some water available, it is unlikely that the	Medium	
puno	mica	Chemical Saline Intrusion General Chemical	Poor	Good by 2021	N/A			increased abstraction would have widespread or prolonged effects on the quantitative water balance of the groundwater body as a whole. A variation to the		
for Gr	รั	Test	Good	Good by 2015	N/A			abstraction licence would be required from the Environment Agency.		
ments	ents water)	Prevent and Limit Objective								
WFD ele	Elemi	Trend Assessment	Upward Trend							
ntial		Quantitative	Poor	Good by 2021	N/A					
Overall us\Poter		Chemical (GW)	Poor	Good by 2021	N/A					
Statu		Overall	Poor	Good by 2021	N/A					

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
5- A ground investigation will be carried out and will identify any containmated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small flootprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: http://environment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.gov.uk

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		Water body ID:		GB112069061360	Scheme:	WOODFO	RD BOREHOLE		
		Water body name:		Dean (Bollington to Bollin)	Reference		WR111		
		RBMP:		Mersey Upper	Scheme Phase	Construction		Operational	
		Operational catchmer	nt:	Bollin Dean Mersey Upper	Impact potential	Direct		Direct	
		Designation (and use	s):	not designated artificial or heavily	modified				
		Relevant upstream wa	ater bodies:	Dean (Lamaload to Bollington),Har	rop Brook				
		Downstream water bo	dies:	Bollin (River Dean to Ashley Mill)					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos							
		Macrophytes							
	ogy	Macrophytes and phytobenthos	Poor	Good by 2027	N\A				
gical	Biol	Benthic invertebrates	Moderate	Moderate by 2015	N\A				
Ecologica		Fish	Good	Good by 2015	N\A				
Rivers:	ology	Hydrological regime	Supports Good	Supports Good by 2015	N\A			New groundwater abstraction quantity.	
for	orph	River continuity				Transfer pipe line on land. No or minimal impact.		Medium level of impact. New groundwater abstraction from new borehole at Bramhall of 5 MVd. ALS indicates restricted water available from the GWMU for this	
element	Hydrom	Morphological conditions	Supports Good		N/A	New abstraction well drilling. No or minimal impact.	High	Brannali or 5 MVd. ALS indicates restricted water available from the GWMU for this area. Surface water is available at high flows (Q30 and Q50, but has limited availability at lower flows (Q70 and Q95). Given the limited water availability, particularly at low flows, and the moderate size of the proposed abstraction, there	Medium
WFD		General physico- chemical	Moderate	Good by 2027	N\A	New abstraction well headworks / surface structures. No or minimal impact.		may be widespread or prolonged effects on the hydrological regime of the water body if baseflows are reduced (there are likely to be good connections between the principal Permo-Triassic aquifer and surface water bodies). A new abstraction licence would be required from the Environment Agency.	
	Physic	Specific pollutants:			N/A				
ents for emical		Priority hazardous substances	Does not require assessment	Does not require assessment	N/A				
WFD elements for Rivers: Chemical		Priority substances	Does not require assessment	Does not require assessment	N\A				
l ential		Ecological	Poor	Moderate by 2027	N\A				
Overall tus\Potential		Chemical	Good	Good by 2015	N\A				
Statu		Overall	Poor	Moderate by 2027	N\A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed wa a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: wttp://www.natureontherane.com/shared/Project/388671
UWRMP Support5 Design/Feasible Options/IRZ/WR049b
Abstraction Licensing Strategy (Upper Mersey): http://www.natureontherane.naturalengland.org.uk/MagicMap.aspx
Aquifer designations: http://www.natureontherane.naturalengland.org.uk/MagicMap.aspx

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	Water body ID:		GB41201G101100	Scheme:		WOODFOR	D BOREHOLE	
	Water Body Name:		Manchester and East Cheshire Permo-Triassic Sandstone Aquifers	Reference		wi	R111	
	RBMP:		North West GW	Scheme Phase	Construction		Operational Direct	
	Operational catchmer		Manchester and Cheshire East Permo-Triassic Sandstone Aquifers	Impact potential	Direct			
	Designation (and uses		No designation					
	Relevant upstream wa		N\A					
	Downstream water bo	odies:	N\A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
Status	Quantitative Dependent Surface Water Body Status	Poor	Good by 2021	N/A	Transfer pipe line on land. No or minimal impact. Transfer pipe line with water course crossings. No or minimal impact. New abstraction well drilling.			
tative	Quantitative GWDTEs	Good	Good by 2015	N/A				
Quanti	Quantitative Saline Intrusion	Poor	Good by 2021	N/A			New groundwater abstraction quantity.	
	Quantitative Water Balance Chemical Dependent	Good	Good by 2015	N/A			Medium level of impact. New groundwater abstraction from new borehole at Bramhall of 5 Mid. ALS indicates restricted water available from the GWMU for this area. Surface water is available at high flows (303 and Q50, but has limited availability at lower flows (Q70 and Q95). Given the limited water availability, particularly at low flows, and the moderate size of the proposed abstraction, the may be widespread or prolonged effects on the quantitative water balance of the groundwater body or on dependent surface water bodies (there are likely to be good connectors between the principal Permo-Triassic aquifer and surface water bodies. A new abstraction licence would be required from the Environment Agency.	
s Element	Chemical Drinking Water Protected Area	Good	Good by 2015	N/A		High		Medium
Statu	Chemical GWDTEs test	Good	Good by 2015	N/A	Minor level of impact.			
mical	Chemical Saline Intrusion	Poor	Good by 2021	N/A	New abstraction well headworks / surface structures. No or minimal impact.			
Che	General Chemical Test	Good	Good by 2015	N/A			.	
ents	Prevent and Limit Objective							
Suppo	Trend Assessment	Upward Trend						
	Quantitative	Poor	Good by 2021	N/A				
	Chemical (GW)	Poor	Good by 2021	N/A				
	Overall	Poor	Good by 2021	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

2 - Pper lines will close water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4. New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5. A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: https://environment.data.gov.uk/catchment-planning/
Engineers Proforma: https://environment.data/file/300491/LIT_7883 7c50/1.pdf
Apufler designations: https://environment.data/file/300491/LIT_7883 7c50/1.pdf
Aquifer designations: https://environment.data.gov.uk/catchment.data/file/300491/LIT_7883 7c50/1.pdf
Aquifer designations: https://environment.data.gov.uk/catchment.data/file/300491/LIT_7883 7c50/1.pdf
Aquifer designations: https://environment.data/file/300491/LIT_7883 7c50/1.pdf
Aquifer designations: <a href="https://environment.data/f

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	Water body ID:		GB112069061320	Scheme:	TYT	HERINGTON BOREH	OLES	
	Water body name:		Bollin (Source to Dean)	Reference		W	R113	
	RBMP:		Mersey Upper	Scheme Phase	Construction		Operational	
	Operational catchmen	t:	Bollin Dean Mersey Upper	Impact potential	Direct		Direct	
	Designation (and uses	s):	heavily modified					
	Relevant upstream wa	ter bodies:	n/a					
	Downstream water bo	dies:	Bollin (River Dean to Ashley Mill)					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confiden
	Phytobenthos							
	Macrophytes							
Biology	Macrophytes and phytobenthos	Moderate	Moderate by 2027	Moderate by 2027				
ä	Benthic invertebrates	Good	Good by 2027	N\A	Transfer pipe line on land. No or minimal impact.		Increased groundwater abstraction quantity. Minor level of impact. Increased peak abstraction quantity of 3 MI/d at refurbished Tytherington Boreholes. No changes to	
	Fish	Moderate	Moderate by 2027	Moderate by 2027	No or minimal impact.		existing abstraction licence required.	
orph	Hydrological regime				Modified water treatment works. No or minimal impact. Abstraction well refurbishment. No or minimal impact.		Any impacts of the status of the surface water body are likely to be temporary and localised as there is no overall increase in annual abstraction and the peak daily increase is relatively small. The abstraction licensing strategy (ALS) indicates that there is	
E 6	River continuity							
Hydr	Morphological conditions		Not assesed			Medium		Mediur
lysic o-	General physico- chemical	Moderate	Moderate by 2027	Moderate by 2027	Modified abstraction well headworks / surface structures.		restricted water available in the groundwater body, but water is available in the surface water body across all flows.	
<u> </u>	Specific pollutants:	High	High by 2027	N\A	No or minimal impact.		, , , , , , , , , , , , , , , , , , , ,	
emical	Priority hazardous substances	Does not require assessment	Does not require assessment	N\A			Use of pipelines and water treatment works. No or minimal impact.	
Chem	Priority substances	Does not require assessment	N\A	N\A				
	Ecological	Moderate	Moderate by 2027	Moderate by 2027				
	Chemical		Good by 2027	N\A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

Good

Moderate

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Moderate by 2027

- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

Moderate by 2027

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proforma: \\WAR-FS1.qlobal.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\IRZ\WR049b

EA Abstraction Licence Strategy (Upper Mersey): https://www.gov.uk/government/publications/upper-mersey-abstraction-licensing-strategy

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		Water body ID:		GB41201G101100	Scheme:		TYTHERINGTO	ON BOREHOLES		
		Water Body Name:		Manchester and East Cheshire Permo-Triassic Sandstone Aquifers	Reference		WF	7113		
		RBMP:		North West GW	Scheme Phase	Construction		Operational		
		Operational catchmen		Manchester and Cheshire East Permo-Triassic Sandstone Aq	Impact potential	Direct		Direct		
		Designation (and uses		No designation N\A						
		Relevant upstream war Downstream water boo		N\A N\A						
		WFD Element	iles:	INA	Alternate Objective if less than					
		(Receptor)	Status	RBMP objective	Good		Confidence		Confidence	
. <u>.</u>		w D	Poor	Good by 2027	N/A					
ents l water tative	tative	Quantitative GWDTEs test		Good by 2027	N/A					
WFD eleme Groundw Quantitz	uanti	Intrusion	Poor	Good by 2027	N/A					
WFD	0 8	Quantitative Water Balance Chemical Dependent	Good	Good by 2027	N/A	Transfer pipe line on land. No or minimal impact.		Increased groundwater abstraction quantity. Minor level of impact. Increased peak abstraction quantity of 3 Ml/d at refurbished Tytherington Boreholes. No changes to existing abstraction licence required. The abstraction licensing strategy (ALS) indicates that there is restricted water		
water:	s Element	Ountere Meter Dealer	Good	Good by 2027	N/A	Modified water treatment works. No or minimal impact.				
puno	Statu	test	Good	Good by 2027	N/A	Abstraction well refurbishment. Minor level of impact.	High	available in the groundwater body. However, any impacts of the status of the groundwater body are likely to be temporary and localised as there is no increase	Medium	
nts for Gro	mical	Intrusion	Poor	Good by 2027	N/A	Abstraction well headworks / surface structures.		in the average annual abstraction and the peak daily increase is relatively small.		
ents	ဗီ	Test	Good	Good by 2027	N/A	No or minimal impact.		Transfer pipe line and treatment works. No or minimal impact.		
elem	ring	Prevent and Limit Objective	Upward Trend							
WFD	Support	Trend Assessment	Opward Frend	N/A						
otential		Quantitative	Poor	Good by 2027	N/A					
tatus/P		Chemical (GW)	Poor	Good by 2027	N/A					

1- Application of standard best practice construction and pollution prevention methods.

Poor

- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2027

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N/A

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for inchannel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ Engineers Proforma: Engineers Proforma: \\WAR-FS1.global.amec.com\\shared\Projects\\38671 UU WRMP Support\\$ Design\\Feasible Options\\RZ\\WR049b

EA Abstraction Licence Strategy (Upper Mersey): https://www.gov.uk/government/publications/upper-mersey-abstraction-licensing-strategy

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		Water body ID:		GB112069064720	Scheme:	PY	THON MILL BOREH		
		Water body name:		Roch (Source to Spodden)	Reference		V	VR114	
		RBMP:		Irwell	Scheme Phase	Construction		Operational	
		Operational catchmen	nt:	Roch Irk Medlock	Impact potential	Direct		Direct	
		Designation (and uses	s):	Heavily modified					
		Relevant upstream wa	ater bodies:	Beal					
		Downstream water bo	dies:	Roch (Spodden to Irwell)					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ogical		Phytobenthos Macrophytes							
colog		Moderate	Good by 2027	N\A			Increased groundwater abstraction quantity. Medium level of impact. New abstraction of up to 3 Ml/d from		
.s.		Benthic invertebrates	Good	Good by 2027	N\A	Transfer pipe line on land.		refurbished borehole at Python Mill. A new abstraction licence would be required from the Environment Agency.	
<u>×</u>		Fish	Moderate	Good by 2027	N\A	No or minimal impact.		·	
tor i	_	Hydrological regime				Abstraction well refurbishment. No or minimal impact.	High	The ALS does not define a groundwater management unit for this area, but the surface water body has no water available across all	Law
ğ 1	5 8	River continuity				No or minimal impact.	riigii	flows, indicating there is pressure on water resources. The lack of	LOW
emer	ē °	Morphological conditions		Not assesed	N\A	Modified abstraction well headworks / surface structures. No or minimal impact.		water availability and the proximity of the borehole to the River Roch (approx. 150 m) means that there could be prolonged and	
NFD (General physico- chemical	High	Good by 2027	N\A	To of minima impact.		widespread impacts on the surface water body.	
_ F	5	Specific pollutants:		High by 2027	High by 2027			Use of pipe line.	
for vers:	cal cal	Priority hazardous substances	Good	Good by 2027	N\A			No or minimal impact.	
# # E C		Priority substances	Good	Good by 2027	N\A				
ntial		Ecological	Moderate	Good by 2027	N\A				
erall Poter		Chemical		Good by 2027	N\A				

Assumptions

Overal us\Pot

Overall

1- Application of standard best practice construction and pollution prevention methods.

Good

Moderate

- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N\A

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.
- 9 A discharge license would need to be saught to meet environmental regulations for WFD for New discharge scour into Rochdale Canal

Good by 2027

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: http://www.warenument.data.gov.uk/catchment-planning/
Engineers Proforma: <a href="http://www.warenument.data.gov.uk/catchment.

EA Abstraction Licence Strategy (Northern Manchester): https://www.gov.uk/government/publications/northern-manchester-abstraction-licence

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		Water body ID:		GB41202G101800	Scheme:		PYTHON MI	LL BOREHOLE	
		Water Body Name:		Northern Manchester Carboniferous Aquifers	Reference		w	R114	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchmen	:	Manchester Northern Carboniferous Aquifers	Impact potential	Direct		Direct	
		Designation (and uses):	No designation					
		Relevant upstream wa	ter bodies:	N\A					
		Downstream water bo	dies:	N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ts for er: ve	status	Dependent Surface Water Body Status	Good	Good by 2027	N/A				
ement ndwat ntitati	itive S	Quantitative GWDTEs test	Good	Good by 2027	N/A				
WFD elem Ground	antita	Quantitative Saline Intrusion	Good	Good by 2027	N/A			New groundwater abstraction quantity. Medium level of impact. New abstraction of up to 3 MI/d from refurbished	
Š	ð	Quantitative Water Balance	Good	Good by 2027	N/A	Transfer pipe line on land. No or minimal impact.		borehole at Python Mill. A new abstraction licence would be required from the Environment Agency.	
ıter:	nent	Chemical Dependent Surface Water Body Status				New outfall to Rochdale Canal. Minor level of impact.	High	The ALS does not define a groundwater management unit for this area, but the surface water body has no water available across all flows, indicating there is	Low
roundwa	tus Eler	Chemical Drinking Water Protected Area	Good	Good by 2027	N/A	Abstraction well refurbishment. Minor level of impact	Tilgii	pressure on water resources. Transfer pipe line.	LOW
for Gro	Sta	Chemical GWDTEs test	Good	Good by 2027	N/A	Abstraction well headworks / surface structures. No or minimal impact		No or minimal impact.	
Che	hemic	Chemical Saline Intrusion	Good	Good by 2027	N/A			Transfer of water via Rochdale Canal. Minor level of impact.	
o elen	5	General Chemical Test	Good	Good by 2027	N/A				
WFL	uppo	Prevent and Limit Objective							
	W -		Upward Trend	N/A					
rall Is/Po	Ia I	Quantitative	Good	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

Poor

Chemical (GW)

- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2027

Good by 2027

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N/A

N/A

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for inchannel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: Design\Feasible Options\IRZ\WR049b.

EA Abstraction Licence Strategy (Northern Manchester): https://www.gov.uk/government/publications/northern-manchester-abstraction-licensing-strategy

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١	Water body ID:		GB112074069980	Scheme:		Egremont Borehole	es (Existing)	
	Water body Name:		Ehen (lower)	Reference		WR119a		
E	RBMP:		South West Lakes	Scheme Phase	Construction		Operational	
	Operational catchment:		Ehen-Calder	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo	dies:	Ehen (upper including Liza), Keekle (lower) and Kirk Beck (Ehen) Cumbria Coastal Waters					
1	Downstream water bodies:		Cumbria Coastai Waters					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
		Not provided						
	Magraphytas and	'						
	phytobenthos	Good						
		High						
H.	Bentnic invertebrates	riigri						
	Fish	High					New groundwater abstraction.	
_		-					Minor level of impact. Continuation of abstraction of 11 MI/d from four existing boreholes at Merry	
à I.	Hydrological regime	Does not support good					Hill, Kellhead, Gully Flatts and Black Ling (only the Merry HIll and Gully Flatts boreholes are within	
1	nydrologicai regime	Does not support good					this surface water body). The boreholes are planned for decommissioning in 2022 but this option	
1							would see abstraction continuing at current rates.	
	River continuity	Not provided					would be about defer to thinking at our own takes.	
	,				No construction activities planned in this water body. No or minimal impact.		The ALS states that there is groundwater available from the West Cumbria Groundwater	
							Management Unit, but no water available across the flow regime in this surface water body. The	
i I	Morphological conditions	Supports good				High	ALS will take into account the effects of the current abstraction licence, so a continuation of	Low
						High	ALS will take into account the effects of the current abstraction licence, so a continuation of abstraction is unlikely to reduce the availability of water further.	LOW
							abstraction is unlikely to reduce the availability of water further.	
<u>ਜ</u> (General physico-chemical	All high/good					It is assumed that the current abstraction would not have been recently licensed if it would cause a	
.5	ochoral physico onchiloan	7 til riigiti good						
E							deterioration in WFD status, therefore it is unlikely that an extension to the licence would cause	
흜.							deterioration, however this cannot be guaranteed as the water environment may change between	
1	Specific pollutants:	All high					the recent licensing of the boreholes and 2022. A new abstraction licence would be required from	
_							the Environment Agency from 2022 onwards.	
	Priority hazardous	l						
	substances	All good						
ı ı	oubotanoco							
H								
ш.	Priority substances	All good						
ď	Priority substances	All good						
	Ecological	Good	Good by 2015	N/A		•		
	Chemical	Good	Good by 2015	N/A				
	Overall	Good	Good by 2015	N/A				
-19	Overall	Good	G000 Dy 2015	N/A				

- Assumptions

 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

2° - ppe arise will cross water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
4 - New pipe line water course crossings would be installed via a ternic and cover technique within a dry working area. New pipe line vester course crossings would be installed via a ternic and cover technique within a dry working area. New pipe line vester would be installed via a technique that does not involve disturbance of the bed.
5 - A ground investigation will be carried out and will identify any containmitated land any mitigation that may be required in that may be required.
6 - Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body, catchement, and would not involve the requirement for in-channel works.
7 - Devastering of occavations would not require a permit from the Environment Agency would be discharged within the same water body.
7 - Devastering of occavations would not require a permit from the Environment Agency would be discharged within the same water body.

Evidence
Catchment Data Explorer, http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer, http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: http://environment.data.gov.uk/catchment-p

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	Water body ID:		GB353	Scheme:		Egremor	nt Boreholes (Existing)	
	Water body Name:		Non reportable water bodies on St Bees Coast	Reference			WR119a	
	RBMP:		South West Lakes	Scheme Phase	Construction		Operational	
	Operational catchment:		-	Impact potential	Direct		Direct	
	Designation (and uses):		-					
	Relevant upstream water bo	dies:	-					
	Downstream water bodies:		-					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confide
	Phytobenthos	N/A						
	Macrophytes	N/A						
>	Macrophytes and	N/A						
<u> </u>	phytobenthos							
õ	Benthic invertebrates	N/A					New groundwater abstraction.	
_		N/A					Minor level of impact. Continuation of abstraction of 11 Ml/d from four existing boreholes	
	Fish						at Merry Hill, Kellhead, Gully Flatts and Black Ling (only the Kellhead and Black Ling	
							boreholes are within this surface water body). The boreholes are planned for	
ĝ	Hydrological regime	N/A					decommissioning in 2022 but this option would see abstraction continuing at current	
응	- i y u cicgicu i cgiii c						rates.	
ě	River continuity	N/A						
ē		N/A					The ALS states that there is groundwater available from the West Cumbria Groundwater	
9		N/A			No construction activities planned in this water body.	High	Management Unit, and surface water available across the full flow regime in the surface	Low
ģ	Morphological conditions	conditions			No or minimal impact.		water body. The ALS will take into account the effects of the current abstraction licence,	,
f								so a continuation of abstraction is unlikely to reduce the availability of water further.
. =		N/A					It is assumed that the current abstraction would not have been recently licensed if it	
<u>0</u> 0	General physico-chemical						would cause a deterioration in WFD status, therefore it is unlikely that an extension to	
ys me		N/A					the licence would cause deterioration, however this cannot be guaranteed as the water	
દક	Specific pollutants:						environment may change between the recent licensing of the boreholes and 2022. A	
							new abstraction licence would be required from the Environment Agency from 2022	
		N/A					onwards.	
	Priority hazardous							
	substances							
	Priority substances	N/A						
	Ecological Ecological	N/A	N/A	N/A				
	Chemical	N/A		N/A				
	Overall	N/A		N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed. 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6 - Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: https://environment.data.gov.uk/catchment-planning/
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		Water body ID:		GB41201G102000	Scheme:		Egremont Borel	noles (Existing)	
		Water body Name:		West Cumbria Permo- Triassic Sandstone Aquifers	Reference		WR1		
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment:		West Cumbria Permo- Triassic Sandstone Aquifers	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water	bodies:	Not identified					
		Downstream water bodie	s:	Not identified					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
VFD elements for Groundwater: Quantitative	Status	Quantitative Dependent Surface Water Body Status	Good					New groundwater abstraction. Minor level of impact. Continuation of abstraction of 11 Ml/d from four existing	
emen ndwa ntitat	ntitative Elemen	Quantitative GWDTEs test	Good					boreholes at Merry Hill, Kellhead, Gully Flatts and Black Ling. The boreholes are planned for decommissioning in 2022 but this option would see abstraction continuing	
FD el Grou Qua	lantita	Quantitative Saline Intrusion	Good					at current rates.	
>	ő	Quantitative Water Balance	Good					The ALS states that there is groundwater available from the West Cumbria Groundwater Management Unit. There is surface water available across the flow	
ter:	ement	Chemical Dependent Surface Water Body Status	Good			No construction activities planned in this water body.	High	regime in the water bodies associated with the Kellhead and Black Ling boreholes, but no water available across the flow regime in the surface water body associated with the Merry Hill and Gulley Flatts boreholes (River Ehen). The ALS will take into account the	Low
ndwa	tus El	Chemical Drinking Water Protected Area	Good			No or minimal impact.		effects of the current abstraction licence, so a continuation of abstraction is unlikely to reduce the availability of water further.	Low
Grou	I Stat	Chemical GWDTEs test	Good					It is assumed that the current abstraction would not have been recently licensed if it	
ts for themi	emica	Chemical Saline Intrusion	Good					would cause a deterioration in WFD status, therefore it is unlikely that an extension to the licence would cause deterioration, however this cannot be guaranteed as the water	
emen	င်	General Chemical Test	Good					environment may change between the recent licensing of the boreholes and 2022. The boreholes are also located close to the coast so consideration should be given to the	
WFD el	nents	Prevent and Limit Objective	Not provided					potential for saline intrusion into the aquifer with continued use. A new abstraction licence would be required from the Environment Agency from 2022 onwards.	
	Suppo	Trend Assessment	No trend						
= 5 5		Quantitative	Good	Good by 2015	N/A				
Overall Status\	-	Chemical (GW)	Good	Good by 2015	N/A				
0 0 9		Overall	Good	Good by 2015	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Abstraction Licensing Strategies (CAMS process): https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process

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		Water body ID:		GB112074069980	Scheme:	Egremont	Boreholes (New)		
		Water body Name:		Ehen (lower)	Reference		WR119b		
		RBMP:		South West Lakes	Scheme Phase	Construction		Operational	
		Operational catchment:		Ehen-Calder	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo Downstream water bodies: WFD Element (Receptor)	odies:	Ehen (upper including Liza), Keekle (lower) and Kirk Beck (Ehen) Cumbria Coastal Waters	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Not provided						
		Macrophytes	Not provided						
_	logy	Macrophytes and phytobenthos	Good						
2.2	Biol	Benthic invertebrates	High						
ologic									
ō		Fish	High			Transfer pipe line on land.		Use of new transfer pipe line, and pumping station.	
ers: Ec	ology	Hydrological regime	Does not support good			No or minimal impact.		No or minimal impact. New groundwater abstraction.	
for Riv	norpho	River continuity	Not provided			Transfer pipe line with water course crossings. Minor level of impact.		High level of impact. New abstraction of 2.5 M/d from a refurbished borehole at Catgill (plus a further 7.5 M/d from three new boreholes in other surface water bodies). The ALS states that there is groundwater available from the West	
ements	Hydro	Morphological conditions	Supports good			New pumping station. Minor level of impact.	High	Cumbria Groundwater Management Unit. There is no water available across the flow regime in the surface water body associated with the refurbished Catgill	Medium
WFD ek	sico- nical	General physico-chemical	All high/good			Abstraction well refurbishment. No or minimal impact.		borehole (River Ehen). There is likely to be a strong hydraulic connection between the principal sandstone aquifer and the overlying surface courses. Although the proposed new abstraction from Cetgill is relatively small, there is no water available from the River Ehen at any flows, and therefore there could be	
	Phys	Specific pollutants:	All high			Modified abstraction well headworks / surface structures. No or minimal impact.		water available from the kiver chert at any lows, and therefore their could be significant effects on the hydrological regime of the River Ehen, especially considering the close proximity of the borehole to the river (approx. 300 m), and when combined with the abstraction from the other boreholes. A new abstraction	
WFD elements for Rivers:	nemical	Priority hazardous substances	All good					licence would be required from the Environment Agency.	
WFD	5	Priority substances	All good						
III \si	ıtial	Ecological	Good	Good by 2015	N/A	·		·	
Overall Status\	oten	Chemical	Good	Good by 2015	N/A				
	а.	Overall	Good	Good by 2015	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a down't garea. New pipe line vertex or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer_http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \(\text{WAR-PS1.global.amec.com/shared/Projects/38671 UU WRMP SupportS Design\)Feasible Options\(\text{VZWR119b\WR}\)

Abstraction Licensing Strategies (CAMS process): https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-pro

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	Water body ID:		GB353	Scheme:	Egr	remont Boreholes ((New)	
	Water body Name:		Non reportable water bodies on St Bees Coast			w	VR119b	
	RBMP:		South West Lakes	Scheme Phase	Construction		Operational	
	Operational catchment:		-	Impact potential	Direct		Direct	
	Designation (and uses):		-					
	Relevant upstream water bo	odies:	-					
	Downstream water bodies:		-					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		N/A						
	Macrophytes	N/A						
	Macrophytes and phytobenthos	N/A						
90	Benthic invertebrates	N/A						
	Fish	N/A					New groundwater abstraction.	
	Hydrological regime	N/A					Medium level of impact. New abstraction of 7.5 MI/d from three new boreholes at Sandwith, Rottington and Moor Platts. The ALS states that there is groundwater	
orpno y	River continuity	N/A			New abstraction well drilling / refurbishment. No or minimal impact.		available from the West Cumbria Groundwater Management Unit. There is surface water available across the flow regime in the non-reportable water bodies associated	
Hydrom	Morphological conditions	N/A			New / modified abstraction well headworks / surface structures. No or minimal impact.	High	with the three new boreholes. Although there is water available in both the groundwater and surface water bodies, there is likely to be a strong hydraulic connection between the principal sandstone aquifer and the overlying surface water bodies. The water courses	Medium
ical	General physico-chemical	N/A					are small coastal streams, likely to be dependent on baseflow from the aquifer. Therefore the new moderately sized abstraction may have a widespread or prolonged effect on the hydrological regime of the water courses. A new abstraction licence would	
chem	Specific pollutants:	N/A					effect on the hydrological regime of the water courses. A new abstraction licence would be required from the Environment Agency.	
Greincar	Priority hazardous substances	N/A						
	Priority substances	N/A						
		N/A	N/A	N/A	<u> </u>			
	Chemical	N/A		N/A				
	Overall	N/A		N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take the no more than 1 at most on the pipeline across water courses will take the no more than 1 at most on the pipeline across water courses will take the no more than 1 at most on the pipeline across water courses will take the normal taken on the pipeline across water courses will be installed via a technique that does not involve disturbance of the bed.

4- New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Abstraction Licensing Strategies (CAMS process): https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process

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		Water body ID:		GB41201G102000	Scheme:		Egremont	Boreholes (New)	
		Water body Name:		West Cumbria Permo- Triassic Sandstone Aquifers	Reference		,	WR119b	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment:		West Cumbria Permo- Triassic Sandstone Aquifers	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water	r bodies:	Not identified					
		Downstream water bodie	s:	Not identified					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
s for er: re	tatus	Quantitative Dependent Surface Water Body Status	Good					New groundwater abstraction.	
ement ndwat ntitativ	ative S	Quantitative GWDTEs test	Good			Transfer pipe line on land. No or minimal impact. Transfer pipe line with water course crossings. No or minimal impact. New pumping station.		Medium level of impact. New abstraction of 10 Ml/d from three new boreholes at Sandwith, Rottington and Moor Platts, plus a refurbished borehole at Catqiil (2.5 Ml/d	
FD eleme Groundw Quantita	lantita	Quantitative Saline Intrusion	Good					per borehole). The ALS states that there is groundwater available from the West Cumbria	
3	ő	Quantitative Water Balance	Good					Groundwater Management Unit. There is surface water available across the flow regime in the water bodies associated with the three new boreholes, but no water	
rater:	ment	Chemical Dependent Surface Water Body Status	Good				High	available across the flow regime in the surface water body associated with the refurbished Catgill borehole (River Ehen). There is likely to be a strong hydraulic connection between the principal sandstone aquifer and the overlying surface water	Medium
wpunc	us Ele	Chemical Drinking Water Protected Area	Good			No or minimal impact.		bodies, so while the new abstraction is unlikely to have a significant effect on the quantitative water balance of the groundwater body as a whole, it may have an impact	
nts for Gro Chemical	I Stat	Chemical GWDTEs test	Good			New abstraction well drilling / refurbishment. Minor level of impact.		on the quantitative status of dependent surface water bodies. The boreholes are also located close to the coast so consideration should be given to the potential for saline	
ents f Che	emic	Chemical Saline Intrusion	Good			New / modified abstraction well headworks / surface structures. No or minimal impact.		intrusion into the aquifer. A new abstraction licence would be required from the Environment Agency.	
elem	Che	General Chemical Test	Good			No oi miilinai impact.		Use of new transfer pipe line, and pumping station. No or minimal impact.	
WFD	uppo ting	Prevent and Limit Objective	Not provided					No or manified impact.	
	8 -	Trend Assessment	No trend						
= 's ;	E .	Quantitative	Good	Good by 2015	N/A				
Overall Status\	n aren	Chemical (GW)	Good	Good by 2015	N/A				
0 %	ĭ	Overall	Good	Good by 2015	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

 7- Dewatering of excensions would not require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment.planning/
Engineers Proforma: http://environment.data.gov.uk/catchment.planning/
Engineers Proforma: https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process
Abstraction Licensing Strategies (CAMS process): https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process

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		Water body ID:		GB112068060530	Scheme:	Cro	ss Hill Boreholes, Wi	rral	
		Water body Name:		The Birket including Ar			WR ²		
		RBMP:			Scheme Phase	Construction		Operational	
		Operational catchment:		Wirral	Impact potential	Direct		Direct	
		Designation (and uses):		Heavily modified					
		Relevant upstream water bo Downstream water bodies: WFD Element (Receptor)		Not identified Mersey RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Not provided						
	_	Macrophytes	Not provided					New groundwater abstraction quantity to 15MI/d.	
	logical	Macrophytes and phytobenthos	Not provided					Medium level of impact. New 15 Ml/d abstraction licence from three new boreholes at Cross Hill.	
	8	Benthic invertebrates	Poor					The abstraction licensing strategy (ALS) indicates that there is	
	Rivers	Fish	Poor			New water treatment works. No or minimal impact.		restricted water available in the groundwater body, but water available across all flows in the surface water body. The option	
	for F	Hydrological regime	Supports good			New abstraction well drilling.		includes revocation of existing licences at Hooton, Gorston and Spring Hill which may offset the impacts of the new abstraction.	
	nents drom	River continuity	Not provided			No or minimal impact.	High	However only the Springhill abstraction is located within the same surface water body and all are some distance away (5 - 10 km).	Medium
	Hyc	Morphological conditions	Not provided			New abstraction well headworks / surface structures. No or minimal impact.		There may be strong connections between surface waters and the	
	WFD Physico-	General physico-chemical	All high except: Ammonia- moderate, BOD- moderate, Dissolved oxygen- bad and Phosphate- poor					sandstone aquifer, meaning the change in abstraction patterns accross the aquifer may have an impact on the hydrological regime of the surface water body.	
		Specific pollutants:	All high					Use of water treatment works.	
단	for for Rivers:	Priority hazardous substances	All good					No or minimal impact.	
>	eler f Riv Che	Priority substances	Does not require assessment						
	all ss\ tial	Ecological	Moderate	Good by 2027	N/A			·	
	veral tatus tentia	Chemical	Good	Good by 2015	N/A				

Assumptions

Ove Star

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Moderate

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2027

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N/A

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proforma: \\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\S Design\Feasible Options\IRZ\WR120\WR120 Cross Hill BHs.xlsx

EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=floodmap#x=344705&FA Historical Landfill http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang==e&topic=floodmap#x=344705&FA Historical Landfill http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang==e&topic=floodmap#x=344705&FA Historical Landfill http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang==e&topic=floodmap#x=344705&FA Historical Landfill http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&layerGroups=default&ep=map&textonly=off&layerGroups=default&ep=map&textonly=off&layerGroups=default&ep=map&textonly=off&layerGroups=default&ep=map&textonly=off&layerGroups=default&ep=map&textonly=off&layerGroups=default&ep=map&textonly=off&layerGroups=default&ep=map&textonly=off&layerGroups=default&ep=map&textonly=off&layerGroups=default&ep=map&textonly=off&layerGroups=default&ep=map&textonly=off&layerGroups=d

Abstraction Licensing Strategy (Lower Mersey and Alt): https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-licensing-strategy

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		Water body ID:		GB41101G202600	Scheme:		Cross Hill Boreh	noles, Wirral	
		Water body Name:		Permo-Triassic Sandstone Aquifers	Reference		WR12	20	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment:		Cheshire Permo-Triassic Sandstone Aquifers	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water		Not identified					
		Downstream water bodie	es:	Not identified					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
WFD elements for Groundwater: Quantitative	Status	Quantitative Dependent Surface Water Body Status	Good						
emen ndwat ntitati	ative S	Quantitative GWDTEs test	Good						
FD el Grou Quai	lantita	Quantitative Saline Intrusion	Good						
3	ð	Quantitative Water Balance	Good					New groundwater abstraction quantity. Medium level of impact. New 15 Ml/d abstraction licence from three new	
		Chemical Dependent Surface Water Body Status	Good			New water treatment works.		boreholes at Cross Hill. The abstraction licensing strategy (ALS) indicates that there is restricted water available in the groundwater body (more water is licensed than the amount available, but recent actual abstractions are lower than the amount	t
/ater: Chemical	Status Element	Chemical Drinking Water Protected Area	Poor			No or minimal impact. New abstraction well drilling. Minor level of impact. New abstraction well headworks / surface structures.	High	available). The option includes revocation of existing licences at Hooton, Gorston as Spring Hill. This will offset the impacts of the new abstraction on the quantitative water balance of the groundwater body as a whole. Howeve only one of these licences is within the same groundwater body as the	Medium
Groundw	Chemical S	Chemical GWDTEs test	Good			No or minimal impact.		Cross Hills site, and all are situated some distance away (5 to 10 km). There may therefore be prolonged or widespread impacts on the Quantitative Dependent Surface Water Body Status, or the Quantitative	
nts for	S	Chemical Saline Intrusion	Good					GWDTEs test status for example. Water treatment works.	
WFD eleme		General Chemical Test	Good					No or minimal impact.	
W	wat	Prevent and Limit Objective	Not provided						
	Suppo	Trend Assessment	Upward trend						
Overall s\Potentia		Quantitative	Good	Good by 2015	N/A		· ·		
veral	-	Chemical (GW)	Poor	Good by 2027	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities. 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N/A

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- To Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EANRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proforma: \\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\IRZ\WR120\WR120 Cross Hill BHs.xlsx

Good by 2027

EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=floodmap#x=344705&y=511 EA Historical Landfill: http://maps.environment-

Abstraction Licensing Strategy(Lower Mersey and Alt): https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-licensing-strategy

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		Water body ID:		GB112068060530	Scheme:	CROSS HILL	BOREHOLES, WIRR	AL	
		Water body Name:		The Birket including Ar	Reference:		WR120	i '	
		RBMP:		North West	Scheme Phase:	Construction		Operational	
		Operational catchment:		Wirral	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily modified					
		Relevant upstream water bo	dies:	Not identified					
		Downstream water bodies:		Mersey					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Not provided						
		Macrophytes	Not provided						
	2	Macrophytes and phytobenthos	Not provided						
lical	Biolog	Benthic invertebrates	Poor						
s: Ecolog		Fish	Poor					New groundwater abstraction quantity to 15Ml/d. Medium level of impact. New 15 Ml/d abstraction licence from three new	
Rivers	ohq	Hydrological regime	Supports good			New water treatment works.		boreholes at Cross Hill. The abstraction licensing strategy (ALS) indicates that there is restricted water available in the groundwater body, but water available	
E.	2 ≥	River continuity	Not provided			No or minimal impact.		across all flows in the surface water body. The option includes revocation of	
ments fo	Hydron				New abstraction well drilling. No or minimal impact.	High	existing licences at Hooton, Gorston and Spring HIII which may offset the impar of the new abstraction. However the exact location and the licenced quantities these abstractions is unknown and there may be strong connections between	Low	
WFD ele	sico-chemical		All high except: Ammonia- moderate, BOD- moderate, Dissolved oxygen- bad and Phosphate- poor			New abstraction well headworks / surface structures. No or minimal impact.		surface waters and the sandstone aquifer, meaning this moderately sized new abstraction may have an impact on the hydrological regime of the surface water body. Use of water treatment works. No or minimal impact.	
	Phys	Specific pollutants:	All high						
D ts for	rs:	Priority hazardous substances	All good						
WFD		Priority substances	Does not require assessment						
Overall	ıtial		Moderate		N/A			-	
Ove ate	te		Good	Good by 2015	N/A				
7.	,	Overall	Moderate	Good by 2027	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3 Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be used clearly at a time which wo 4. New pipe line water course crossings would be installed via a trend and cover technique within a dry working area. New pipe line versigns of the pipeline acrossings 5-A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6 Extensions, modifications, or new pumping stations, water treatment works, etc. would involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \text{\text{WAR-FS1.global.amec.com\shared\text{\text{Projects\38671 UU WRMP Support\5 Design\Feasible Options\text{\text{\text{PR2}}WR120\text{\t

Abstraction Licensing Strategy (Lower Mersey and Alt): https://www.gov.uk/

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	Water body ID:		GB41101G202600	Scheme:		CROSS HILL B	OREHOLES, WIRRAL	
	Water body Name:		Wirral and West Cheshire Permo- Triassic Sandstone Aquifers	Reference -		,	WR120i	
	RBMP:		North West GW	Scheme Phase	Construction		Operational	
	Operational catchment:		Cheshire Permo-Triassic Sandstone Aquifers	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo	dies:	Not identified					
	Downstream water bodies:		Not identified					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
tatus	Surface Water Body Status	Good						
ntive	Quantitative GWDTEs test Quantitative Saline Intrusion	Good						
Quant	Quantitative Water Balance	Good			New water treatment works. No or minimal impact.		New groundwater abstraction quantity. Medium level of impact. New 15 Ml/d abstraction licence from three new boreholes at Cross Hill. The abstraction licensing strategy (ALS) indicates that there is restricted water	
tatu	Chemical Dependent Surface Water Body Status Chemical Drinking Water	Good			New abstraction well drilling. Minor level of impact.	High	available in the groundwater body, however the option includes revocation of existing licences at Hooton, Gorston and Spring HIII. This may offset the impacts of the new abstraction, but the exact location and the licenced quantities of these abstractions is unknown.	Low
ica	Protected Area	Poor			New abstraction well headworks / surface structures.			
		Good			No or minimal impact.		Water treatment works.	
		Good					No or minimal impact.	
1	General Chemical Test Prevent and Limit Objective							
Suppo Eleme (around)	Trend Assessment	Upward trend						
	Quantitative	Good	Good by 2015	N/A		·		
	Chemical (GW)	Poor	Good by 2027	N/A				
	Overall	Poor	Good by 2027	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.

 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a continuation of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a continuation of the pipeline across the pipeline across the pipeline across the pipeline across the existing the pipeline across the pipeline
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estua

- 5- A ground investigation will be carried out and will identify any contaminated land and any miligation that may be required.

 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small both involve and involvely small both involve and involvely small both involve and involvely small both involved in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

 7- Dewatering of exavations would not require a permit from the Environment Agency/Natural Report/Natural Repo 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be under the consent from the EA/NRW. Wells will be under the consent from the EA/NRW. Wells will be under t

Abstraction Licensing Strategy(Lower Mersey and Alt): <a href="https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-licensing-strategy-and-alt-abstract

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	/ater body ID:		GB112068055440	Scheme:	EATON BO	REHOLES (Hollins Hi		
	Water body Name:		Wettenhall Brook	Reference		WR12	11a	
Ī	RBMP:		North West	Scheme Phase	Construction		Operational	
ı	Operational catchment:		Weaver Upper	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
- 1	Designation (and uses).		No designation					
	Relevant upstream water bo	dies:						
Ī	Downstream water bodies:		Ash Brook (Darley Brook to	Weaver)				
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confid
	Phytobenthos	-						
	Macrophytes							
	Macrophytes and	-						
		Poor						
,	phytobenthos							
,								
Ē	Benthic invertebrates	Good						
	Bonano involtobratos	0000						
	Fish	Good			Transfer pipe line on land.			
					No or minimal impact.			
							New / increased groundwater abstraction quantity	
	Hydrological regime	Supports Good			New water treatment works.		Minor level of impact. Restart abstraction from two refurbished boreholes at Eaton. Planned	
		Cupporto Coca					yield is 4.2 - 6.7 Ml/d, within the current abstraction licence of 7.3 Ml/d.	
ğ	River continuity	l-			No or minimal impact.		,	
: ~ [No Groundwater Management Unit is defined in the ALS for this area, but surface water is	
	Morphological conditions	Supports Good			New pumping station.		No Groundwater intanagement of it is defined in the ALS for this area, but surface water is	
					No or minimal impact.	High	available across the whole flow regime. Given the availability of surface water and that the	Med
					No or minimal impact.	riigii	boreholes are already licensed a widespread or prolonged impact on WFD status is unlikely.	med
=	General physico-chemical	Moderate						
25	General physico-chemical	ivioderate			Abstraction well refurbishment.		New transfer pipe line, pumping station and water treatment works.	
Ε					No or minimal impact.		No or minimal impact.	
, e							No or minimal impact.	
. 3	Specific pollutants:	-			Modified abstraction well headworks / surface structures.			
					No or minimal impact.			
	Priority hazardous							
	substances	Does not require assessment						
	Cabotanoco							
		1						
	Daianita and ataman	la						
	Priority substances	Does not require assessment						
		1						
	Ecological	Good	Good by 2027	N\A				
	Chemical	Good	Good by 2027	N\A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

Good by 2027

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
3. Laying of the pipeline across water courses will take no more than 30 days, and any in charned works will be undertaken at a time which won't have a significant impact on fish communities.
4. New pipe line water course crossings would be installed via a terch and cover technique within a day working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

N\A

G- Extensions, modifications, or new pumping stations, water treatment works, etc. would invoke a relatively small footprint in the context of any WFD water body catchment, and would not invoke the requirement for in-channel works.

7- Devatering of excavations would not require a permit from the Environment Agency/Natural Resources Water, and water would be discharged within the same water body.

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		Water body ID:		GB41202G9	Scheme:		EATON BOREHOL	.ES (Hollins Hill)	
		Water body Name:		Weaver and	Reference		WR12	21a	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Weaver and	Impact potential	Direct		Direct	
		Designation (and uses):		No designa	tion				
		Relevant upstream water		N\A					
		Downstream water bodie	s:	N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
p		Quantitative Dependent	Good						
ents f vater: tative	tative	test	Good			Transfer pipe line on land. No or minimal impact. New water treatment works.			
WFD elements Groundwate Quantitativ	Quantitative tatus Elemer	Intrusion	Good					New / increased groundwater abstraction quantity Minor level of impact. Restart abstraction from two refurbished boreholes at Eaton. Planned yield is 4.2 - 6.7 Mild, within the current abstraction licence of 7.3 Mild.	
WFD	Sta	Balance	Good						
		Chemical Dependent	Poor			No or minimal impact.			
vater	Status	Chemical Drinking Water Protected Area	Good			New pumping station. No or minimal impact. Abstraction well drilling refurbishment. Minor level of impact.		No Groundwater Management Unit is defined in the ALS for this area, but surface water is available across the whole flow regime. Given the availability of surface water and that the boreholes are already licensed a widespread or prolonged impact on WFD statu- is unlikely. New transfer pipe line, pumping station and water treatment	
onud	mical Sta	Chemical GWDTEs test	Poor				High		Medium
nts for Gr Chemical	Chemic	Chemical Saline Intrusion	Good						
nents Ch		General Chemical Test	Poor			Modified abstraction well headworks / surface structures. No or minimal impact.		works. No or minimal impact.	
D eler	upportin	Prevent and Limit Objective	-						
WFD	ddns	Trend Assessment	Upward trend						
_ ;		Quantitative	Good	Good by 2027	N\A		-		
Overall	SIPO	Chemical (GW)	Good	Good by 2027	N\A				
	=	Overall	Good	Good by 2027	N\A				

Assumptions
1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed. 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering wales was a sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering wales was a se

Evidence

Catchment Data Explorer_http://senvironment.data.gov.uk/catchment.planning/
Engineer Proforma_!\text{WAR-FS1 global.amee.com/sharerstProjects\38671_UU_WRMP_Support\5_Design\Feasible_Options\\00e4\RZ\WR102a\\00e4\RR102a\\00e4\Rr102a\\00e4\0

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Water body ID: Water body Name:			GB112068055440	Scheme:	EATON BOREHO	LES (Mid Cheshire N		
			Wettenhall Brook	Reference		WR121I		
R	BMP:		North West	Scheme Phase	Construction		Operational	
c	perational catchment:		Weaver Upper	Impact potential	Direct		Direct	
	esignation (and uses):		No designation					
1	resignation (and uses):		No designation					
P	televant upstream water bo	dies:	_					
D	ownstream water bodies:		Ash Brook (Darley Brook to	Weaver)				
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
P	hytobenthos	_						
	Nacrophytes							
		r .						
M	lacrophytes and	Poor						
, D	hytobenthos	F 001						
1	•							
		l						
В	Senthic invertebrates	Good						
				X	Transfer pipe line on land.			
F	ish	Good						
					No or minimal impact.		New / increased groundwater abstraction quantity	
_				\			Minor level of impact. Restart abstraction from two refurbished boreholes at Eaton.	
H	lydrological regime	Supports Good			New water treatment works.		Planned yield is 4.2 - 6.7 Ml/d, within the current abstraction licence of 7.3 Ml/d.	
		Supports Good		X			Planned yield is 4.2 - 6.7 Mi/d, within the current abstraction licence of 7.3 Mi/d.	
6 P	liver continuity	-			No or minimal impact.			
은 는							No Groundwater Management Unit is defined in the ALS for this area, but surface water	
٧,	forphological conditions	Supports Good		3(1111111111111111111111111111111111111	Non-comparison states		is available across the whole flow regime. Given the availability of surface water and	
, IV	iorphological conditions	Supports Good			New pumping station.		is available across the whole how regime. Given the availability of surface water and	
_				\	No or minimal impact.	High	that the boreholes are already licensed a widespread or prolonged impact on WFD	Mediu
				3(1111111111111111111111111111111111111			status is unlikely.	
B C	Seneral physico-chemical	Moderate		3	Abstraction well refurbishment.		*	
				*	No or minimal impact.		New transfer pipe line, pumping station and water treatment works.	
chemi				X			No or minimal impact.	
o S	specific pollutants:	-			Modified abstraction well headworks / surface structures.			
		I			No or minimal impact.			
					No or minimal impact.			
				X				
P	riority hazardous	B						
	ubstances	Does not require assessment		X				
30	unstances							

P	riority substances	Does not require assessment						
	,							
		I						
		1	1					
E	cological	Good	Good by 2027	N\A				

Assumptions

Overall

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2027

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed. 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

Good

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

N\A

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: https://www.gov.uk/government/uploads/system/uploads/attachment.data/file/319959/lit.7884.s/

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		Water body ID:		GB41202G	Sohomo	FA	TON BOREHOLES	(Mid Cheshire Main)	
		Water body Name:		Weaver and			WR12		
		RBMP:			Scheme Phase	Construction	******	Operational	
		Operational catchment:			Impact potential	Direct		Direct	
		Designation (and uses):		No designa					
		Relevant upstream water	bodies:	N\A					
		Downstream water bodie	s:	N\A					
		WFD Element (Receptor)		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ō		Quantitative Dependent	Good						
ents f vater: ative	Quantitative	Quantitative GWDTEs test	Good			Transfer pipe line on land. No or minimal impact.			
WFD elements Groundwater	uantit tus El	Quantitative Saline Intrusion	Good					New / increased groundwater abstraction quantity Minor level of impact. Restart abstraction from two refurbished boreholes at Eaton. Planned yield is 4.2 - 6.7 Ml/d, within the current abstraction licence of 7.3 Ml/d.	
WFD &	Sta	Quantitative Water Balance Chemical Dependent	Good			New water treatment works.			
			Poor			No or minimal impact.			
water:	Status	Chemical Drinking Water Protected Area	Good			New pumping station.		No Groundwater Management Unit is defined in the ALS for this area, but surface water is available across the whole flow regime. Given the availability of surface water and that the boreholes are already licensed a widespread or prolonged impact on WFD status is unlikely. New transfer pipe line, pumping station and water treatment	M. P.
puno	mical St Element	Chemical GWDTEs test	Poor			No or minimal impact.	High		Medium
nts for Groundw Chemical	Chemic	Chemical Saline Intrusion	Good			Abstraction well drilling refurbishment. Minor level of impact.			
nents		General Chemical Test	Poor			Modified abstraction well headworks / surface structures. No or minimal impact.		works. No or minimal impact.	
D eler	supportin g	Prevent and Limit Objective	-					1000	
WFD	ddns	Trend Assessment	Upward trend						
_	entia	Quantitative	Good	Good by 2027	N\A				
Overall	o Li	Chemical (GW)	Good	Good by 2027	N\A				
		Overall	Good	Good by 2027	N\A				

Assumptions
1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed. 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering wales was a sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering wales was a se

Evidence

Catchment Data Explorer_http://senvironment.data.gov.uk/catchment.planning/
Engineer Proforma_!\text{WAR-FS1 global.amee.com/sharerstProjects\38671_UU_WRMP_Support\5_Design\Feasible_Options\\00e4\RZ\WR102b\WR102b_W\iden\seta\frac{1}{2}b\text{Usings}\text{Warterstand}\text{Abstraction icorsing strategy (Weaver and Dane)_https://www.gov.uk/government/uploads/system/uploads/attachment_data/fier319959fit_7884_52dcff.pdf

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		Water body ID:		GB112068060550	Scheme:	Newto	on Hollows Boreholes		
		Water body Name:		Crowton Brook	Reference		WR ²		
		RBMP:		Weaver Gowy	Scheme Phase	Construction		Operational	·
		Operational catchment:		Weaver Lower	Impact potential	Direct	·	Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo	odies:	(Source to Crowton Brook)					
		Downstream water bodies:		Weaver (Dane to Frod	sham)				
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Not provided						
		Macrophytes	Not provided						
-ga	ğ	Macrophytes and phytobenthos	Good					New / increased groundwater abstraction quantity. Medium level of impact. Restart abstraction from three returbished boreholes at	
Ecologi	Biolo	Benthic invertebrates	Moderate						
ivers:		Fish	Poor			Abstraction well refurbishment. No or minimal impact.		Newton Hollows. Peak output of 9 MI/d in line with existing abstraction licence.	
for Ri	norp By	Hydrological regime	Does not support good			New / modified abstraction well headworks / surface structures. No or minimal impact.		The abstraction licensing strategy (ALS) indicates that there is restricted water available in the groundwater management unit, and surface water flow is not	
ts	E 증	River continuity	Not provided				High	available for licensing at Q95 and Q50, and restricted at Q30 and Q70. The ALS	Medium
emen	F Z	Morphological conditions	Supports good			New water treatment works.	J	will take the existing abstraction licence into account. Although there is an abstraction licence in place and a new licence would not be required from the	
WFD el	sico- mical	General physico-chemical	All high except: Ammonia- moderate and Phosphate- poor			No or minimal impact.		Environment Agency, restarting the abstraction could have an impact on the hydrological regime of the surface water body as water courses are likely to have a good hydraulic connection with the underlying principal sandstone aquifer.	
	che Pr	Specific pollutants:	Not provided						
WFD elements for Rivers:	mical	Priority hazardous substances	All good						
eler f	E	Priority substances	All good						
II tentia		Ecological	Poor	Moderate by 2027	N/A				
Overall us\Pote I		Chemical	Good	Good by 2015	N/A				
Statu		Overall	Poor	Moderate by 2027	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3 Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

 4 New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

 5 A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

- Extensions, or new pumping stations, water treatment works, etc. would involve a relatively small bootpart in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

 7. Devastering of exvastions would not require a permit from the Environment Agency/Matrian Resources Wales. Devastering of exvastions would not require a permit may have a greater impact than assessed. Devastering would be of uncontaminated water, and water would be discharged within the same water body.

 8. Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EAVINEW. Wells will be designed, constructed, and the steel in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \www.WAR-FS1.global.amee.com/shared/Projects/39671.UU.WRMP_Support/5 Design/Feasible Options/WRZ/WR122/WR12

Engineers Proforma: \www.WR122/WR12

Engineers Proforma: \www.WR122/WR122/WR12

Engineers Proforma: \www.WR122/WR12 Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300490/

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		Water body ID:		GB41101G202600	Scheme:		Newton Hollows	Boreholes	
		Water body Name:		Permo-Triassic Sandstone Aquifers	Reference		WR12	2	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment:		Permo-Triassic Sandstone Aquifers	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water	bodies:	N/A					
		Downstream water bodie		N/A					
		WFD Element (Receptor) Quantitative Dependent		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ō		Surface Water Body	Good						
ents f vater: ative	ative	Quantitative GWDTEs test	Good						
FD elements t Groundwater: Quantitative	uantit	Quantitative Saline Intrusion	Good						
WF.	o i	Quantitative Water Balance	Good					New / increased groundwater abstraction quantity. Medium level of impact. Restart abstraction from three refurbished boreholes at	
ter:	ment	Chemical Dependent Surface Water Body Status	Good			Abstraction well refurbishment. Minor level of impact.		Newton Hollows. Peak output of 9 MI/d in line with existing abstraction licence. The abstraction licensing strategy (ALS) indicates that there is restricted water	
ndwat	us Ele	Chemical Drinking Water Protected Area	Poor			New / modified abstraction well headworks / surface structures. No or minimal impact.	High	available in the groundwater management unit, and surface water flow is not available for licensing at Q95 and Q50, and restricted at Q30 and Q70. The ALS	Medium
Grou	II Stat	Chemical GWDTEs test	Good			New water treatment works. No or minimal impact.		will take the existing abstraction licence into account. Although there is an abstraction licence in place and a new licence would not be required from the	
nts for Chemic	emica	Chemical Saline Intrusion	Good			но от плишнат шрасс.		Environment Agency, restarting the abstraction could have an impact on the quantitative water balance of the aquifer or of dependent surface water bodies.	
me	် င်	General Chemical Test	Good						
WFD elk	oortin g	Prevent and Limit Objective	Not provided						
	dns	Trend Assessment	Upward trend						
- 1		Quantitative	Good	Good by 2015	N/A				
Overall		Chemical (GW)	Poor	Good by 2027	N/A				
		Overall	Poor	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
3. Laying of the pipeline across water courses with existing roadways where possible to limit the amount of new watercourse crossings.
4. Howey pipe line water course with existing roadways where possible to limit the amount of new watercourse crossings.
5. Laying of the pipeline across water courses will take to no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
6. New pipe line water course crossings would be installed via a technique that does not involve disturbance of the bed.
6. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6 - Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small flootprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

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		Water body ID:		GB109054055150	Scheme:	E	Bearstone Boreholes		·	
		Water body Name:		Tern- source to conf Loggerheads Bk	Reference		WF	R125		
		RBMP:		Severn Middle Shropshire	Scheme Phase	Construction		Operational Direct		
		Operational catchment:		North Shropshire	Impact potential	Direct				
		Designation (and uses):		No designation						
		Relevant upstream water bo	odies:	Not identified						
		Downstream water bodies:		Tern- conf Loggerheads Bk to conf Bailey Bk						
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
		Phytobenthos	Not provided							
cal	_	Macrophytes	Not provided			Transfer pipe line on land.				
igolo	Biology	Macrophytes and phytobenthos	Moderate			No or minimal impact.		New / increased groundwater abstraction quantity. Medium level of impact. Restart groundwater abstraction from two		
<u>ы</u> ,	ω	Benthic invertebrates	High			Transfer pipe line with water course crossings.		refurbished boreholes near Bearstone. Abstraction rates of 4.98 - 6.36		
ers		Fish	Good			No or minimal impact.		Ml/d, within the current abstraction licence quantity.		
r Rj	mor	Hydrological regime	Does not support good			New pumping station. No or minimal impact.		The ALS identifies that water is not available from the groundwater management unit, and is limited at Q50, Q70 and Q95 (available at Q30)		
. ا و	오음	River continuity	Not provided			No of millimal impact.		in the surface water body. The ALS will take the current abstraction		
: eut	출호	Morphological conditions	Supports good			New / modified water treatment works.	High	licence into account. Given the restricted availability of water, and the	Medium	
o elem	ical	General physico-chemical	All high except: Phospahte- poor			No or minimal impact.		proximity to the River Tern, restarting the moderately sized abstraction could have an impact on the hydrological regime of the surface water body.		
WFD		Specific pollutants:	Not provided			Abstraction well refurbishment. Minor level of impact.		Use of new transfer pipe line, pumping station, and water treatment		
WFD elements for Rivers:	nical	Priority hazardous substances	Does not require assessment			New / modified abstraction well headworks / surface structures. No or minimal impact.		works. No or minimal impact.		
elem for Ri	Che	Priority substances	Does not require assessment							
all s\		Ecological	Moderate	Good by 2027	N/A					
Overall Status\ Potential		Chemical	Good	Good by 2015	N/A					
0 % 4	ğ ,	Overall	Moderate	Good by 2027	N/A					

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \(\frac{WWAR-F51.global.amee.com/shand/Projects/38671 UU.WRMP_Support/S Design/Feasible Options/\(\text{RZWR12SWR12}\)
EA Abstraction Lecence Strategy (Shropshire and Middle Seven): \(\frac{ttps://www.gov.uk/government/uploads/system/uploads/strachment.data/f

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		Water body ID:			Scheme:		Bearstone E	Boreholes	
		Water body Name:		Shropshire Middle Severn- PT Sandstone East Shropshire	Reference		WR1	25	
		RBMP:		Severn England GW	Scheme Phase	Construction		Operational	
		Operational catchment:		Shropshire Middle Severn- PT Sandstone East Shropshire	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water		N\A N\A					
		Downstream water bodie	S:	NVA					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
s for er: re	tatus	Quantitative Dependent Surface Water Body Status	Poor			Transfer pipe line on land. No or minimal impact. Transfer pipe line with water course crossings. Minor level of impact. New pumping station. Minor level of impact. No or minimal impact.			
ement ndwat intitativ	ative S ement	test	Good						
WFD el Grou Qua	Quantit	Intrusion	Good					New / increased groundwater abstraction quantity. Medium level of impact. Restart groundwater abstraction from two refurbished boreholes	
8	ð	Balance	Poor					near Bearstone. Abstraction rates of 4.98 - 6.36 Mt/d, within the current abstraction licence quantity. The ALS identifies that water is not available from the groundwater management unit, and is limited at Q50, Q70 and Q95 in the overlying surface water body. The ALS will take the current abstraction licence into account. Given the restricted availability of water restarting the moderately sized abstraction could have an impact on the quantitative	
ë:	ment	Statue	Good						
ındwa	tus Ele	Chemical Drinking Water Protected Area	Poor				High		Medium
Grou	al Star		Good			Abstraction well refurbishment.		water balance of the aquifer. Also given the proximity to the River Tern, it could also impact the quantitative dependent surface water body status.	
nts for Chemic	emica	Chemical Saline Intrusion	Good			No or minimal impact.		Use of new transfer pipe line, pumping station, and water treatment works.	
2	ਹ	General Chemical Test	Poor			New / modified abstraction well headworks / surface structures. No or minimal impact.		No or minimal impact.	
WFD eler	ortin 3	g Prevent and Limit Objective	Not provided						
	۰, رم	Trend Assessment	Upward trend						
Overall		Quantitative	Poor	Poor by 2015	N\A			·	
Overa		Chemical (GW)	Poor	Good by 2050	N\A				
3	i	Overall	Poor	Poor by 2015	N\A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Catchment Data Explorer. http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \www.next-st.global.amec.com/shared/Projects/38671 UU wRMP Support/5 Design/Feasible Options/RZ/WR125/WR125 Bearstone Boreholes.xlsx
EA Abstraction Licence Strategy (Shropshire and Middle Severn): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/291395/LIT_5393_7eeda4.pdf

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		Water body ID:		GB102076073910	Scheme:	TARN WOO	DD (NORTH EDEN TO	CARLISLE)	
		Water body Name:		Pow Maughan Beck	Reference		V	VR128	
		RBMP:		Solway Tweed	Scheme Phase	Construction		Operational	
		Operational catchment:		Eden lower	Impact potential	Direct		Direct	
		Designation (and uses):							
		Relevant upstream water bo	dies:	-					
		Downstream water bodies:		Eden - Eamont to tidal					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
	>	Macrophytes	-			Transfer pipe line on land.			
Rivers	Biology	Macrophytes and phytobenthos	Good			No or minimal impact.			
~ -	ш	Benthic invertebrates	Good			Transfer pipe line with water course crossings.		Increased groundwater abstraction quantity. Minor level of impact. Increased groundwater abstraction from 2.3	
ements for Ecological		Fish	Poor			Minor level of impact.		MI/d to 4 MI/d from refurbished boreholes at Tarn Wood. It is	
a Si	2 ≥	Hydrological regime	High					unclear if an increase in annual licence quantity is required. The	
EG	1 5 8	River continuity	-			New pumping station.		abstraction licensing strategy (ALS) indicates that there is water	
FD ele	Hyd	Morphological conditions	-			Minor level of impact.	High	available in the groundwater body and the surface water body at all flows and the increases in daily quantity is relatively small.	Medium
W	ysic o-	General physico-chemical	Moderate (High for ph)			New abstraction well drilling / refurbishment. No or minimal impact.		Use of pipelines and pumping station.	
	<u> </u>	Specific pollutants:	-					No or minimal impact.	
WFD ements for	ers: nical	Priority hazardous substances	Does not require assessment			New / modified abstraction well headworks / surface structures. No or minimal impact.		·	
elem fo	Rive	Priority substances	Does not require assessment						
rall \$\Pot		Ecological	Good	Good by 2027	N\A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2027 Good by 2027

- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to equire a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning

Engineers Proforma: \text{\texitext{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{

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		Water body ID:		GB40201G1		TA	ARN WOOD (NORTH E		
		Water body Name:		Eden Valley	Reference		WR1:	28	
		RBMP:			Scheme Phase	Construction		Operational	
		Operational catchment:		Eden Valley	Impact potential	Direct		Direct	
		Designation (and uses):		No designa	ion				
		Relevant upstream water	bodies:	N\A					
		Downstream water bodies	s:	N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
P		Confess Water Barby	Good						
ents f vater: ative	titative	Quantitative GWDTEs test	Good						
D elements for sroundwater: Quantitative	Quantita tatus El	Quantitative Saline Intrusion	Good			Transfer pipe line on land. No or minimal impact.			
WFD Gro	Qı Staf	Balance	Good			Transfer pipe line with water course crossings.		Increased groundwater abstraction quantity. Minor level of impact. Increased groundwater abstraction from	
,,		Chemical Dependent	Good			No or minimal impact.		2.3 MI/d to 4 MI/d from refurbished boreholes at Tarn Wood. It is	
water:	Status	Chemical Drinking Water Protected Area	Good			New pumping station.	High	unclear if an increase in annual licence quantity is required. The abstraction licensing strategy (ALS) indicates that there is water	Medium
puno_	mical St Element	Chemical GWDTEs test	Good			No or minimal impact.	nigii	available in the groundwater body and the increases in daily quantity is relatively small.	weatum
nts for Gre Chemical	Chemic	Chemical Saline Intrusion	Good			Abstraction well refurbishment. Minor level of impact.		Transfer pipe line and raw water pumping station.	
ents	0	General Chemical Test	Good			Abstraction well headworks / surface structures.		No or minimal impact.	
elem	ortin P	Prevent and Limit Objective	-			No or minimal impact.			
WFD	6 8		Upward Trend						
- d		Quantitative	Good	Good by 2027	N\A				
erall	į	Chemical (GW)		Good by	N\A				

Assumptions

Overall

1- Application of standard best practice construction and pollution prevention methods.

Good

Good

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good by

2027

N\A

- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proforma: \\WAR-F51.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Carlisle\WR128\WR128 Tarn Wood (North Eden to Carlisle).dc Abstraction Licensing Strategy (Eden and Esk): https://www.gov.uk/government/publications/eden-and-esk-abstraction-licensing-strategy

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		Water body ID:		GB102075073410	Scheme:	NORTH CUMI	BRIA BOREHOLES		
		Water body Name:		Wampool (Upper)	Reference		WR129		
		RBMP:		Solway Tweed	Scheme Phase	Construction		Operational	
		Operational catchment:		Waver-Wampool	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		,		(Wampool), Wiza					
		Relevant upstream water bo	odiae:	Beck					
		Downstream water bodies:	Autos.	Pow Beck (Wampool)					
				i i i i i i i i i i i i i i i i i i i	Alternate Objective if less than				
		WFD Element (Receptor)	Status	RBMP objective	Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
		Macrophytes and	High						
= //	95	phytobenthos	riigii					New / increased groundwater abstraction quantity	
, <u>iš</u> .	읒		L .					Minor level of impact. New groundwater abstraction of 2 Ml/d from a new	
<u> </u>	ä	Benthic invertebrates	Good					borehole at Thursby. This is part of a larger scheme of two new boreholes at	
						Transfer pipe line on land.		Thursby and Waverton (2 Ml/d each), and continuation of abstraction from	
iii l		Fish	Poor			No or minimal impact.		existing boreholes at Scales (6 Ml/d). Total scheme abstraction of 10 Ml/d, 6	
Je /e		1 1311				THE OF THIS INTEGRAL		Ml/d of which is licenced at Scales, but will expire in 2022.	
ź	5	Hydrological regime	Supports Good			Transfer pipe line with water course crossings.		There is no groundwater management unit defined for the secondary aquifer in	
ا ق	듄		Supports Good			Minor level of impact.		the ALS. The surface water body for the Thursby borehole has limited water	
ŧ	ē 8	River continuity	-					availability at Q95 but water available at medium and higher flows. As the	
ē	50					New abstraction well drilling.	High	proposed abstraction is relatively small, surface water is generally available,	Medium
<u> </u>	ጅ	Morphological conditions	Supports Good			No or minimal impact.		and there may not be good hydraulic connections between the secondary	
WFD el	_					New abstraction well headworks / surface structures.		aquifer and surface water courses, it is unlikely that the new abstraction would	
Ę	. =		M. J			New abstraction well headworks / surface structures. No or minimal impact.		have a widespread or prolonged effect on the hydrological regime of the	
-	<u>8</u> 8	General physico-chemical	Moderate (High for ph)			No of millimia impact.		surface water body. A new abstraction licence will be required from the	
	ys em							Environment Agency.	
	두 유	Specific pollutants:	I.					Use of new transfer pipe line.	
								No or minimal impact.	
for .	_	Priority hazardous	Does not require assessment					No or minimar impact.	
	<u>8</u>	substances	Does not require assessment						
WFD ements Rivers:	E								
- FB 22	ర్	Priority substances	Does not require assessment						
•									
Overall Status/Po tential		Ecological	Good	Good by 2027	N/A				
era us\		_			· ·				
ta o		Chemical	Good		N\A				
S		Overall	Good	Good by 2027	N\A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a terchique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works. 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \text{\text{WAR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support\5 Design\Feasible Options\RZ\WR129\WR\EA Abstraction Licence Strategy (Eden and Esk): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300486/LIT Aquifer designation map: http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx

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		Water body ID:		GB102075073440	Scheme:	NODTH /	CUMBRIA BOREHOLES		
		Water body Name:		Waver	Reference	NORTH	WR129		
		RBMP:		Solway Tweed	Scheme Phase	Construction	WKIZS	Operational	
		Operational catchmer		Waver-Wampool	Impact potential	Direct		Operational	
		Designation (and use			impact potential	Direct		Direct	ı
				Not desginated Holme Dub					
		Relevant upstream water bo		Solway					
		WFD Element	ules:	Solway	A16				
		(Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes							
	g	Macrophytes and phytobenthos	Moderate						
gical	Biolo	Benthic invertebrates	Moderate					New / increased groundwater abstraction quantity Minor level of inpact. New groundwater abstraction of 2 M/d from a new borehole at Waverton. This is part of a larger scheme of two new boreholes at Thursby and	
s: Ecologica		Fish	Good			Transfer pipe line on land.		Waverton (2 Ml/d each), and continuation of abstraction from existing boreholes at Scales (6 Ml/d). Total scheme abstraction of 10 Ml/d, 6 Ml/d of which is licenced at	
River	ology	Hydrological regime	Supports Good			No or minimal impact.		Scales, but will expire in 2022. There is no groundwater management unit defined for the secondary aquifer in the ALS.	
nents for	omorph	River continuity	-			Transfer pipe line with water course crossings. Minor level of impact.	High	The surface water body for the Waterton borehole has water available at all flows. As the proposed abstraction is relatively small, surface water is available, and there may not be good hydraulic connections between the secondary aquifer and surface water	Medium
WFD eler	Hydr	Morphological conditions	-			New abstraction well drilling. No or minimal impact.		courses, it is unlikely that the new abstraction would have a widespread or prolonged effect on the hydrological regime of the surface water body. A new abstraction licence will be required from the Environment Agency.	
	co-	General physico- chemical	Good			New abstraction well headworks / surface structures. No or minimal impact.			
	Physichem	Specific pollutants:	-					Use of new transfer pipe line. No or minimal impact.	
WFD ements for Rivers:	nical	Priority hazardous substances	Does not require assessment						
<u> </u>		Priority substances	Does not require assessment						
oten		Ecological	Good	Good by 2027	N\A				
Overall atus/Poten tial		Chemical	Good	Good by 2027	N\A				
Sta		Overall	Good	Good by 2027	N\A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \WWAR-FS1.global.amec.com/shared/Projects\38671 UU WRMP Support\5 Design\Feasible Options\\RZ\WR129\WR129_North Cumbria Boreholes.docx

EA Abstraction Licence Strategy (Eden and Esk): https://www.gov.uk/government/uploads/s

Aquifer designation map: http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx

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	Water body ID:		GB102075073480	Scheme:	NORTH	CUMBRIA BOREHOLES		
	Water body Name:		Dub	Reference		WR129		
	RBMP:		Solway Tweed	Scheme Phase	Construction		Operational	
	Operational catchment:		Ellen and West Coast	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo Downstream water bodies:		Holme Dub Waver					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
<u>></u>	Macrophytes and phytobenthos	Good						
Biology	Benthic invertebrates	Good					New / increased groundwater abstraction quantity Minor level of impact. Continued abstraction from existing boreholes at Scales after 2022. This is part of a larger scheme of two new boreholes at Thursby and	
	Fish	Bad					2022. Inits is part or a larger screen of vivo new borenoies at Intursiy and Waverton (2 Mild each), and continuation of abstraction from existing boreholes at Scales (6 Ml/d). Total scheme abstraction of 10 Ml/d, 6 Ml/d of which is licenced at Scales, but will expire in 2022.	
phol	Hydrological regime	Supports good			Transfer pipe line on land. No or minimal impact.		The ALS indicates that there is water available from this groundwater body. This	
ē 2	River continuity	-			No of minimum pace.		surface water body has limited water available at Q95, but water available at	
Hydron	Morphological conditions	Supports Good			Transfer pipe line with water course crossings. Minor level of impact.	High	medium and higher flows. Given that the sources are already licenced and currently in use (the ALS takes current abstractions into account) and that there is generally water available, it is unlikely that continuing abstraction from the scales boreholes	Mediur
Physico- chemical	General physico-chemical	Moderate (High for ph)					would have a widespread or prolonged effect on the hydrological regime of the surface water body. A new abstraction licence would be required after 2022 from the Environment Agency.	
문중	Specific pollutants:	-					Use of new transfer pipe line. No or minimal impact.	
ical	Priority hazardous substances	Does not require assessment						
Chemica	Priority substances	Does not require assessment						
	Ecological	Good	Good by 2027	N\A				
9	Chemical	Good	Good by 2027	N\A				
	Overall	Good	Good by 2027	N\A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment.planning/ Engineers Proforma: WMAR-FS1.global.amec.com/planard/Projects/38671 UU WMP Supports Design/Feasible Options/RZWR129/WR129/WR129-Nor EA Abstraction Licence Strategy (Eden and Esch): <a href="https://environment.global.g

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		Water body ID:		GB40202G100900	Scheme:		NORTH CUM	BRIA BOREHOLES		
				Triassic and	Scheme Phase	Construction		Operational		
		Water body Name:		Jurassic Aquifers		Construction		•		
		RBMP:		Solway Tweed	Reference		1	WR129		
				Triassic and	Impact	Direct		Direct		
		Operational catchment:		Jurassic Aquifers	potential	511000		Billot		
		Designation (and uses):		N\A						
		Relevant upstream water bo		N\A N\A						
		Downstream water body(ies)	NVA	A4					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		•	Confidence
WFD elements for Groundwater: Quantitive	atus	Quantitative Dependent Surface Water Body Status	Good	Good by 2015						
ments	ive St	Quantitative GWDTEs test	Good	Good by 2015				New / increased groundwater abstraction quantity Minor level of impact. New groundwater abstraction of 2 Ml/d from a new borehole at		
D ele	antita	Quantitative Saline Intrusion	Good	Good by 2015		Transfer pipe line on land.		Thursby and 2 MI/d from a new borehole at Waverton. This is part of a larger scheme of two new boreholes at Thursby and Waverton (2 MI/d each), and continuation of abstraction		
Wi	no	Quantitative Water Balance	Good	Good by 2015		No or minimal impact. Transfer pipe line with water course crossings.		from existing boreholes at Scales (6 M/d). Total scheme abstraction of 10 M/d, 6 M/d of which is licenced at Scales, but will expire in 2022.		
vater:	Status	Chemical Dependent Surface Water Body Status	Good	Good by 2015		No or minimal impact. New abstraction well drilling.	High	There is no groundwater management unit defined for this secondary aquifer in the ALS. The surface water body for the Thursby borehole has limited water availability at Q95 but water available at medium and higher flows. The surface water body for the Waverton		Medium
nts for Groundv Chemical	nical S	Chemical Drinking Water Protected Area	Good	Good by 2015		Minor level of impact.		borehole has water available at all flows. As the proposed abstractions are relatively small, surface water is generally available, it is unlikely that the new abstractions would have a widespread or prolonged effect on the quantitative water balance of the groundwater body		
ੂ ਨੂੰ	le a	Chemical GWDTEs test	Good	Good by 2015		New abstraction well headworks / surface structures. No or minimal impact.		or on dependent surface water bodies. A new abstraction licence will be required from the		
שַׁ בַּ	5	Chemical Saline Intrusion	Good	Good by 2015		No or minimai impact.		Environment Agency.		
\$ # S		General Chemical Test	Good	Good by 2015				<u> </u>		
elemen	ents	Prevent and Limit Objective	n/a					New Transfer Pipe Line No or minimal impact.		
WFD	Suppor	Trend Assessment	No trend							
	ntial	Quantitative	Good	Good by 2015	N/A	·				·
Overall	us\Pote	Chemical (GW)	Good	Good by 2015	N/A					

- Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new waterco 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be

Good by 2015

- New pipe line water course crossings would be installed via a trench and cover technique within a dry workin
 A ground investigation will be carried out and will identify any contaminated land and any mitigation that may

- 5 × ground investigation will be carried up on a distinction will be undertained and an air spirit ground investigation will be carried up on a relatively small footprint in the cortext of any WFD water body catchment, and would not involve the requirement for in-channel works.

 7 Devatering of excavations would not require a permit from the Environment Agency/Matural Resources Walles. Devatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Devatering would be of uncontaminated water, and water would be discharged within the same water body.

 8 Construction, refutbrishment, and testing of groundwater abstraction wells will be undertained uncort constructed, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: http://environment.data.gov.uk/catchment-planni

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	Water body ID:		GB40201G100400	Scheme:		NORTH CUMB	RIA BOREHOLES	
	Water body Name:		Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Reference		w	R129	
	RBMP:		Solway tweed	Scheme Phase	Construction		Operational	
	Operational catchme		Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Impact potential	Direct		Direct	
	Designation (and use		No designation					
	Relevant upstream v		N\A					
	Downstream water I	odies:	N\A					
	WFD Element (Rece		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Quantitative Depend							
Quantitative	Quantitative GWDTE	S Good						
uantit	Quantitative Saline Intrusion	Good					Use of new transfer pipe line. No or minimal impact.	
o ;	Quantitative Water Balance	Good					New / increased groundwater abstraction quantity Minor level of impact. Continued abstraction from existing boreholes at Scales after 2022	
ment	Chemical Dependen Surface Water Body Status	Good			Transfer pipe line on land.		This is part of a larger scheme of two new boreholes at Thursby and Waverton (2 Mid- each), and continuation of abstraction from existing boreholes at Scales (6 Mid). Tota scheme abstraction of 10 Mid, 6 Mid of which is	
atus Elemo	Chemical Drinking V Protected Area	Good Good			No or minimal impact. Transfer pipe line with water course crossings.	High		Medium
	Chemical GWDTEs t	est Good			No or minimal impact.		The ALS indicates that there is water available from this groundwater body. The overlying surface water body has limited water available at Q95, but water available at medium and	d
emic	Chemical Saline Intrusion	Good					higher flows. Given that the sources are already licenced and currently in use (the ALS takes current abstractions into account) and that there is generally water available, it is unlikely that continuing abstraction from the scales boreholes would have a widespread or	
ີ່	General Chemical To	st Good					unlikely that continuing abstraction from the scales boreholes would have a widespread or prolonged effect on the quantitative water balance of the water body or the overlying dependent surface water body. A new abstraction licence would be required after 2022	
supportin g	Prevent and Limit Objective	-					from the Environment Agency.	
ddns	Trend Assessment	Upward Trend						
Mitta	Quantitative	Good	Good by 2027	N\A				
us/Poten	Chemical (GW)	Good	Good by 2027	N\A				
4	Overall	Good	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

Population of satisfaction does practice obtainment in population, potential metals in the amount of new watercourse crossings.

2. Population with a process within excusses with existing goadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4. New pipe line water course crossings would be installed via a tenchia due over technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

E. Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EANRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\RZ\WR129\WR129\NR

EA Abstraction Licence Strategy (Eden and Esk): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300486/LIT_7889_1384b1.pdf

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		Water body ID:		GB112070064850	Scheme:	HORWICH WwTW =	FINAL EFFLUENT RE	FUSE	
		Water body Name:		Douglas - Upper	Reference:		WR140		
		RBMP:		North West	Scheme Phase:	Construction		Operational	
		Operational catchment:		Douglas OC	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily modified					
		Relevant upstream water bo	dies:	Not identified					
		Downstream water bodies:		Buckhow (Hic Bibbi) B	rook				
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Not provided						
		Macrophytes	Not provided						
_	<u>></u>	Macrophytes and phytobenthos	High						
ologica	Biolog	Benthic invertebrates	Moderate			New surface water intake.			
vers: Ec		Fish	Not provided			Minor level of impact. Transfer pipe line on land.		New surface water abstraction quantity. Medium level of impact. New surface water abstraction from Pearl Brook/River	
for Ri	oyd	Hydrological regime	Not provided			No or minimal impact.		Douglas near Horwich of 5 Ml/d. In the ALS water is identified as available at all flows (Q30, Q50, Q70 and Q95) however the abstraction is moderate in size	
ts	g S	River continuity	Not provided			Transfer pipe line with water course crossings.		and could have a widespread or prolonged effect on the hydrological regime of	
elemen	Hydron	Morphological conditions	Not provided			Minor level of impact. New pumping station.	High	the River Douglas. A new abstraction licence would be required to be issued by the Environment Agency.	High
WFD	sico- nical	General physico-chemical	All high except: Ammonia- moderate and Phosphate- moderate.			Minor level of impact. Modified water treatment works.		New transfer pipe line, pumping station and water treatment works. No or minimal impact.	
	Phys	Specific pollutants:	All high			No or minimal impact.			
D ts for	ical	Priority hazardous substances	All good						
WFD elements	Chem	Priority substances	All good						
Overall Status/Po	E DI	Ecological	Moderate	Good by 2027	N/A				
tati	ie.	Chemical	Good		N/A				
		Overall	Moderate	Good by 2027	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which wo

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings

6- A ground investigation will be carried out and and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer. http://enwironment.data.gov.uk/catchment.planning/
Engineers Proforma: \www.nefs1.global.amec.com/shared/Projects/33671 UU wRMP SupportS DesigniFeasible Options\ww.nefs1.global.amec.com/shared/Projects/33671 UU wRMP SupportS DesigniFeasible Options\w.RZ\w.R1400\w.R140\ EA Abstraction Licence Strategy (Ribble, Douglas and Crossens): https://www.gov.uk/gov

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	Water body ID:		GB41202G100300	Scheme:	· · · · · · · · · · · · · · · · · · ·	HORWICH WWTW -	- FINAL EFFLUENT REUSE	
	Water body Name:		Douglas, Darwen and Calder Caroboniferous Aquifers	Reference			WR140	
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:			Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water box	dies:	Not identified					
	Downstream water bodies:		Not identified					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confiden
atus	Quantitative Dependent Surface Water Body Status	Good						
ive St		Good						
ntitat Eler	Quantitative Saline Intrusion	Good			New surface water intake. No or minimal impact.		New surface water abstraction quantity	
Qua	Quantitative Water Balance	Good			Transfer pipe line on land. No or minimal impact.		Minor level of impact. New surface water abstraction from Pearl Brook/River Douglas near Horwich of 5 M/ld. The ALS does not identify a groundwater management unit in the area. Due to the moderate size of the proposed abstraction there may be reductions in leakage	
tatn	Surface Water Body Status	Poor			Transfer pipe line with water course crossings. No or minimal impact.	High	from the river to the aguiler, however given the availability of water in the surface wate body, these would likely be localised, and the secondary Carboniferous aquifer is unlikel be highly dependent on leakage from surface water courses to maintain its quantitative.	Mediu
en en	Protected Area	Good			New pumping station.		water balance.	
		Good			No or minimal impact.		New transfer pipe line, pumping station and water treatment works.	
		Good					No or minimal impact.	
	General Chemical Test	Good			Modified water treatment works.		No or minima impact.	
nts vater)	Prevent and Limit Objective	Not provided			No or minimal impact.			
Eleme	Trend Assessment	Upward trend						
	Quantitative	Good	Good by 2015	N/A				
	Chemical (GW)	Poor	Good by 2027	N/A				

Assumptions

Overall

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Poor

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time whi 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line cro

Good by 2027

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

N/A

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excensions would not require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforms: WRMP SupportS Design\Feasible Options\u00e4RZ\u00e4WR140\u00e40\u00e4\u00e40\u0

EA Abstraction Licence Strategy (Ribble, Douglas and Crossens): https://www.gov.uk/govern

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	Water body ID:		GB112069064641	Scheme:	Rossi	endale WwTW- Final I	Effluent Reuse	
	Water body Name:		Irwell (Cowpe Bk to Rossendale STW)	Reference			WR141	
	RBMP:		Irwell	Scheme Phase	Construction		Operational	
	Operational catchment:		Croal Irwell	Impact potential			Direct	
	Designation (and uses):		Heavily modified					
	Relevant upstream water bo	odies:	Brook), Limy Water and					
	Downstream water bodies:		Irwell (Rossendale STW to F	loch)				
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
	Macrophytes	Not provided						
ygo	Macrophytes and phytobenthos	Moderate						
gical	Benthic invertebrates	Good			Transfer pipe line on land.			
Ecolo	Fish	Not provided			No or minimal impact.		Use of new transfer pipe line, water treatment works, pumping station and	
ivers	Hydrological regime	Supports good			Transfer pipe line with water course crossings. Minor level of impact.		ose of new transfer pipe line, water treatment works, pumping station and surface water intake. No or minimal impact.	
is for Ri	River continuity	Not provided			New surface water intake. Minor level of impact.		New surface water abstraction quantity.	
element	Morphological conditions	Not provided			New pumping station. Minor level of impact.	High	Medium level of impact. New abstraction from the River Invell, downstream of Rossendale WwTW of 10 Ml/d. In the ALS water is identified as available at all flow (Q30, Q50, Q70 and Q95) however the abstraction is moderate in size and could ha	Medium
WFD el	General physico-chemical	All high except: pH- moderate and Phosphate- moderate			Modified water treatment works. No or minimal impact.		a widespread or prolonged effect on the hydrological regime of the River Inwell. A new abstraction licence would be required to be issued by the Environment Agency.	
£.	Specific pollutants:	Not provided						
WFD elements for Rivers: Chemical	Priority hazardous substances	Does not require assessment						
	Priority substances	Does not require assessment						
erall Status\ Potential	Ecological	Moderate	Good by 2027	N/A			-	
rall St otenti	Chemical	Good	Good by 2015	N/A				
9 9	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
 Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer; http://environment.data.gov.uk/catchment-planning/
Engineers Proforma:\textsumAR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options/JRZ\WR141\WR141 Ros
Abstraction Licensing Strategies (Northern Manchester): https://www.gov.uk/government/collections/water-abstraction-locensing-strategies-cams-prov

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		Water body ID:		GB41202G101800	Scheme:	Ro Ro	ssendale WwTW- Fi	inal Effluent Reuse	
		Water body Name:		Northern Manchester Carboniferous Aquifers	Reference		WR14		
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment:		Northern Manchester Carboniferous Aquifers	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water		Not identified					
		Downstream water bodie	s:	Not identified					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
s for er:	tatus	Quantitative Dependent Surface Water Body Status	Good						
ements ndwater ntitative	itive S	Quantitative GWDTEs test	Good			New surface water intake.			
FD ele Groun	Quant Quantitati Elen	Quantitative Saline Intrusion	Good			No or minimal impact.		Use of new transfer pipe line, water treatment works, pumping station and surface water intake.	
>	õ	Quantitative Water Balance	Good			Transfer pipe line on land. No or minimal impact.		No or minimal impact.	
rater:	ment	Chemical Dependent Surface Water Body Status	Poor			Transfer pipe line with water course crossings. No or minimal impact.	High	New surface water abstraction quantity. Minor level of impact. New surface water abstraction from the River Invell, downstream of Rossendale Warth of 10 MW. The ALS does not identify a groundwater	Medium
wpunc	us Ele	Chemical Drinking Water Protected Area	Good			New pumping station.		management unit for this area. Due to the moderate size of the proposed abstraction there may be reductions in leakage from the river to the aquifer. However due to the	
or Gre	I Stat	Chemical GWDTEs test	Good			No or minimal impact.		availability of water in the surface water body its likely that these would be localised, and the secondary aquifer is unlikely to be highly dependent on leakage from surface	
ents f	emica	Chemical Saline Intrusion	Good			Modified water treatment works. No or minimal impact.		water courses to maintain its quantitative water balance.	
elem	င်	General Chemical Test	Good						
WFD	ppo	Prevent and Limit Objective	Not provided						
1	2 -	Trend Assessment	Upward trend						
ह ब	r.	Quantitative	Good	Good by 2015	N/A				
# - Æ	Potel tial	Chemical (GW)	Poor	Good by 2027	N/A				
o &	₽ _	Overall	Poor	Good by 2027	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 2 I point the included water courses where courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

 4 New pipe line water course crossings would be installed via a trend-indip within a dry working area. New pipe line vertex course crossings would be installed via a tenchique within a dry working area. New pipe line vertex course crossings would be installed via a tenchique within a dry working area. New pipe line vertex course or coastal waters would be installed via a tenchique that does not involve disturbance of the bed.

 5 A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be 28- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: http://environment.data.gov.uk/catchment-planni

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1	Water body ID:		GB112071065490	Scheme:	HYNDBURN WW	TW - FINAL EFFLUE	ENT REUSE	
,	Water body Name:		Calder - Pendle Water to conf Ribble	Reference		WR	142	
Ī	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Calder	Impact potential	Direct		Direct	
Ī	Designation (and uses):		No designation					
,	Relevant upstream water bo	odies:	Green Brook, Hyndburn Brook - Lower Pendle Water - Colne Water to					
1	Downstream water bodies:		Ribble - conf Calder to tidal					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos							
	Macrophytes	-						
	Macrophytes and phytobenthos	Moderate						
	Benthic invertebrates	Good			New surface water intake.			
Ī	Fish	Good			Minor level of impact. Transfer pipe line on land.		Use of new transfer pipe line, pumping station, and water treatment works.	
	Hydrological regime	-			No or minimal impact.		No or minimal impact.	
ရှိပြ	River continuity	-			Transfer pipe line with water course crossings.		New surface water abstraction quantity.	
ĕ	Morphological conditions	-			Minor level of impact.	High	Medium level of impact. New surface water abstraction from the River Calder downstream of Hyndburn of up to 10 MI/d. In the ALS water is identified as available at all flows (Q30,	Medium
					New pumping station.		Q50, Q70 and Q95) however the abstraction is moderate in size and could have a medium	
ical	General physico-chemical	Moderate			Minor level of impact.		impact on the hydrological regime of the River Calder. A new abstraction licence would be required to be issued by the Environment Agency.	
chem	Specific pollutants:	High			Modified water treatment works. No or minimal impact.			
	Priority hazardous substances	Good						
	Priority substances	Good						
	Ecological	Good	Good by 2027	N\A				
	Chemical	Good	Good by 2027	N\A				
	Overall	Good	Good by 2027	N\A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
7- Devatering of excavatorins would not require a permit from the Environment Agency/Natural Resources Water, and water would be discharged of sufficient magnitude, dynation, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken undertaken undertook.

8- Construction and the state of the sum of the state of the sum of the su

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	Water body ID:			Scheme:	H	IYNDBURN WwTW -	– FINAL EFFLUENT REUSE	
	Water body Name:		Douglas, Darwen and Calder Caroboniferous Aquifers	Reference			WR142	
ı	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Douglas, Darwen and Calder Caroboniferous Aquifers	Impact potential Direct		Direct		
	Designation (and uses):		No designation					
	Relevant upstream water boo	dies:	Not identified					
	Downstream water bodies:		Not identified					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confide
	Quantitative Dependent Surface Water Body Status	Good						
2		Good						
	Quantitative Saline Intrusion	Good			New surface water intake. No or minimal impact.		New surface water abstraction quantity	
	Quantitative Water Balance	Good			Transfer pipe line on land. No or minimal impact.		Minor level of impact. New surface water abstraction from the River Calder downstream of Hyndburn of up to 10 M/d. The ALS does not identify a groundwater management unit in the area. Due to the moderate size of the proposed abstraction there may be reductions	
	Surface Water Body Status	Poor			Transfer pipe line with water course crossings. No or minimal impact.	High	in leakage from the river to the aquifer, however given the availability of water in the surface water body, these would likely be localised, and the secondary Carboniferous aquifer is	Mediu
eme	Protected Area	Good			New pumping station.		unlikely to be highly dependent on leakage from surface water courses to maintain its quantitative water balance.	
		Good			No or minimal impact.		New transfer pipe line, pumping station and water treatment works.	
		Good					No or minimal impact.	
	General Chemical Test	Good			Modified water treatment works.		No or manifest impact.	
z s	Prevent and Limit Objective	Not provided			No or minimal impact.			
Eleme (around)	Trend Assessment	Upward trend						
	Quantitative	Good	Good by 2015	N/A				
	Chemical (GW)	Poor	Good by 2027	N/A				

Assumptions

Overall

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Poor

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time whi 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line cro

Good by 2027

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

N/A

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excensions would not require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \www.AR-F31.global.amec.com/shared/Projects/33671 UU WRMP SupportS Design/Feasible Options\www.arv.uk/government/uploads/system/uploads/attachment_data/file/300484/UT791
EA Abstraction Licence Strategy (Aire and Calder): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300484/UT791

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V	Water body ID:		GB112069061111	Scheme:	Sa	addleworth and Mossley T		
V	Nater body Name:		Tame (Chew Brook to	Reference			WR144	•
F	RBMP:		Mersey Upper	Scheme Phase	Construction		Operational	
c	Operational catchment:		Goyt Etherow Tame	Impact potential			Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water boo		(Source to Chew					
	Downstream water bodies:		Tame (Swineshaw Bro	ok to Mersey)				
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than		Confidence		Confidence
_			TIDINI ODJEGUTE	Good		Communico		Communico
	Phytobenthos	Not provided						
-	nytobentnos							
		Not provided						
4	Macrophytes	Not provided						1
- 1	wacropnytes							4
	Macrophytes and	Not provided						
p	phytobenthos							
		Moderate						
l la	Benthic invertebrates	Widdelate						
- 15	sentine invertentates							
-					Transfer pipe line on land.			
_		Not provided						
F	Fish				No or minimal impact.		New surface water abstraction quantity.	
		Not provided			Transfer pipe line with water course crossings.		Minor level of impact. A new abstraction licence would be granted by the Environment Agency (assuming the	
6 L	Hydrological regime	rtot provided					proposed abstraction quantity would not have a detrimental effect on WFD status) of 5 MI/d from the River Tame,	
5 ∣.	ryurological regime				Minor level of impact.		downstream of Mossley Top WwTW, utilising discharges from both Mossley Top and Saddleworth WwTWs. The ALS	
2 ⊢				Y		Medium	(Abstraction Licensing Strategy) indicates that there is water available at all flow regimes (Q95, Q70, Q50 and Q30).	Medium
2		Not provided			New pumping station.		(Abstraction Licensing Strategy) indicates that there is water available at all flow regimes (Q95, Q70, Q50 and Q30).	
5 F	River continuity				Minor level of impact.			
Ę					Minor level of impact.		Use of new pipe line, pumping station and water treatment works.	
≅		Not provided					No or minimal impact.	
×IN	Morphological conditions				New / modified water treatment works.		No of minimal impact.	
I I					Minor level of impact.			
		All high/good		*	willion level of impact.			
=	General physico-chemical	All High/good						
3	senerai priysico-chemicai							
Έ								
9		All high						
5 5	Specific pollutants:	-						
_		Does not require assessment						
F	Hority Hazardous	Dood not roquite daseasinent						
s	substances							
			V	Y				
s		Good						
F	Priority substances							
E	Ecological	Moderate	Moderate by 2015	N/A				
	Chemical		Good by 2015	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the

Moderate by 2015

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

EA Historical Landfill: http://maps.environment-

Abstraction Licensing Strategies (Upper Mersey): https://www.gov.uk/government/publications/upper-mersey-abstraction-licensin

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	Water body ID:			Scheme:		Saddleworth and I	Nossley Top- Final Effluent Reuse		
	Water body Name:		Manchester and East Cheshire Carboniferous Aquifers	Reference			WR144		
	RBMP:		North West GW	Scheme Phase	Construction		Operational		
	Operational catchment:		Manchester and Cheshire East Carboniferous Aquifers	Impact potential	Direct		Direct		
	Designation (and uses):		No designation						
	Relevant upstream water		Not identified						
	Downstream water bodie	S:	Not identified						
	WFD Element (Receptor)		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
ents for vater: ative e Status	Quantitative Dependent Surface Water Body Status Quantitative GWDTEs	Good							
elem Sundv Jantit Litativ	test Quantitative Saline	Good							
WFD Gre	Intrusion Quantitative Water	Good			Transfer pipe line on land. No or minimal impact.		New surface water abstraction quantity.		
	Balance	Good			Transfer pipe line with water course crossings.		No or minimal impact. Increased surface water abstraction may result in localised minor reductions in leakage from rivers to the aquifer. However, these mainly secondary aquifers consisting of Coal Measures and Millstone Grit		
ater:	Surface Water Body Status	0000			No or minimal impact.	High	rocks are unlikely to be heavily reliant on river leakage to support water resources. The ALS also indicates that water is available in the surface water body across the flow regime (Q95, Q70, Q50 and Q30), indicating this relatively small proposed abstraction (5 MI/d) is unlikely to reduce flows sufficiently to impact on leakage from the	Medium	
oundw us Ele	Chemical Drinking Water Protected Area	Poor			New pumping station. No or minimal impact.	·	River Tame to the groundwater body.		
Chemical	Chemical GWDTEs test	Good			New / modified water treatment works.		Use of new pipe line, pumping station and water treatment works. No or minimal impact.		
Chel	Intrusion	Good			No or minimal impact.				
elem	General Chemical Test	Good							
WFD uppo	Prevent and Limit Objective	Not provided							
p -		Upward trend							
all us\		Good		N/A					
ver tatt ote		Poor	Good by 2027	N/A					
9 g, 9	Overall	Poor	Good by 2027	N/A					

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a trench and cover technique within a dry working area. involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water freatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: <a href="http://www.waster.org/www.news.com/waster/waster.org/www.news.com/waster/waster.org/www.news.com/waster/waster.org/was

Abstraction Licensing Strategies (Upper Mersey): https://www.gov.uk/government/publications/upper-mersey-abstraction-licensing-strategy

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	Water body ID:		GB112069061452	Scheme:	Dav	yhulme- Final Effluen	nt Reuse	
	Water body Name:		Irwell/ Manchester Ship Canal (Irk to confluence with Upper Mersey)	Reference			WR146	
	RBMP:		Irwell	Scheme Phase	Construction		Operational	
	Operational catchment:		Croal Irwell	Impact potential			Direct	
	Designation (and uses):		Heavily modified					
	Relevant upstream water bo	dies:			II (Croal to Irk) and Medlock (Lumb Brook to Irwell)			
	Downstream water bodies:		Mersey/Manchester Ship Cana		anal to Bollin)			
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not assessed						
	Macrophytes	Not assessed						
Siolog	Macrophytes and phytobenthos	Not assessed						
	Benthic invertebrates	Not assessed					Use of new transfer pipe line.	
	Fish	Not assessed					No or minimal impact.	
ď.	Hydrological regime	Supports good	Supports good by 2015		Transfer pipe line on land. No or minimal impact. Transfer pipe line with water course crossings.		Decreased surface water discharge quantity.	
) mc	River continuity	Not assessed					Medium level of impact. Reduction of the existing Davyhulme WwTW discharge to	
Hyd P	Morphological conditions	Not assessed				High	the Manchester Ship Canal by up to 100 M/d. The ALS indicates that there is surface water is available at all flow regimes (Q30, Q70, Q50 and Q30). Although there is water availability (suggesting a surplus), given the large decrease in discharge to the canal there is the potential for widespread or prolonged effects on the hydrological regime.	Medium
Physico-	General physico-chemical	All high/ good except: Ammonia- poor, Dissolved oxygen- bad and Phosphate- poor.	Vairable		Minor level of impact.			
ш з	Specific pollutants:	All high	High by 2015					
rers:	Priority hazardous substances	Good	Good by 2015					
for River Chemica	Priority substances	Good	Good by 2015					
atus\	Ecological	Moderate	Moderate by 2015	N/A				
erall status Potential	Chemical	Good	Good by 2015	N/A				
5	Overall	Moderate	Moderate by 2015	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.

- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
 3- Laying of the pipeline across water courses will also no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
 4- New pipe line water course crossings would be installed via a terchi and cover technique within a dry working and you working a level per line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Abstraction Licensing Strategy (Lower Mersey and Alt): https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-licensing-strat

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		Water body ID:		GB41201G101100	Scheme:	Da	avyhulme- Final Efflu	ent Reuse	
		Water body Name:		Manchester and East Cheshire Permo-Triassic Sandstone Aquifers	Reference		WR146		
		RBMP:			Scheme Phase	Construction		Operational	
		Operational catchment:			Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water	bodies:						
		Downstream water bodie	s:	Not identified					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
s for er: ve	status	Quantitative Dependent Surface Water Body Status	Poor	Good by 2021					
WFD elements for Groundwater: Quantitative	ative S	Quantitative GWDTEs test	Good	Good by 2015				Use of new transfer pipe line, water treatment works, and storage reservoir.	
FD el Grou Qua	nantit	Intrusion	Poor	Good by 2021		Transfer pipe line on land. No or minimal impact.		No or minimal impact.	
\$	đ		Good	Good by 2015		Transfer pipe line with water course crossings.		Decreased surface water discharge quantity. Minor level of impact. Reduction of the existing Davyhulme WWTW discharge to the Manchester Ship Canal by up to 100 MWd. The ALS indicates that there is limited groundwater availability. Given the large decrease in discharge to the canal there is the potential for reductions.	
vater:	ment	Chemical Dependent Surface Water Body Status				New water treatment works.	High		Medium
ents for Groundwa Chemical	tus Ele	Chemical Drinking Water Protected Area	Good	Good by 2015		No or minimal impact.		in leakage to the groundwater body. However, given the availability of surface water, that no changes to the wetted area of the canal are	
or Gr mical	al Sta		Good	Good by 2015		New storage reservoir. No or minimal impact.		anticipated, and that groundwater - surface water interactions between the engineered canal and the aquifer are expected to be minimal, widespread	
ents f Che	emic	Chemical Saline Intrusion	Poor	Good by 2021				or prolonged effects in the quantitative water balance of the aquifer are unlikely.	
elem	5	General Chemical Test	Good	Good by 2015					
WFD eler	uppo	Prevent and Limit Objective							
	9	Trend Assessment	Upward Trend						
= 1s	ial	Quantitative	Poor	Good by 2021	N/A				
Overall Status\	oten	Chemical (GW)	Poor	Good by 2021	N/A				
	_	Overall	Poor	Good by 2021	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would invoke a relatively-small bootprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
 7- Devatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales.
 7- Devatering of excavations would not require a permit from the Environment Agency/Natural Resources would be discharged within the same water body. 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: http://www.nument.data.gov.uk/catchment-planning/
Engineers Proforma: http://www.nument.data.gov.uk/catchment-planning/
Engineers Proforma: http://www.nument.data.gov.uk/catchment-planning/
Engineers Proforma: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: http://www.nument-planning/
Engineers Proforma: ht

Abstraction Licensing Strategy (Lower Mersey and Alt): https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-licensing-stral

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		Water body ID:			Scheme:	CUMWHINTON BO		TLE CARROCK LINK			
		Water body Name:		Pow Maughan Beck	Reference			NR148			
		RBMP:		Solway Tweed	Scheme Phase	Construction		Operational			
		Operational catchment:		Eden lower	Impact potential	Direct		Direct			
		Designation (and uses):									
		Relevant upstream water bo	dies:	-							
		Downstream water bodies:	nstream water bodies:		tream water bodies: Eden - Eamont to tidal						
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence		
		Phytobenthos	-								
	>	Macrophytes	-			Transfer pipe line on land.					
Rivers	i ii	Macrophytes and phytobenthos	Good			No or minimal impact.					
	ш	Benthic invertebrates	Good			New pumping station.		New groundwater abstraction quantity.			
ements for Ecological		Fish	Poor			Minor level of impact.		Minor level of impact. New groundwater abstraction of 6.5 Ml/d			
i S	ية كر		High					from two new boreholes at Cumwhinton. The abstraction			
Ĕ Ğ	[[중 중	River continuity	-			New / modified water treatment works.	1171.	licensing strategy (ALS) indicates that there is water available in			
<u> </u>	Hyd	Morphological conditions	-			No or minimal impact.	High	the groundwater body and the surface water body at all flows and the new licence quantity is relatively small.	Medium		
WFD	nysıc o-	General physico-chemical	Moderate (High for ph)			New abstraction well drilling. No or minimal of impact.		Use of pipe lines, pumping station and water treatment works.			
	4	Specific pollutants:	-			No of minimal of impact.		No or minimal impact.			
	ərs: nical	Priority hazardous substances	Does not require assessment			New abstraction well headworks / surface structures. No or minimal impact.					
elem fo	Rive Chem	Priority substances	Does not require assessment			No or minimal impact.					
rall s\Pot	<u> </u>	Ecological	Good	Good by 2027	N\A						

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2027 Good by 2027

- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7 Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning

Engineers Proforma: \\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Carlisle\WR148\WR148 Cumwhinton BHs Carrock link.docx

Abstraction Licensing Strategy (Eden and Esk): https://www.gov.uk/government/publications/eden-and-esk-abstraction-licensing-strategy

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		Water body ID:		GB40201G1	Scheme:	CUMWHINT	ON BOREHOLES PL	US CASTLE CARROCK LINK	
		Water body Name:		Eden Valley	Reference		WR14	18	
		RBMP:			Scheme Phase	Construction		Operational	
		Operational catchment:		Eden Valley	Impact potential	Direct		Direct	
		Designation (and uses):		No designa	ion				
		Relevant upstream water	bodies:	N\A					
		Downstream water bodie	s:	N\A					
		WFD Element (Receptor) Quantitative Dependent	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ō	+	Surface Water Bady	Good						
ents f vater: ative	titative	Quantitative GWDTEs test	Good			Transfer pipe line on land.			
D elements for sroundwater: Quantitative	antita us El	Quantitative Saline Intrusion	Good			No or minimal impact.			
WFD	Groun Quant Quant Status	Quantitative Water Balance	Good			Transfer pipe line with water course crossings. No or minimal impact.		New groundwater abstraction quantity. Minor level of impact. New groundwater abstraction of 6.5 Ml/d	
		Chemical Dependent	Good			New pumping station.		from two new boreholes at Cumwhinton. The abstraction	
water	Status	Chemical Drinking Water Protected Area	Good			No or minimal impact.		licensing strategy (ALS) indicates that there is water available in the groundwater body and the new licence quantity is relatively	
puno	mical Sta		Good			Modified water treatment works. No or minimal impact	High	small.	Medium
nts for Gre Chemical	Chemic	Chemical Saline Intrusion	Good			New abstraction well drilling.		Transfer pipe line, pumping station and water treatment works.	
ents (0	General Chemical Test	Good			Minor level of impact		No or minimal impact	
elem	ortin	Prevent and Limit Objective	-			New abstraction well headworks / surface structures.			
WFD	eddns	Trend Assessment	Upward Trend			No or minimal impact			
erall		Quantitative	Good	Good by 2027	N\A				
eral	5	Chemical (GW)		Good by	N\A				

Assumptions

Chemical (GW)

1- Application of standard best practice construction and pollution prevention methods.

Good

Good

- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

N\A

Good by 2027

- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proforma: \\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Carlisle\WR148\WR148 Cumwhinton BHs Carrock link.docx Abstraction Licensing Strategy (Eden and Esk): https://www.gov.uk/government/publications/eden-and-esk-abstraction-licensing-strategy

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	Water body ID:		GB112068060330	Scheme:	Simmono	ds Hill- increased WT		
	Water body Name:		Peckmill Brook, Hoolp				WR153	
	RBMP:		Weaver Gowy	Scheme Phase	Construction		Operational	
	Operational catchment:		Gowy	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo Downstream water bodies:		Not identified Mersey					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
	Macrophytes	Not provided						
λß	Macrophytes and phytobenthos	Poor						
Biology	Benthic invertebrates	Not provided						
	Fish	Moderate			Modified water treatment works. No or minimal impact.		Increased groundwater abstraction quantity Medium level of impact. Increased abstraction from refurbished boreholes at Simmonds Hill. Abstraction licences are already in place	
norp gy	Hydrological regime	Supports good			Abstraction well refurbishment.		and it is unclear how much additional quantity is required. There are likely to be moderate effects on water quantity as the abstraction	
ro S	River continuity	Not provided			No or minimal impact.	High	licensing strategy (ALS) indicates that there is restricted water available in	Low
Hyd	Morphological conditions	Not provided				riigii	the groundwater body and limited water availability in the surface water	LOW
sico- nical	General physico-chemical	All high except: Ammoonia- moderate and Phosphate- moderate			Modified abstraction well headworks / surface structures. No or minimal impact.		body at Q95 and Q70. Water treatment works. No or minimal impact	
Physi	Specific pollutants:	All high					No or minima inpact	
nical	Priority hazardous substances	Does not require assessment						
Chemical	Priority substances	Does not require assessment						
tential	Ecological	Poor	Poor by 2015	N/A				
ie i	Chemical	Good	Good by 2015	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Poor by 2015

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N/A

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

EA Historical Landfill: http://maps.environment-

Abstraction Licencing Strategy (Lower Mersey and Alt): https://www.gov.uk/g

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		Water body ID:		GB112068060500	Scheme:	Sim	monds Hill- increase	ed WTW Capacity	
		Water body Name:		Weaver (Dane to Frods	Reference			WR153	
		RBMP:		Weaver Gowy	Scheme Phase	Construction		Operational	
		Operational catchment:		Weaver Lower	Impact potential	Direct		Direct	
		Designation (and uses):		Heavily modified					
		Relevant upstream water bo	dies:	(Wheelock to Weaver),					
		Downstream water bodies:		Mersey					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
<u> </u>		Phytobenthos	Not provided						
gic	>	Macrophytes	Not provided			Modified water treatment works. No or minimal impact.			
Colo	(Boloig Ph	Macrophytes and phytobenthos	Good					Increased groundwater abstraction quantity	
		Benthic invertebrates	Bad						
ē		Fish	Not provided					Medium level of impact. Increased abstraction from refurbished boreholes at Simmonds Hill. Abstraction licences are already in place and it is unclear how	
ž	ρ×	Hydrological regime	Supports good					much additional quantity is required. There are likely to be moderate effects	
٥	m go	River continuity	Not provided			Abstraction well refurbishment.		on water quantity as the abstraction licensing strategy (ALS) indicates that	
ents	Hydr	Morphological conditions	Not provided			No or minimal impact.	High	there is restricted water available in the groundwater body and limited water availability in the surface water body at Q95 and Q70.	Low
E E	스==		All high except: Ammonia-			Modified abstraction well headworks / surface structures.		availability in the surface water body at Q55 and Q76.	
<u> </u>	: : : :	General physico-chemical	poor, BOD- poor and			No or minimal impact.		Water treatment works.	
	ž š		Phosphate- poor					No or minimal impact	
>	급당	Specific pollutants:	All high						
o e	Rivers: Chemi cal	Priority hazardous	All good						
WF em		substances							
- - (All good						
rall us\		Ecological	Moderate		N/A				
ver	ਰ	Chemical	Good		N/A				
0 20 0		Overall	Moderate	Good by 2027	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent roundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

EA Historical Landfill: http://maps.environment-

Abstraction Licencing Strategy (Lower Mersey and Alt): https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-lice

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		Water body ID:			Scheme:	S	Simmonds Hill- increa	ased WTW Capacity	
		Water body Name:		Wirral and West Cheshire Permo-Triassic Sandstone Aquifers	Reference		WR1	53	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment:				Direct	Direct		
		Designation (and uses):		No designation					
		Relevant upstream water		N\A					
		Downstream water bodies	3:	N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
o.			Good						
ents f vater: ative	ative	Quantitative GWDTEs test	Good						
WFD elements fo Groundwater: Quantitative	Quantitative		Good						
W P P	ğ į	Quantitative Water Balance	Good						
er:	Element	Chemical Dependent Surface Water Body Status	Good			Modified water treatment works. No or minimal impact.		Increased groundwater abstraction quantity Medium level of impact. Increased abstraction from refurbished boreholes at Simmonds Hill. Abstraction licences are already in place and it is unclear how much additional quantity is required.	
Groundwater:	us Ele	Chemical Drinking Water Protected Area	Poor			Abstraction well refurbishment. No or minimal impact	High	There are likely to be moderate effects on water quantity as the abstraction licensing strategy (ALS) indicates that there is restricted	Low
Groun	Status	Chemical GWDTEs test	Good			Abstraction well headworks / surface structures.		water available in the groundwater body.	
nts for Gr Chemical	Chemical	Chemical Saline Intrusion	Good			No or minimal impact		Water treatment works. No or minimal impact	
ı e	2		Good						
WFD ele	u .	Prevent and Limit Objective	Not provided						
\$	6 ddns		Upward trend						
	8	Quantitative	Good	Good by 2015	N\A				
erall	200	Chemical (GW)		Good by 2027	N\A				

Assumptions

ò Is

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

N\A

- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude,
- duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proforma: \\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\RZ\WR153\WR153 Simmonds Hill.xlsx

Good by 2027

EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=floodmap#x=34

EA Historical Landfill: http://maps.environment-

Abstraction Licencing Strategy (Lower Mersey and Alt): https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-licensing-strategy

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	Water body ID:			Scheme:	SANDIF	FORD - INCREASED WTW C		
	Water body Name:		Darley Brook	Reference		WR	154	
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Weaver Lower	Impact potential	Direct		Direct	
	Designation (and uses):		heavily modified					
	Relevant upstream water bo	dies:	-					
	Downstream water bodies:		Ash Brook (Darley Bro	ook to Weaver)				
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
logy	Macrophytes and phytobenthos	-						
ogica	Benthic invertebrates	-						
Ecol	Fish	Bad					Increased groundwater abstraction quantity.	
vers:	Hydrological regime	-					Minor level of impact. Refurbishment of boreholes at Organsdale, Delamere, Cotebrook and Sandiford. Maximum combined increase in abstraction of 10 MVd	
for Riv	River continuity	-			Modified water treatment works.		within exisiting abstraction licence constraints.	
lements Hydron	Morphological conditions	-			No or minimal impact. New abstraction well refurbishment.	High	The ALS indicates that there is restricted groundwater is available for the groundwater management unit in which the boreholes are located. Surface water is available at a flows in this surface water body.	Medium
WFD e	General physico-chemical	Moderate			No or minimal impact.		The size of the current abstraction licence is unknown, but given the availability of surface water, there is unlikely to be widespread or prolonged effects on the	
Physi	Specific pollutants:	-					hydrological regime of this water body.	
D is for ical	Priority hazardous substances	Does not require assessment						
WFD elements fo Rivers: Chemical	Priority substances	Does not require assessment						
all us\ itial	Ecological	Moderate	Good by 2027				•	
Overall Status\	Chemical	Good	-					
	Overall	Moderate	Good by 2027					

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will be known that was a time which won't have a significant impact on fish communities.

4. New pipe line water course crossings would be installed wa a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers' Proforma: https://www.gov.uk/government/uploads/system/uploads/statchment_data/file/319959/it_7884_52dcff.pdf
EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300490/LIT_7881_35d3ed.pdf

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Water body Name: Value body Name: Varied and Water Cheaning Place Reference Referen		Water body ID:		GB41101G202600	Scheme:		SANDIFORD - INC	REASED WTW CAPACITY		
Wirst and Cheshine West Permo-Trissel Sandshown Add				Permo-Triassic Sandstone Aquifers						
Wire and Cheaning West Permot-Tracks Sandson Permot Permot-Tracks Sandson Permot		RBMP:		North West	Scheme Phase	Construction		Operational		
Relevant upstream water bodies: Owner: MA WED Element (Recoput) Upper Frend Relevant upstream water bodies: NA ANA ARA ARA ARA ARA ARA ARA				Permo-Triassic Sandstone Aq		Direct		Direct		
Downstream water bodies: WED Element (Receptor) Status R8MP objective Attenate Objective files than Good Quantitative Opendent Ununtitative Opendent Unun										
WFD Element (Receptory) WFD Element (Receptor			dies:							
Usuanitative Oppondent unface Water Body Status Good Gountifacive Water Balance Good Gountifacive Water Balance Good Good Gountifacive Water Balance Good Gountifacive Water Balance Good G		Downstream water bodies:		N\A						
Surface Water Gody Status Good Quantitative Water Balance Occupant Chemical Dependent Surface Water Gody Status Surface Water Gody Status Occupant Oc		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
Quantitative Saline Intrusion Good Quantitative Saline Intrusion Good Quantitative Water Balance Good Chemical Dependent Short Water Body Status Chemical OWD TES test Chemical GWD TES test Chemical GWD Test water Body Status Chemical Water Body Status Good General Chemical Test Good Good Water Body Status The ALS indicates that there is restricted prince constraints. No or maintal impact. The ALS indicates that there is restricted prondwater is available or the groundwater is available or the groundwater is available and flows in the surface water body that includes the retricted or on water available, there maybe widespread or protonged effects on the quantitative status or the groundwater body if abstractions are increased by 10 Mid. Low Cote Dood The ALS indicates that there is restricted prondwater abstraction of the full within eviding abstraction of the following the retricted or on water available, there maintained the control of the groundwater abstraction of the full within eviding abstraction of the full	tatus	Surface Water Body Status								
Clemical Dependent Surface Water Body Status Chemical Dirinking Water Protected Area Protected Area Chemical Saline Intrusion Cenerical Chemical Saline Intrusion Ceneral Chemical Test Ceneral Chemical Test Ceneral Chemical Test Ceneral Chemical Saline Intrusion Ceneral Chemical Test Ceneral Chemical Saline Intrusion Ceneral Chemical Saline Intr	ative emer	Quantitative Saline						Increased groundwater abstraction quantity.		
Chemical Dependent States Chemical Dependent States Chemical Orbital States Chemical Orbital States Chemical Orbital States Chemical Orbital States Chemical GwoTies test Good Chemical GwoTies test Good Chemical States Chem	Qua	Quantitative Water Balance	Good					Cotebrook and Sandiford. Maximum combined increase in abstraction of 10 Ml/d within		
Chemical GWDTEs test Good Chemical Saline Intrusion General Chemical Test Good Frevent and Limit Objective Trend Assessment Upper Trend Quantitative Good Good by 2015 NA Quantitative Good Good by 2027 NA	eme	Surface Water Body Status	Good			No or minimal impact.	High	management unit in which the boreholes are located. Surface water restricted or not	Low	
The size of the current abstraction licence is unknown, but given the restricted groundwater availability and that some surface water availability and that some	ns	Protected Area							2011	
General Chemical Test Good French Assessment Upper Trend Quantitative Good Good by 2015 Chemical (GW) Poor Good by 2027 NIA Good by 2027 NIA Good by 2027 NIA Good by 2027 French Assessment Good Good by 2027 French Good Good Good By 2027 French Good Good By 2027 Frenc								The size of the autrent photostics license is unlessure, but since the restricted		
General Chemical Test Good Good Good by 2015 NA Chemical (GW) Poor Good by 2027 NA	a	Cnemical Saline Intrusion	G000							
Trend Assessment Upper Trend Quantitative Good Good by 2015 N/A Chemical (GW) Poor Good by 2027 N/A	Chemic	General Chemical Test	Good					maybe widespread or prolonged effects on the quantitative status of the groundwater body		
Quantitative Good Good by 2015 NIA Chemical (GW) Poor Good by 2027 NIA	nents	Prevent and Limit Objective	-							
Chemical (GW) Poor Good by 2027 NIA	Eler	Trend Assessment	Upper Trend							
Chemical (GW)		Quantitative	Good	Good by 2015	N\A					
Overall Poor Good by 2027 NVA		Chemical (GW)	Poor	Good by 2027	N\A					
		Overall	Poor	Good by 2027	N\A					

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works. 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers' Proforms: \WAR-FS1.global.amec.com/shared/Projects/38671 UU WRMP SupportS Design/Feasible Options\RZ\WR154\WR154_\text{WR154}\WR154_\text{WR154}\R154_\text{WR1

EA Abstraction Licence Strategy (Weaver and Dane): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/319959/lit_7884_52dcff.pdf
EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/310490/LIT_7881_35d3ed.pdf

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	Water body ID:		GB112068060480	Scheme:	SANDIFORI	D - INCREASED WTW C	CAPACITY	
	Water body Name:		Cuddington Brook (Source to Crowton Brook)	Reference		WR	1154	
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Weaver Lower	Impact potential	Direct		Direct	
	Designation (and uses):		Not designated					
	Relevant upstream water bo	odies:	-					
	Downstream water bodies:		Crowton Brook					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
al	Macrophytes and phytobenthos	Moderate						
ogical Biol	Benthic invertebrates	Good						
Ecol	Fish	-					Increased groundwater abstraction quantity. Minor level of impact. Refurbishment of boreholes at Eddisbury. Maximum combined	
Rivers	Hydrological regime	Supports good					increase in abstraction of 10 MVd (accross multiple sites) within exisiting abstraction licence constraints.	
for Ri	River continuity	-			Modified water treatment works.		The ALS indicates that there is restricted groundwater is available for the groundwater	
lements	Morphological conditions	Supports good			No or minimal impact. New abstraction well refurbishment.	High	management unit in which the boreholes are located. Surface water is not available a Q95 and Q50, and is restricted at Q30 and Q70.	Low
WFD e	General physico-chemical	All high except Ammonia- moderate, Phosphate-poor			No or minimal impact.		The size of the current abstraction licence is unknown. There is poor water availability of both groundwater and surface water, but as only a small proportion of the additional	
Physic	Specific pollutants:	-					10 MI/d is likely to be sourced from this surfacewater body, and the increase will be within existing licence constraints, there is unlikely to be widespread or prolonged effects on the hydrological regime of this water body.	
s for	Priority hazardous substances	Does not require assessment						
WFD elements i Rivers: Chemica	Priority substances	Does not require assessment						
ll si	Ecological	Moderate	Good by 2021					
Overall Status\ Potential	Chemical	Good	Good by 2015					
0.8.5	Overall	Moderate	Good by 2021					

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers' Proforma: \wAR-FS1.global.amec.com\shared\Projects\38671 UU wRMP Support\5 Design\Feasible Options\RZ\wR154\WR1

EA Abstraction Licence Strategy (Weaver and Dane): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/319959/lit_7884_52dcff.pdf
EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/310490/LIT_7881_35d3ed.pdf

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	Water body ID:		GB112071065040	Scheme:	Group 1 - Improved recers	voir componention ro	lease control – MITCHELLS HOUSE 1 & 2	
	Water body ID.		Hvndburn	Scheme Phase:	Group 1 - Improved reserv	WR15		
	RBMP:		North West	Reference:	Construction	******	Operational	
	Operational catchment:		Calder	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified	impact potential:	Direct		Direct	
	Relevant upstream water bo	P	None None					
	Downstream water bodies:	dies:	Hyndburn Brook - Lower					
	Downstream water bodies:		Hynaburn Brook - Lower					
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
25	Macrophytes and phytobenthos	-	Not assessed				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Mitchells House 1 and Mitchells House 2 reservoirs from 0.4 Mid to 0.3 Mid, a reduction of 0.1 Mid. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water	
gical Biolog	Benthic invertebrates	Good	Good by 2015					
rs: Ecolo	Fish	Good	Good by 2015					
r Rive	Hydrological regime	Supports Good	Supports Good by 2015				lotal reduction for the reservoir Aquator group assumed to take place in this water body.)	
nts for	River continuity				Installation of new automatic penstock arrangements.		The ALS shows that most of the surface water body has water available at all flows, however the relatively small part of the water body that contains the two reservoirs	
elemer	Morphological conditions	-			No or minimal impact.	High	has water available at Q95 but no water available at medium to high flows (Q70, Q50 and Q30). It is likely the compensation flow from the reservoir that maintains the	Medium
WFD	General physico-chemical	Moderate	Good by 2027				water availability at Q95, and as such a reduction in the compensation flow could effect the hydrological regime of the surface water body and cause a reduction in ecological status. However given the small reduction in compensation releases, tha water is available across most of the surface water body at all flows, and assuming low flow compensation flows would be maintained, any impracts would be localised	
Physic	Specific pollutants:	-					and temporary.	
D its for rrs: nical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements Rivers: Chemica	Priority substances	Does not require assessment	Does not require assessment					
all s\ tial	Ecological	Moderate	Good by 2027	N/A		•	· · · · · · · · · · · · · · · · · · ·	•
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \war-fs1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Regional\WR159\WR159_Compensation control - Group 1.docx
EA Abstraction Licence Strategy (Ribble, Douglas and Crossens): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300484/LIT7919v3_f881c4.pdf

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	Water body ID:		GB112074069790	Scheme:	Group 1 - Improved reservoir compen	nsation release co	ontrol – POAKA BECK, PENNINGTON & HARLOCK	
	Water body Name:			Scheme Phase:		WR15		
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Duddon	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	odies:						
	Downstream water bodies:		Morecambe Bay					
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
2	Macrophytes and phytobenthos	-	Not assessed					
gical Biology	Benthic invertebrates	Good	Good by 2015					
s: Ecolog	Fish	Bad	Good by 2027					
s for Rivers	Hydrological regime	-	-				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Poaka Beck and Harlock reservoirs from 2.9 M/d to 2.6 M/d, a reduction of 0.3 M/d. (Note: Total reduction for	
4 5	River continuity				Installation of new automatic penstock arrangements.		the reservoir Aquator group assumed to take place in this water body.)	
elemen	Morphological conditions	-			No or minimal impact.	High	The ALS shows that the surface water body has no water available at all flows and as such a reduction in the compensation flow could effect the hydrological regime of the	Medium
WFD	General physico-chemical	Moderate	Good by 2015				surface water body and cause a reduction in ecological status. However given the small reduction in compensation releases, and assuming low flow compensation flow would be maintained, any impacts would be localised and temporary.	
Physic	Specific pollutants:	-						
D ts for rs: iical	Priority hazardous substances	Good	Good by 2015					
WFD elements fo Rivers: Chemical	Priority substances	Good	Good by 2015					
all s\ tial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \war-fs1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Regional\WR159\WR159_Compensation control - Group 1.docx
EA Abstraction Licence Strategy (South Cumbria): https://www.gov.uk/government/uploads/system/uploads/system/uploads/strachment_data/file/300489LIT_7918_cda86.pdf

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	Water body ID:		GB112073071160	Scheme:	Group 1 - Improved reservoir compe		entrol - POAKA BECK, PENNINGTON & HARLOCK	
	Water body Name:		Dragley Beck	Scheme Phase:		WR15		
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Leven	Impact potential:	Direct		Direct	
	Designation (and uses):		not designated artificial or heavily modified					
	Relevant upstream water bo	dies:						
	Downstream water bodies:		Leven					
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
2	Macrophytes and phytobenthos	Moderate	Good by 2027				Reduction in compensation flows due to new penstock arrangements.	
Biolog	Benthic invertebrates	Good	Good by 2015					
	Fish	-	-					
polod	Hydrological regime	Does Not Support Good	Supports Good by 2027				Minor level of impact. Reduction of compensation flow from Pennington reservoir from 2.9 Ml/d to 2.6 Ml/d, a reduction of 0.3 Ml/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
norpl	River continuity				Installation of new automatic penstock arrangements.		The ALS shows that the surface water body has no water available at high and low	
Hydror	Morphological conditions	Supports Good			No or minimal impact.	High	flows (Q30 and Q35 respectively), and that limited water is available at medium flows (Q50 and Q70), and as such a reduction in the compensation flow could effect the hydrological regime of the surface water body and cause a reduction in coological status. However given the small reduction in compensation releases, and assuming low flow compensation flows would be maintained, any impacts would be localised and temporary.	Medium
co-chemical	General physico-chemical	Good	Good by 2015					
Physic	Specific pollutants:	-			and the second s			
rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
Rivers: Chemica	Priority substances	Does not require assessment	Does not require assessment					
ial	Ecological	Moderate	Good by 2027	N/A				
Starus	Chemical	Good	Good by 2015	N/A				
΄ Δ	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \war-fs1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Regional\WR159\WR159\Compensation control - Group 1.docx
EA Abstraction Licence Strategy (Ribble, Douglas and Crossens): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300484/LIT7919v3_f881c4.pdf

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	Water body ID:		GB112073071210	Scheme:	Group 1 - Improved res		on release control – LEVERS WATER			
	Water body Name:		Yewdale/Church Beck	Scheme Phase:		WR15				
	RBMP:		North West	Reference:	Construction		Operational			
	Operational catchment:		Crake	Impact potential:	Direct		Direct			
	Designation (and uses):		not designated artificial or heavily modified							
	Relevant upstream water bo	odies:								
	Downstream water bodies:		Crake							
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence		
	Phytobenthos	-								
	Macrophytes	-								
2	Macrophytes and phytobenthos	Good	Good by 2015				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Levers Water reservoir from 2.9 Mid to 2.6 Mid, a reduction of 0.3 Mid. (Note: Total reduction for the			
Biolog	Benthic invertebrates	High	Good by 2015							
	Fish	Moderate	Good by 2027							
polod	Hydrological regime	Supports Good	Supports Good by 2015				reservoir Aquator group assumed to take place in this water body.)			
morpl	> River continuity				Installation of new automatic penstock arrangements.		The ALS shows that most of the surface water body has water available at all flows, however the part of the water body that contains the reservoir and its upstream			
Hydro	Morphological conditions	Supports Good					No or minimal impact.	High	catchment has no water available at any flows, and the part of the water body immediately downstream of the reservoir has no water available at all flows other than Q30. As such a reduction in the compensation flow may effect the hydrological	Medium
so-chemical	General physico-chemical	High	Good by 2015				regime of the surface water body and cause a reduction in ecological status. However, given the small reduction in compensation releases, that water is available across most of the surface water body at all flows, and assuming low flow compensation flows would be maintained, any impacts would be localised and temporary.			
Physic	Specific pollutants:	-					шпрошу.			
rs: ical	Priority hazardous substances	Good	Good by 2015							
Rivers: Chemica	Priority substances	Good	Good by 2015							
s/ tial	Ecological	Moderate	Good by 2027	N/A						
Status/ Potential	Chemical	Good	Good by 2015	N/A						
п.	Overall	Moderate	Good by 2027	N/A						

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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Engineers Proforma: \war-fs1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Regional\WR159\WR159_Compensation control - Group 1.docx
EA Abstraction Licence Strategy (Ribble, Douglas and Crossens): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300484/LIT7919v3_f881c4.pdf

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	Water body ID:			Scheme:	Group 1 - Improved res	Group 1 - Improved reservoir compensation release control – FISHMOOR TOTAL				
	Water body Name:		Darwen - conf Davy Field Bk to conf Blakewater	Scheme Phase:		WR15	9			
	RBMP:			Reference:	Construction		Operational			
	Operational catchment:		Darwen	Impact potential:	Direct		Direct			
	Designation (and uses):		Heavily Modified							
	Relevant upstream water b	odies:	Field Bk, Davyfield Brook							
	Downstream water bodies:		Darwen- conf Blakewater to conf Ro	ddlesworth						
	WFD Element (Receptor)			Alternate Objective if less than Good		Confidence		Confidence		
	Phytobenthos									
	Macrophytes	· ·								
<u> </u>	Macrophytes and phytobenthos	-	Not assessed							
ogical	Benthic invertebrates	Moderate	Good by 2027				Reduction in compensation flows due to new penstock arrangements.			
s: Ecol	Fish	Good	Good by 2015							
r Rive	Hydrological regime	Supports Good	Supports Good by 2015				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Fishmoor (Total) reservoir from 2.0 M/ld to 1.7 M/ld, a reduction of 0.3 M/ld. (Note: Total reduction for			
- of 6	River continuity						the reservoir Aquator group assumed to take place in this water body.) The ALS shows that all of the surface water body has water available at all flows (Q35, Q70, Q50 and Q30). Given the small reduction in compensation releases, that water is available across the surface water body at all flows, and assuming low flow compensation flows would be maintained, any impacts would be localised and temporary.			
elements	Morphological conditions	-			Installation of new automatic penstock arrangements. No or minimal impact.	High		Medium		
WFD	General physico-chemical	Moderate	Good by 2027							
i	Specific pollutants:	-								
WFD ements for Rivers: Chemical	Priority hazardous substances	Does not require assessment	Does not require assessment							
WF elemen Rive Cherr	Priority substances	Does not require assessment	Does not require assessment							
s lai	Ecological	Moderate	Good by 2027	N/A						
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A						
200 2	Overall	Moderate	Good by 2027	N/A						

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6 Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
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EA Abstraction Licence Strategy (Ribble, Douglas and Crossens): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300484/LIT7919v3_f881c4.pdf

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	Water body ID:		GB112069061320	Scheme:	Group 1 - Improved reservo		ase control – RIDGEGATE & TRENTABANK	
	Water body Name:		Bollin (Source to Dean)	Scheme Phase:		WR15	9	
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Bollin Dean Mersey Upper	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water b							
	Downstream water bodies:	:	Bollin (River Dean to Ashley Mill)					
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
≥	Macrophytes and phytobenthos	Moderate	Moderate by 2015					
gical	Benthic invertebrates	Good	Good by 2015				Reduction in compensation flows due to new penstock arrangements.	
rs: Ecolo	Fish	Moderate	Moderate by 2015					
River	Hydrological regime	-	-				Minor level of impact. Reduction of compensation flow from Ridgegate and Trentabank reservoirs from 2.1 Ml/d to 1.8 Ml/d, a reduction of 0.3 Ml/d. (Note: Total	
ts for	River continuity				Installation of new automatic penstock arrangements.		reduction for the reservoir Aquator group assumed to take place in this water body.)	
elemen	Morphological conditions				Installation of new automatic peristock arrangements. No or minimal impact.	High	The ALS shows that the part of the surface water body which contains the reservoir and their upstream catchments has no water available at any flows. Downstream the reservoirs, the water body has water available at all flows. Given the small	Medium
WFD	General physico-chemical	Moderate	Moderate by 2015				reduction in compensation releases, the water availability downstream of the reservoirs, and assuming low flow compensation flows would be maintained, any impacts would be localised and temporary.	
i	Specific pollutants:	-						
D ts for rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements Rivers: Chemica	Priority substances	Does not require assessment	Does not require assessment					
all st	Ecological	Moderate	Moderate by 2015	N/A				
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
	Overall	Moderate	Moderate by 2015	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \war-fs1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Regional\WR159\WR159_Compensation control - Group 1.docx
EA Abstraction Licence Strategy (Upper Mersey): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300491/LIT_7883_7660f1.pdf

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	Water body ID:		GB112069060650	Scheme:	Group 1 - Improve	d reservoir compensa	ation release control – LAMALOAD	
	Water body Name:		Dean (Lamaload to Bollington)	Scheme Phase:		WR15		
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Bollin Dean Mersey Upper	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	odies:	•					
	Downstream water bodies:		Dean (Bollinton to Bollin)					
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
AS.	Macrophytes and phytobenthos	-	Not assessed					
gical	Benthic invertebrates	-	-					
rs: Ecolo	Fish	-	-				Reduction in compensation flows due to new penstock arrangements.	
or River	Hydrological regime	-	-				Minor level of impact. Reduction of compensation flow from Lamaload reservoir from 2.1 Ml/d to 1.8 Ml/d, a reduction of 0.3 Ml/d. (Note: Total reduction for the reservoir	
ts for	River continuity				Installation of new automatic penstock arrangements.		Aquator group assumed to take place in this water body.)	
elemer	Morphological conditions	-			No or minimal impact.	High	The ALS shows that the part of the surface water body which contains the reservoir and its upstream catchment has no water available Q30 to Q70, and limited water available at Q95. Downstream of the reservoir, the water body has limited water	Medium
WFD co-chemical	General physico-chemical	Moderate	Good by 2027				available at all flows. Given the small reduction in compensation releases, and assuming low flow compensation flows would be maintained, any impacts would be localised and temporary.	
Physi	Specific pollutants:	-						
D its for irs:	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements f Rivers: Chemica	Priority substances	Does not require assessment	Does not require assessment					
all s\ tial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
	Overall	Moderate	Good by 2027	N/A				

- Assumptions

 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \war-fs1.global.amec.com/shared/Projects\38671 UU WRMP Support\5 Design\Feasible Options\Regional\WR159\WR159_Compensation control - Group 1.docx

EA Abstraction Licence Strategy (Upper Mersey): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300491/LIT_7883_7c60f1.pdf

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	Water body ID:		GB102076070690	Scheme:	Group 1 - Improved r	reservoir compensation	on release control – WET SLEDDALE	
	Water body Name:		Lowther (Upper)	Scheme Phase:		WR15		
	RBMP:		Solway Tweed	Reference:	Construction		Operational	
	Operational catchment:		Eden and Esk	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water b	odies:	Swindale Beck (Lowther)					
	Downstream water bodies:		Lowther (Lower)					
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
al	Macrophytes and phytobenthos	-	Not assessed					
ologic	Benthic invertebrates	High	Good by 2015					
rs: Ec	Fish	High	Good by 2015				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Wet Sleddale reservoir	
or Rive	Hydrological regime	-	Not assessed				from 7.8 Ml/d to 7.4 Ml/d, a reduction of 0.4 Ml/d. The ALS shows that the surface water body has no water available at any flow.	
nents fo	River continuity				Installation of new automatic penstock arrangements. No or minimal impact.	High	However, the reduction is small compared to the total compensation release, and the heavily modified water body (HMWB) investigations undertaken by UU and the EA or this water body have not identified any problems with fish passage, downstream flow, downstream habitat/morphology, or downstream water quality, taking both actual and consented compensation flows into account. As such, the reduction in flows are	High
WFD elem	Morphological conditions	-						
WI sico-	General physico-chemical	All high	Good by 2015				unlikely to have prolonged or widespread effects of the hydrological regime of the surface water body.	
Phy	Specific pollutants:	-						
WFD ements for ivers:	Priority hazardous substances	Does not require assessment	Does not require assessment					
elem fc Riv	Priority substances	Does not require assessment	Does not require assessment					
iai s iii	Ecological	Moderate	Good by 2021	N/A				
Overall Status\	Chemical	Good	Good by 2015	N/A				
0 20 5	Overall	Moderate	Good by 2021	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharged within the same water body.

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \war-fs1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options/Regional/WR159/WR159_Compensation control - Group 1.docx

EA Abstraction Licence Strategy (Eden and Esk): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300486/LIT_7889_1384b1.pc

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	Water body ID:		GB112069064580	Scheme:	Group 1 - Improved reservoir of		e control – WAYOH, ENTWISTLE & JUMBLES	
	Water body Name:		Bradshaw Brook	Scheme Phase:		WR15	9	
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Croal Irwell	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	dies:						
	Downstream water bodies:		Tonge					
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-					Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Wayoh, Entwistle and Jumbles reservoirs from 24.3 Mild to 23.6 Mild, a reduction of 0.7 Mild. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
>	Macrophytes and phytobenthos	Moderate	Good by 2027					
gical	Benthic invertebrates	Good	Good by 2015					
rs: Ecolo	Fish	Good	Good by 2015					
for River	Hydrological regime	-	-				The ALS shows that the part of the surface water body which contains the Turton and	
ts for	River continuity						Entwistle Reservoir and the Wayoh Reservoir and the reservoirs upstream catchments has no water available at any flows. The part of the water body downstream of the Wayoh reservoir (including the Jumbles reservoir) has water	
elemen	Morphological conditions	-			Installation of new automatic penstock arrangements. No or minimal impact.	High	available at low flows (Q95 and Q70), but no water available at high flows (Q50 and Q30). It is likely the compensation flows from the reservoirs help to maintain water availability at low flows, and as such a reduction in the compensation flow could effect the hydrological regime of the surface water body and cause a reduction in ecological status. However given the small reduction in compensation releases compared to the	Medium
WFD	General physico-chemical	Good	Good by 2015					
Physic	Specific pollutants:	-					total volume, and assuming low flow compensation flows would be maintained, any impacts would be localised and temporary.	
D ts for rs: ical	Priority hazardous substances	Good	Good by 2015					
WFD elements Rivers: Chemica	Priority substances	Good	Good by 2015					
all st tial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
- 0, 5	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \war-fs1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Regional\WR159\WR159_Compensation control - Group 1.docx
EA Abstraction Licence Strategy (\Northern Manchester): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300488/LIT_7849_fa7980.pdf

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				GB112069064570	Scheme:	Group 1 - Improved re	eservoir compensation re	ease control – DELPH & SPRINGS DINGLE	
		Water body Name:		Eagley Brook	Scheme Phase:		WR15	9	
		RBMP:		North West	Reference:	Construction		Operational	
		Operational catchment:		Croal Irwell	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily Modified					
		Relevant upstream water bo							
		Downstream water body(ies	3)	Tonge					
		WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
) j	Macrophytes and phytobenthos	Good	Good by 2015				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Delph and Springs Dingle	
gical	Biology	Benthic invertebrates	Good	Good by 2015				reservoirs from 24.3 M/d to 23.6 M/d, a reduction of 0.7 M/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
rs: Ecolo		Fish	Moderate	Moderate by 2015				The ALS shows that: The part of the surface water body that contains the Springs reservoir and its upstream catchment has no water available at any flows.	
. Rive	polor	Hydrological regime	-	-				The part of the surface water body that contains the Dingle reservoir and its upstream catchment has water available at low flows (Q95 and Q70), limited water available at	
ts for	norpł y	River continuity				Installation of new automatic penstock arrangements.		medium flows (Q50), and no water available at high flows (Q30). The part of the surface water body that contains the Delph reservoir and its upstream	
elemen	Hydror	Morphological conditions	-			Installation of new automatic penstock arrangements. No or minimal impact.	High	catchment has water available at low flows (Q95 and Q70), and no water available a higher flows (Q50 and Q30). The remaining part of the catchment, downstream of the reservoirs has water available at how flows (Q95 and Q70), limited water available at medium flows (Q50), and no water available at high flows (Q30). It is likely the compensation flows from the reservoirs help to maintain water	Medium
WFD	-chemical	General physico-chemical	Moderate	Good by 2027					
	Physico	Specific pollutants:	-					availability at low flows, and as such a reduction in the compensation flow could effect the hydrological regime of the surface water body and cause a reduction in ecological status. However given the small reduction in compensation releases compared to the	
D ts for rs:	ical	Priority hazardous substances	Does not require assessment	Does not require assessment				total volume, the availability of water at lower flows, and assuming low flow compensation flows would be maintained, any impacts would be localised and temporary.	
WFD elements fo Rivers:	Chem	Priority substances	Does not require assessment	Does not require assessment				, , , , ,	
li si	9	Ecological	Moderate	Good by 2027	N/A				
Overall Status\	liano.	Chemical	Good	Good by 2015	N/A				
0 00 0	L	Overall	Moderate	Good by 2027	N/A				

Assumptions

1 - Application of standard best practice construction and pollution prevention methods.
2 - Ppe lines will cross water courses with existing road-ways where possible to limit the amount of new watercourse crossings.
3 - Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \war-fs1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Regional\WR159\WR159_Compensation control - Group 1.docx
EA Abstraction Licence Strategy (\Northern Manchester): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300488/LIT_7849_fa7980.pdf

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		Water body Name:		GB112069064710	Scheme:	Group 1 - Improved reservoir compensation release	control - ASHWOF	RTH MOOR, GREENBOOTH, LOWER NADEN AND MIDDLE NADEN	
				Naden Brook	Scheme Phase:	<u> </u>	WR15	59	
		RBMP:		North West	Reference:	Construction		Operational	
		Operational catchment:		Roch Irk Medlock	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily Modified					
		Relevant upstream water bo	odies:	-					
		Downstream water bodies:		Roch (Spodden to Irwell)					
		WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
	25	Macrophytes and phytobenthos	Good	Good by 2015				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Ashworth Moor, Greenbooth, Lower and Middle Naden reservoirs from 18.9 Mid to 18.0 Mid., a reduction of 0.9 Mid. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.) The ALS shows that:	
gical	Biolog	Benthic invertebrates	Good	Good by 2015					
s: Ecolo		Fish	-	-					
Rive	polor	Hydrological regime	-	-				The part of the surface water body that contains the Ashworth Moor reservoir and its	
ts for	norpł v	River continuity						immediate catchment has no water available at any flows. The part of the surface water body that contains the Greenboth and Naden reservoirs and their upstream catchments has water available at low flows (Q95 and Q70), and	
elemen	elements Hydromol	Morphological conditions	-			Installation of new automatic penstock arrangements. No or minimal impact.	High	no water available at higher flows (Q50 and Q30). The remaining part of the catchment, downstream of the reservoirs has water	Medium
WFD	co-chemical	General physico-chemical	Good	Good by 2015				available at low flows (Q95 and Q70), limited water available at higher flows (Q50 and Q30). It is likely the compensation flows from the reservoirs help to maintain water availability at low flows, and as such a reduction in the compensation flow could effect	
	Physic	Specific pollutants:	-					the hydrological regime of the surface water body and cause a reduction in ecological status. However given the small reduction in compensation releases compared to the overall compensation release, and assuming low flow compensation flows would be	
D ts for	rs: iical	Priority hazardous substances	Does not require assessment	Does not require assessment				maintained, any impacts would be localised and temporary.	
WF	elements Rivers Chemic	Priority substances	Does not require assessment	Does not require assessment					
= 15	tial	Ecological	Moderate	Moderate by 2015	N/A				
Overall Status\	oten	Chemical	Good	Good by 2015	N/A				
	а.	Overall	Moderate	Moderate by 2015	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \war-fs1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Regional\WR159\WR159_Compensation control - Group 1.docx
EA Abstraction Licence Strategy (\Northern Manchester): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300488/LIT_7849_fa7980.pdf

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		Water body ID:		GB112069064730	Scheme:	Group 1 - Improved reser	rvoir compensation r	release control – SPRING MILL & COWM	
		Water body Name:		Spodden	Scheme Phase:	Group 1 - Improved reser	WR15		
		RBMP:		North West	Reference:	Construction	.,,,,,	Operational	
		Operational catchment:		Roch Irk Medlock	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily Modified	impact potential.				
		Relevant upstream water bo	dies:	-					
		Downstream water bodies:		Roch (Spodden to Irwell)					
		WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
	2	Macrophytes and phytobenthos	Moderate	Good by 2027				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Spring Mill and Cown reservoirs from 18.9 Mild to 18.0 Mild, a reduction of 0.9 Mild. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.) The ALS shows that:	
gical	Biolog	Benthic invertebrates	-	-		Installation of new automatic penstock arrangements. No or minimal impact.			
rs: Ecolo		Fish	Moderate	Good by 2027					
Rive	polor	Hydrological regime	-	-				The part of the surface water body that contains the Spring Mill reservoir and its upstream catchment has no water available at lower flows (Q95 and Q70), and limited	
ts for	norpł y	River continuity						water available at higher flows (Q50 and Q30). The part of the surface water body that contains the Cowm reservoir and its upstream	
elemen	Hydron	Morphological conditions	-				High	catchment has no water available at low flows (Q95 and Q70), but water available at higher flows (Q50 and Q30). The remaining part of the catchment, downstream of the reservoirs has no water	Medium
WFD	co-chemical	General physico-chemical	Good	Good by 2015				available at low flows (Q95 and Q70), but water available at higher flows (Q50 and Q30). A reduction in the compensation flow could effect the hydrological regime of the surface water body and cause a reduction in ecological status. However given the	
	Physic	Specific pollutants:	-					small reduction compared to the overall compensation release, and assuming low flow compensation flows would be maintained, any impacts would be localised and	
D its for	ical	Priority hazardous substances	Does not require assessment	Does not require assessment				temporary.	
WF	WFD elements Rivers Chemic	Priority substances	Does not require assessment	Does not require assessment					
all st	tial	Ecological	Moderate	Good by 2027	N/A	·	•		
Overa	Q 25 50	Chemical	Good	Good by 2015	N/A				
		Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID:		GB112069064720	Scheme:	Group 1 - Improved reservoir co	mpensation release of	control – WATERGROVE & BLACKSTONE EDGE	
	Water body Name:		Roch (Source to Spodden)	Scheme Phase:		WR15		
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Roch Irk Medlock	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	dies:	-					
	Downstream water bodies:		Roch (Spodden to Irwell)					
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
25	Macrophytes and phytobenthos	Moderate	Good by 2027					
gical	Benthic invertebrates	Good	Good by 2015		Installation of new automatic penstock arrangements.			
's: Ecolo	Fish	Moderate	Good by 2027				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Watergrove Reservoir	
River	Hydrological regime	-	-				from 18.9 Ml/d to 18.0 Ml/d, plus reduction of compensation flow from Blackstone Edge Reservoir from 16.8 Ml/d to 15.7 Ml/d. Total combined reduction of 2 Ml/d. (Note: Total reduction for the reservoir Aquator groups assumed to take place in this	
nts for	> River continuity						(Note: 1 trail reduction for the reservoir Aquator groups assumed to take place in this water body.)	
elemen	Morphological conditions	-			No or minimal impact.	High	The ALS shows that the surface water body has no water available at any flow. However, the heavily modified water body (HMWNB) investigations undertaken by UU and the EA on this water body have not identified any problems with fish passage, downstream flow downstream habitation-phology, or downstream water quality, taking both actual and consented compensation flows into account. As such he reduction in flows are unlikely to have prolonged or widespread effects of the hydrological regime of the surface water body.	High
WFD .	General physico-chemical	High	Good by 2015					
Physic	Specific pollutants:	-						
D ts for rs: ical	Priority hazardous substances	Good	Good by 2015					
WFD elements Rivers: Chemica	Priority substances	Good	Good by 2015					
all s/ iial	Ecological	Moderate	Good by 2027	N/A	·	•		
Overall Status\	Chemical	Good	Good by 2015	N/A				
	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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		er body ID:		GB112071065090	Scheme:	Group 1 - Improved reservoir compe		rol – HURSTWOOD, CANT CLOUGH, SWINDEN 1 & 2	
		er body Name:		Brun - headwaters to conf Don	Scheme Phase:		WR15		
	RBMF	MP:		North West	Reference:	Construction		Operational	
	Opera	rational catchment:		Calder	Impact potential:	Direct		Direct	
	Desig	ignation (and uses):		Heavily Modified					
	Relev	evant upstream water bo	dies:	-					
	Down	instream water bodies:		Brun - conf Don to conf Calder					
	WFD	D Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
		tobenthos	-						
	Macro	rophytes	-						
		rophytes and tobenthos	Good	Good by 2015					
gical	Benth	thic invertebrates	-	-				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Hurstwood, Cat Clough,	
s: Ecolo	Fish	1	Good	Good by 2015				and Swinden reservoirs from 9.1 MWd to 8.1 MWd, a reduction of 1.0 MWd. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
River	Hydro	rological regime	-	-				The ALS states that: The part of the surface water body that contains the Swinden reservoirs and their	
ts for	River	er continuity						upstream catchment has no water available at any flows. The part of the surface water body that contains the Hurstwood and Cant Clough	
	Hydron Morbi	phological conditions	-			Installation of new automatic penstock arrangements. No or minimal impact.	High	reservoirs and their upstream catchments has water available at low flows (Q95 ar Q70), but no water available at higher flows (Q50 and Q30).	Medium
WFD	Gene	eral physico-chemical	High	Good by 2015				The remaining part of the catchment, downstream of the reservoirs has water available at now flows (Q95), limited water available at medium flows (Q70), and no water available at higher flows (Q50 and Q30). It is likely that compensation flows from the reservoirs are supporting the low flow water availability.	
	Speci	cific pollutants:	-					A reduction in the compensation flow is could effect the hydrological regime of the surface water body and cause a reduction in ecological status, however given the availability of water at low flows, the impacts would be localised and temporary.	
D ts for			Does not require assessment	Does not require assessment				draws and a control of the suppose would be seemed and emporery.	
WFD elements i Rivers:	Priori		Does not require assessment	Does not require assessment					
= 18 i	Ecolo	logical	Moderate	Good by 2027	N/A				
erall atus\	Chem	mical	Good	Good by 2015	N/A				

- Assumptions

 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities. 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \war-fs1.global.amec.com/shared/Projects\38671 UU WRMP Support\5 Design\Feasible Options\Regional\WR159\WR159_Compensation control - Group 1.docx

EA Abstraction Licence Strategy (Ribble, Douglas and Crossens): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300484/LIT7919v3_f881c4.pdf

Good by 2027

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	Water body ID:		GB112071065210	Scheme:	Group 1 - Improved reserv		tion release control - LANESHAW	
	Water body Name:		Colne Water (Laneshaw)	Scheme Phase:		WR159		·
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Colne Water	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	odies:	-					
	Downstream water bodies:		Colne Water - Laneshaw to Trawden Bk					
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good	Со	onfidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
æ	Macrophytes and phytobenthos	High	Good by 2015					
gical	Benthic invertebrates	Good	Good by 2015				Reduction in compensation flows due to new penstock arrangements.	
s: Ecolo	Fish	Moderate	Good by 2027				Minor level of impact. Reduction of compensation flow from Laneshaw reservoir from 9.1 Ml/d to 8.1 Ml/d, a reduction of 1.0 Ml/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
for River	Hydrological regime	-	-				The ALS states that: The part of the surface water body that contains the Laneshaw reservoir and its	
nts for morph	River continuity				Installation of new automatic penstock arrangements.		upstream catchment has water available at all flows apart from Q70 when there is limited water available.	
elemen	Morphological conditions	-			No or minimal impact.	High	The remaining part of the catchment, downstream of the reservoir has no water available at low flows (Q95 and Q70), limited water available at medium flows (Q50), and water available at high flows (Q30).	High
WFD	General physico-chemical	Good	Good by 2015				The heavily modified water body (HMWB) investigations undertaken by UU and the EA on this water body have not identified any problems with fish passage, downstream flow, downstream habitat/morphology, or downstream water quality, taking both actual and consented compensation flows into account. As such, the	
Physic	Specific pollutants:	-					reduction in flows are unlikely to have prolonged or widespread effects of the hydrological regime of the surface water body.	
D ts for rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements Rivers: Chemica	Priority substances	Does not require assessment	Does not require assessment					
sl sl tial	Ecological	Moderate	Good by 2027	N/A				•
Overall Status\	Chemical	Good	Good by 2015	N/A				
	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.
2- Pipe lines will cross water courses with existing readways where possible to limit the amount of new watercourse crossings.
3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID:		GB112071065130	Scheme:	Group 1 - Improved reservo	ir compensation rele	ase control – COLDWELL UPPER & LOWER		
	Water body Name:		Walverden Water	Scheme Phase:		WR15	R159		
	RBMP:		North West	Reference:	Construction		Operational		
	Operational catchment:		Colne Water	Impact potential:	Direct		Direct		
	Designation (and uses):		Heavily Modified						
	Relevant upstream water bo	dies:	-						
	Downstream water bodies:		Calder - Pendle Water to conf Ribble						
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence	
	Phytobenthos	-							
	Macrophytes	-							
	Macrophytes and phytobenthos	Moderate	Good by 2027						
gical	Benthic invertebrates	-	-				Reduction in compensation flows due to new penstock arrangements.		
rs: Ecolo	Fish	Good	Good by 2015				Minor level of impact. Reduction of compensation flow from Coldwell Upper and Lower reservoirs from 9.1 Mi/d to 8.1 Mi/d, a reduction of 1.0 Mi/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)		
₩ 2	Hydrological regime	-	-				The ALS states that:		
Is for	River continuity						The part of the surface water body that contains the Coldwell Upper reservoir and its upstream catchment has water available at all flows.		
elemen	Morphological conditions	-			Installation of new automatic penstock arrangements. No or minimal impact.	High	The part of the surface water body that contains the Coldwell Lower reservoir and its upstream authment has water available at low flows (G95), but restricted water available at low flows (G95), but restricted water availabling that medium to high flows (G70 to G30). The remaining part of the authment, downstream of the reservoirs has water available at all flows. Given the availability of water in the downstream catchment, and assuming low flow compensation flows would be maintained, any impacts of the hydrological regime of	Medium	
WFD	General physico-chemical	Moderate	Good by 2027						
	Specific pollutants:	-					the water body would be localised and temporary.		
s for	Priority hazardous substances	Does not require assessment	Does not require assessment						
WFD elements Rivers:	Priority substances	Does not require assessment	Does not require assessment						
all st iial	Ecological	Moderate	Good by 2027	N/A		•			
Overall Status\	Chemical	Good	Good by 2015	N/A					
	Overall	Moderate	Good by 2027	N/A					

Assumptions

1- Application of standard best practice construction and pollution prevention methods.
2- Pipe lines will cross water courses with existing readways where possible to limit the amount of new watercourse crossings.
3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	1	Water body ID:		GB112071065230	Scheme:	Group 1 - Improved reser	voir compensation re	lease control – OGDEN UPPER & LOWER	
		Water body Name:		Pendle Water - headwaters to Colne Water	Scheme Phase:		WR15		
	Ī	RBMP:		North West	Reference:	Construction		Operational	
	1	Operational catchment:		Colne Water	Impact potential:	Direct		Direct	
	Ī	Designation (and uses):		not designated artificial or heavily modified					
	Ī	Relevant upstream water bo	dies:	-					
	Ī	Downstream water bodies:		Pendle Water - Colne Water to Walverden Water	r				
		WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
		Macrophytes and phytobenthos	Good	Good by 2015				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Ogden Upper and Lower reservoirs from 9.1 Mild to 8.1 Mild, a reduction of 1.0 Mild. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.) The ALS states that:	
igical	Biolog	Benthic invertebrates	High	Good by 2015		Installation of new automatic penstock arrangements.			
rs: Ecolo	ı	Fish	Good	Good by 2015					
r Rive	holog	Hydrological regime	Supports Good	Supports Good by 2015				The part of the surface water body that contains the Ogden Reservoirs and their immediate catchment has no water available at all flows.	
nts fo	y y	River continuity						Most of the remaining part of the catchment, downstream of the reservoirs has water available at the lowest flows (Q95), no water available at low flows (Q70), restricted water available at medium flows (Q50), and water available at high flows (Q30). It is	
elemel	Hydro	Morphological conditions	Supports Good			No or minimal impact.	High	likely that the compensation flows from the Ogden reservoirs are supporting the water variability at the lowest flows. In addition there is water available at all flows in areas associated with the headwaters of the water body. The heavily modified water body (HMWB) investigations undertaken by UU and the EA on this water body have not identified any problems with fish passage, downstream flow, downstream habital/morphology, or downstream flow, downstream habital/morphology or downstream water quality,	High
WFD	co-chemical	General physico-chemical	Good	Good by 2015					
	Physi	Specific pollutants:	-					taking both actual and consented compensation flows into account. As such, the reduction in flows are unlikely to have prolonged or widespread effects of the	
D ts for rrs:	<u></u>	Priority hazardous substances	Does not require assessment	Does not require assessment				hydrological regime of the surface water body.	
WFD elements Rivers:	Chem	Priority substances	Does not require assessment	Does not require assessment					
all s\		Ecological	Good	Good by 2015	N/A				
Overall Status\	-	Chemical	Good	Good by 2015	N/A				
		Overall	Good	Good by 2015	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID: Water body Name:		GB112071065140	Scheme:	Group 1 - Improved re	servoir compensation	on release control - CHURN CLOUGH		
	Water body Name:		Sabden Brook	Scheme Phase:		WR15			
	RBMP:		North West	Reference:	Construction		Operational		
	Operational catchment:		Calder	Impact potential:	Direct		Direct		
	Designation (and uses):		not designated artificial	or heavily modified					
	Relevant upstream water bo	odies:							
	Downstream water bodies:								
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence	
	Phytobenthos	-							
	Macrophytes	-							
2	Macrophytes and phytobenthos	Good	Good by 2015						
gical	Benthic invertebrates	Good	Good by 2015						
rs: Ecolo	Fish	-	-				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Churn Clough reservoir		
or River	Hydrological regime	Supports Good	Supports Good by 2015		Installation of new automatic penstock arrangements.		from 9.1 MVd to 8.1 MVd, a reduction of 1.0 MVd. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)		
its for morph	River continuity						The ALS shows that the surface water body generally has water available at all flows,		
elemer	Morphological conditions	Supports Good			No or minimal impact.	High	(Q95, Q70, Q50 and Q30). A small part of the water body which includes the reservoir and its upstream catchment has limited water at high flows (Q30), but wait	Medium	
WFD co-chemical	General physico-chemical	Good	Good by 2015				available at low and medium flows. Given the small reduction in compensation releases, that water is available across the surface water body downstream of the reservoir at all flows, and assuming low flow compensation flows would be maintained, any impacts would be localised and temporary.		
Physic	Specific pollutants:	-							
D ts for rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment						
WFD elements Rivers:	Priority substances	Does not require assessment	Does not require assessment						
all s/ tial	Ecological	Good	Good by 2015	N/A					
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A					
	Overall	Good	Good by 2015	N/A					

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities. 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \war-fs1.global.amec.com/shared/Projects\38671 UU WRMP Support\5 Design\Feasible Options\Regional\WR159\WR159_Compensation control - Group 1.docx

EA Abstraction Licence Strategy (Ribble, Douglas and Crossens): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300484/LIT7919v3_f881c4.pdf

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	Water body ID:		GB112071065390	Scheme:	Group 1 - Improve	ed reservoir compen	sation release control – STOCKS	
	Water body Name:		Hodder- Stocks Reservoir to conf Croasdale Bk	Scheme Phase:		WR15	9	
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Ribble	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily modified Bottoms Beck and Hodder					
	Relevant upstream water bo	odies:	headwaters to Stocks Reservoir					
	Downstream water bodies:		Hodder- conf Croasdale Bl	to conf Easington Bk				
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
gy	Phytobenthos Macrophytes Macrophytes and	-						
Biolo	phytobenthos	High	Good by 2015				Reduction in compensation flows due to new penstock arrangements.	
	Benthic invertebrates Fish	High	Good by 2015 Not assessed				Minor level of impact. Reduction of compensation flow from Stocks reservoir from 19.2 Ml/d to 18.1 Ml/d, a reduction of 1.1 Ml/d. (Note: Total reduction for the reservoir	
ology	Hydrological regime	-	Not assessed Not assessed				19.2 Mild to 18.1 Mild, a reduction of 1.1 Mild, (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.) The ALS shows that the surface water body has water available at low flows (Q95).	
omorph	River continuity				Installation of new automatic penstock arrangements.	High	but no water available at medium and high flows (Q70, Q50 and Q30). It is likely that the compensation release from the reservoir is supporting the water availability at low flows.	High
Hydr	Morphological conditions	-			No or minimal impact.	ingii	However, the reduction is relatively small compared to the total compensation	riigii
sico-	General physico-chemical	All high	Good by 2015				release, and the heavily modified water body (HMWB) investigations undertaken by UU and the EA on this water body have not identified any problems with fish passage, downstream flow, downstream habitat/morphology, or downstream water quality,	
Phy	Specific pollutants:	All high	High by 2015				taking both actual and consented compensation flows into account. As such, the reduction in flows are unlikely to have prolonged or widespread effects of the	
Rivers: nemical	Priority hazardous substances	Good	Good by 2015				hydrological regime of the surface water body.	
for R Cher	Priority substances	Good	Good by 2015					
ıs\ tial	Ecological	Moderate	Good by 2021	N/A				
Status\ Potential	Chemical	Good	Good by 2015	N/A				
	Overall	Moderate	Good by 2021	N/A				

Assumptions

Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

Evidence

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		Water body ID:		GB112069064690	Scheme:	Group 1 - Improved reservoir compensation release conf	trol - PIETHORNE, NO	DRMAN HILL, KITCLIFFE, OGDEN MILNROW, HANGING LEES & ROODEN	
		Water body Name:		Beal	Scheme Phase:		WR15	9	
		RBMP:		North West	Reference:	Construction		Operational	
		Operational catchment:		Roch Irk Medlock	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily Modified					
		Relevant upstream water bo	odies:						
		Downstream water bodies:							
		WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
	>	Macrophytes and phytobenthos	Moderate	Good by 2027					
gical	Biology	Benthic invertebrates	Moderate	Moderate by 2015					
s: Ecolog		Fish	Moderate	Good by 2027		Installation of new automatic penstock arrangements.		Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Piethorne, Norman Hill,	
River	lolog	Hydrological regime	-	-				Kitcliffe, Ogden Milnrow, Hanging Lees and Rooden reservoirs from 16.8 Ml/d to 15.7 Ml/d, a reduction of 1.1 Ml/d. (Note: Total reduction for the reservoir Aquator group	
ts for	norph y	River continuity						assumed to take place in this water body.)	
elemen	Hydror	Morphological conditions	-			installation of new automatic peristock arrangements. No or minimal impact.	High	The ALS shows that the surface water body has no water available at all flows (QSS Q70, Q50 and Q30). However, the heavily modified water body (HAWP) investigations undertaken by UU and the EA on this water body have not identified any problems with fish passage, downstream flow, downstream habitat/morphology or downstream water quality, taking both actual and consented compensation flows into account. As such, the reduction in flows are unlikely to have prolonged or widespread effects of the hydrological regime of the surface water body.	High
WFD	o-chemical	General physico-chemical	Good	Good by 2015					
	Physic	Specific pollutants:	-						
S for	<u> </u>	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements fo Rivers:	Chem	Priority substances	Does not require assessment	Does not require assessment					
= 1S	lia.	Ecological	Moderate	Good by 2027	N/A				
Overall Status\	oten	Chemical	Good	Good by 2015	N/A				
	_	Overall	Moderate	Good by 2027	N/A				

Assumptions

1 - Application of standard best practice construction and pollution prevention methods.
2 - Ppe lines will cross water courses with existing road-ways where possible to limit the amount of new watercourse crossings.
3 - Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID:		GB104027062600	Scheme:	Group 1 - Improved reservoir compen		ol – WARLAND, WHITE HOLME, AND LIGHT HAZZLES	
	Water body Name:		Walsden Water from Source to River Calder	Scheme Phase:		WR15		
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Calder Upper	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water be	odies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
2	Macrophytes and phytobenthos	Good	Good by 2027					
gical	Benthic invertebrates	Good	Good by 2015				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Warland, White Holme	
rs: Ecolo	Fish	Good	Good by 2015				and Light Hazzles reservoirs from 16.8 Ml/d to 15.7 Ml/d, a reduction of 1.1 Ml/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
Rive	Hydrological regime	-					The ALS shows that the part of the surface water body that contains the reservoirs and their upstream catchments has no water available at lower flows (Q95 and Q70),	
ts for	River continuity				Installation of new automatic penstock arrangements.		imited water available at medium flows (Q50), and water available at high flows (Q50). Most of the remaining part of the catchment, downstream of the reservoirs has	
elemen	Morphological conditions	-			No or minimal impact.	High	water available at all flows (there is a small area in the west of the waterbody associated with another reservoir not included in this assessment that has limited	Medium
WFD	General physico-chemical	All high, except Phosphate which is Moderate	Good by 2027				water availability at all flows). A reduction in the compensation flow could effect the hydrological regime of the surface water body and cause a reduction in ecological status. However, give the relatively small size of the reduction compared to the overall compensation release,	
Physi	Specific pollutants:	High					the availability of water in the surface water body as a whole, and assuming low flow compensation flows would be maintained, any impacts would be localised and temporary.	
D ts for rs: ical	Priority hazardous substances	Good	Good by 2015				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
WFD elements Rivers: Chemica	Priority substances	Good	Good by 2015					
all st	Ecological	Moderate	Good by 2027	N/A				
Overall Status\	Chemical	Good	Good by 2015	N/A				
	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.
2- Pipe lines will cross water courses with existing readways where possible to limit the amount of new watercourse crossings.
3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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		Water body ID:		GB112069064741	Scheme:	Group 1 - Improved reservoir compensation release control - CA		& LOWER, READYCON DEAN, CROOKGATE, DOWRY AND NEW YEARS BRIDGE	·
		Water body Name:		Tame (Source to Chew Brook)	Scheme Phase:		WR15		
		RBMP:		North West	Reference:	Construction		Operational	
		Operational catchment:		Goyt Etherow Tame	Impact potential:	Direct		Direct	·
	1	Designation (and uses):		Heavily Modified					
	Ī	Relevant upstream water bo	dies:						
	Ī	Downstream water bodies:							
		WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
	Ī	Macrophytes	-						
		Macrophytes and phytobenthos	Good	Good by 2015					
gical	Biolog	Benthic invertebrates	Good	Good by 2015		Installation of new automatic penstock arrangements.		Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Castleshaw Upper and Lower, Readycon Dean, Crookgate, Downy and New Years Bridge reservoirs from 16.8 Ml/d to 15.7 Ml/d, a reduction of 1.1 Ml/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.) The ALS states that:	
s: Ecolo	ı	Fish	Moderate	Good by 2027					
River	olog	Hydrological regime	-	-				The part of the surface water body that contains the Readycon Dean, Crookgate,	
ts for	y y	River continuity						Dowry and New Years Bridge reservoirs and their upstream catchment has no water available at any flows.	
	Hydron	Morphological conditions	-			installation of new automatic penstock arrangements. No or minimal impact.	High	The part of the surface water body that contains the Castleshaw Upper and Lower reservoirs and their upstream catchment has water available at the flows (Q95 and Q70), but no water available at medium to high flows (Q50 to Q30).	Medium
WFD	o-chemical	General physico-chemical	Good	Good by 2015				The remaining part of the catchment, downstream of the reservoirs has water available at low and medium flows (Q95. Q70, and Q50) but no water available at high flows (Q30). It is likely that compensation flows from the reservoirs maintain the low and medium flows.	
	Physic	Specific pollutants:	-					The reduction in compensation flows could have an impact on the hydrological regime of the river, however given that water is generally available across the surface water body, and assuming low flow compensation flows would be maintained, any	
) ts for 's:		Priority hazardous substances	Does not require assessment	Does not require assessment				impacts would be localised and temporary.	
WFD elements t	Chem	Priority substances	Does not require assessment	Does not require assessment					
ial se		Ecological	Moderate	Good by 2027	N/A				
Overall Status\		Chemical	Good	Good by 2015	N/A				
0 8 5		Overall	Moderate	Good by 2027	N/A				

- Assumptions

 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2027

- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \war-fs1.global.amec.com/shared/Projects\38671 UU WRMP Support\5 Design\Feasible Options\Regional\WR159\WR159_Compensation control - Group 1.docx

EA Abstraction Licence Strategy (Upper Mersey): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300491/LIT_7883_7c60f1.pdf

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		Water body ID:		GB112069061300	Scheme:	Group 1 - Improved reservoir compensa	ation release control	- GREENFIELD, YEOMAN HEY, DOVESTONE & CHEW	
		Water body Name:		Chew Brook	Scheme Phase:		WR15	9	
		RBMP:		North West	Reference:	Construction		Operational	
		Operational catchment:		Goyt Etherow Tame	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily Modified					
		Relevant upstream water bo	odies:						
		Downstream water bodies:							
		WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
		Macrophytes and phytobenthos	-	-					
gical	Biology	Benthic invertebrates	Good	Good by 2015				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Greenfield, Yeoman Hey,	
rs: Ecolo		Fish	Moderate	Good by 2027				Dovestone, and Chew reservoirs from 20.7 M/ld to 19.5 M/ld, a reduction of 1.2 M/ld. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
Rive	golor	Hydrological regime	-	-				The ALS shows that the at medium and high flows (Q70, Q50 and Q30), there is no water available across the surface water body. At Q95 there is no water available in	
Ď	orpt	River continuity						the part of the catchment that includes the Greenfield and Yeoman Hay reservoirs	
ş	을 >	Tuver community				Installation of new automatic penstock arrangements.		and their upstream catchment, but water is available in the downstream part of the	
elemer	Hydro	Morphological conditions	-			No or minimal impact.	High	water body and the tributary that includes the Chew Reservoir. It is likely that compensation releases from the reservoirs support the water availability at low flows.	High
WFD	co-chemical	General physico-chemical	Good	Good by 2015				The heavily modified water body (HMWB) investigations undertaken by UU and the EA on this water body have not identified any problems with downstream flow, downstream habitat/morphology, or downstream water quality, taking both actual and conserted compensation flows into account. Fish passage was identified as an issue	
	Physic	Specific pollutants:	-					but this option is not making any changes to fish pass arrangements. As such, the reduction in flows are unlikely to have prolonged or widespread effects of the hydrological regime of the surface water body.	
s for	cal	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements fo	Chemi	Priority substances	Does not require assessment	Does not require assessment					
= 16	<u> </u>	Ecological	Moderate	Good by 2027	N/A				
Overa	Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
0 0,		Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID:		GB112069061111	Scheme:	Group 1 - Improved reservoir compensation	release control - BF	RUSHES, WALKERWOOD & SWINESHAW HIGHER & LOWER	
	Water body Name:		Tame (Chew Brook to Swineshaw Brook)	Scheme Phase:		WR15	59	
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Goyt Etherow Tame	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water b	odies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
_	Macrophytes and phytobenthos	-	-					
gical	Benthic invertebrates	Moderate	Good by 2027				Reduction in compensation flows due to new penstock arrangements.	
rs: Ecolo	Fish	-	-					
River	Hydrological regime	-	-				Minor level of impact. Reduction of compensation flow from Brushes, Walkerwood, Swineshaw Higher and Lower reservoirs from 20.7 Ml/d to 19.5 Ml/d, a reduction of	
ts for	> River continuity				Installation of new automatic penstock arrangements. No or minimal impact.		Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
elemen	Morphological conditions	-				High	The ALS shows that the surface water body has water available at all flows (Q95, Q70, Q50 and Q30). Given the relatively small reduction compared to the total compensation release, that water is available across the surface water body at all flows, and assuming low flow compensation flows would be maintained, any impacts would be localised and temporary.	Medium
WFD el	General physico-chemical	Good	Good by 2015					
100	Specific pollutants:	-						
s for s: cal	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements Rivers: Chemica	Priority substances	Does not require assessment	Does not require assessment					
all s\ tial	Ecological	Moderate	Moderate by 2015	N/A				
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
	Overall	Moderate	Moderate by 2015	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6 Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID:	Water body ID: Water body Name: RBMP:	GB112069060970	Scheme:	Group 1 - Improve		sation release control - KINDER	
	Water body Name:		Sett	Scheme Phase:		WR15	59	
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Goyt Etherow Tame	Impact potential:	Direct		Direct	
	Designation (and uses):		not designated artificial or heavily	modified				
	Relevant upstream water be	odies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
	Macrophytes and phytobenthos	Moderate	Good by 2027					
gical	Benthic invertebrates	High	Good by 2015				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Kinder reservoir from 16.9 M/d to 15.5 M/d, a reduction of 1.4 M/d. (Nucle: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
rs: Ecolo	Fish	-	-					
	Hydrological regime	Does Not Support Good	Supports Good by 2027					,
ts for Ri	River continuity				Installation of new automatic penstock arrangements.		The ALS states that the part of the surface water body that contains the Kinder Reservoir and its upstream catchment has no water available at any flows. The	
elemen	Morphological conditions	-			installation of new automatic peristock arrangements. No or minimal impact.	High	remainder of the water body has water available at high and medium flows (Q30 and C90), but no water available at two flows (Q56 and Q70). However, the heavily modified water body (HMWB) investigations undertaken by UU and the EA on this water body have not identified any problems with fish passage, downstream flow, downstream habitation-phology, or downstream water quality, taking both actual and consented compensation flows into account. As such, the reduction in flows are unlikely to have prolonged or widespread effects of the	High
WFD	General physico-chemical	High	Good by 2015					
	Specific pollutants:	-					hydrological regime of the surface water body.	
D ts for rrs:	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements Rivers	Priority substances	Does not require assessment	Does not require assessment					
all s\ tial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\	Chemical	Good	Good by 2015	N/A				
	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID:		GB112069060850	Scheme:	Group 1 - Improved reserv		elease control – ERRWOOD & FERNILEE	
	Water body Name:		Goyt (Source to Randall Carr Brook)	Scheme Phase:		WR15		
	RBMP:		North West	Reference:	Construction	·	Operational	·
	Operational catchment:		Goyt Etherow Tame	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	odies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
>	Macrophytes and phytobenthos	Good	Good by 2015					
Biolog	Benthic invertebrates	Good	Good by 2015					
	Fish	Moderate	Good by 2027				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Errwood and Fernilee reservoirs from 16.9 Ml/d to 15.5 Ml/d, a reduction of 1.4 Ml/d. (Note: Total reduction	
golo	Hydrological regime	-	-				for the reservoir Aquator group assumed to take place in this water body.)	
omorph	River continuity				Installation of new automatic penstock arrangements.	High	The ALS states that the part of the surface water body that contains the Errwood Reservoir and its upstream catchment has no water available at any flows. The remainder of the water body (which includes the Fernilee Reservoir) has water	Mediur
Hydro	Morphological conditions	-			No or minimal impact.	rigii	available at low flows (Q95 and Q70), but no water available high and medium flows (Q30 and Q50). It is likely that the availability of water at low flows is supported by compensation releases from both reservoirs. A reduction in the compensation flow could have an effect the hydrological regime of the surface water body. However, given the size of the reduction compared to the overall compensation release, and that water is available at low flows, effects of the	Wediu
to-chemical	General physico-chemical	High	Good by 2015					
Physic	Specific pollutants:	-					hydrological regime are not expected to be prolonged or widespread.	
rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
Rive	Priority substances	Does not require assessment	Does not require assessment					
ial	Ecological	Moderate	Good by 2027	N/A				
otential	Chemical	Good	Good by 2015	N/A				

Assumptions

Overall

1- Application of standard best practice construction and pollution prevention methods.
2- Pipe lines will cross water courses with existing readways where possible to limit the amount of new watercourse crossings.
3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2027

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N/A

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID:		GB112069060920	Scheme:	Group 1 - Improved reservoir co	mpensation release	e control - BOLLINHURST & HORSE COPPICE	
	Water body Name:			Scheme Phase:	Group : - improved reservoir con	WR15		
	RBMP:		North West	Reference:	Construction	******	Operational	
	Operational catchment:		Bollin Dean Mersey Upper	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified	impact potential.	Direct.			
	Relevant upstream water bo	dies:	Tiourny mounicu					
	Downstream water bodies:	4100.						
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
×	Macrophytes and phytobenthos	-	Not assessed					
gical	Benthic invertebrates	Good	Good by 2015					
rs: Ecolog	Fish	Bad	Good by 2027				Reduction in compensation flows due to new penstock arrangements.	
River holog	Hydrological regime	-	-				Minor level of impact. Reduction of compensation flow from Bollinhurst and Horse Coppice reservoirs from 16.9 Ml/d to 15.5 Ml/d, a reduction of 1.4 Ml/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
ts for	> River continuity				Installation of new automatic penstock arrangements.		The ALS shows that the surface water body has no water available at all flows (Q95,	
elemen	Morphological conditions	-			No or minimal impact.	High	Q70, Q50 and Q30). However, the heavily modified water body (HMWB) investigations undertaken by UU and the EA on this water body have not identified	Medium
WFD o	General physico-chemical	Moderate	Good by 2027				any problems with fish passage, downstream flow, downstream habitat/morphology, or downstream water quality, taking both actual and consented compensation flows into account. As such, the reduction in flows are unlikely to have prolonged or widespread effects of the hydrological regime of the surface water body.	
Physic	Specific pollutants:	-						
D ts for rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements r Rivers: Chemica	Priority substances	Does not require assessment	Does not require assessment					
all st	Ecological	Moderate	Good by 2027	N/A				
Overall Status\	Chemical	Good	Good by 2015	N/A				
	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID:		GB112069064650	Scheme:	Group 1 - Improved reservoir co	mpensation release of	control - CALF HEY, OGDEN & HOLDEN WOOD	
	Water body Name:		Ogden	Scheme Phase:		WR15	9	
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Croal Irwell	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	dies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
2	Macrophytes and phytobenthos	-	-					
gical	Benthic invertebrates	Good	Good by 2015					
rs: Ecolog	Fish	Good	Good by 2015				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Calf Hey, Ogden and Holden Wood reservoirs from 11.3 M/d to 9.8 M/d, a reduction of 1.5 M/d. (Note:	
r Rive	Hydrological regime	-	-				Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
nts fo	River continuity				Installation of new automatic penstock arrangements.		The ALS states that the part of the surface water body that contains the Calf Hay	
elemen	Morphological conditions	-			No or minimal impact.	High	Reservoir and its upstream catchment has no water available at any flows. The remainder of the water body (which includes the Ogden and Holden Wood Reservoirs) has water available at all flows. A reduction in the compensation flow could have an effect the hydrological regime of the surface water body. However, given the size of the reduction compared to the overall compensation release, and that water is available across the flow regime, effects on the hydrological regime are not expected to be prolonged or widespread.	Medium
WFD	General physico-chemical	Moderate	Good by 2027					
Physic	Specific pollutants:	-						
D ts for rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements Rivers Chemic	Priority substances	Does not require assessment	Does not require assessment					
all st	Ecological	Moderate	Good by 2027	N/A		•		
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
_ , _	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.
2- Pipe lines will cross water courses with existing readways where possible to limit the amount of new watercourse crossings.
3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID:		GB112069064660	Scheme:	Group 1 - Improved reserv		elease control - COWPE & CRAGG HOLES	
	Water body Name:		Irwell (Source to Whitewell Brook)	Scheme Phase:		WR1		
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Croal Irwell	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water be	odies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
>	Macrophytes and phytobenthos	Good	Good by 2015					
gical	Benthic invertebrates	Moderate	Good by 2027					
rs: Ecolog	Fish	Moderate	Good by 2027				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Cowpe and Cragg Holes	
Rive	Hydrological regime	-	-				reservoirs from 11.3 Ml/d to 9.8 Ml/d, a reduction of 1.5 Ml/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
ts for	River continuity				Installation of new automatic penstock arrangements.		The ALS shows that the surface water body generally has water available at all flows (Q95, Q70, Q50 and Q30). The only exception to this is the small area of the water	
elemen	Morphological conditions	-			Installation of new automatic peristock arrangements. No or minimal impact.	High	body that contains the Cowpe Reservoir and its upstream catchment which has wat available at low flows, but not at high and medium flows (Q30 and Q50).	Medium
WFD	General physico-chemical	Moderate	Good by 2027				Given the location of the reservoir of a small downstream tributary of the Irwell, that water is available across most of the surface water body at all flows, and the relatively small reduction compared to the total compensation release, effects of the hydrological regime of the water body would be localised and temporary.	
i	Specific pollutants:	-						
D ts for rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements Rivers Chemic	Priority substances	Does not require assessment	Does not require assessment					
all s/ tial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water bo	ody ID:		GB112069064620	Scheme:	Group 1 - Improved		ition release control - SCOUT MOOR	
		ody Name:		Irwell (Rossendale STW to Roch)	Scheme Phase:		WR1		
	RBMP:			North West	Reference:	Construction		Operational	
	Operation	nal catchment:		Croal Irwell	Impact potential:	Direct		Direct	
		tion (and uses):		Heavily Modified					
		t upstream water boo	dies:						
	Downstre	eam water bodies:							
	WFD Ele	lement (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytoben								
	Macrophy		-						
	Macrophy phytoben		Moderate	Moderate by 2015					
gical	Benthic in	invertebrates	Good	Good by 2015					
rs: Ecolo	Fish		-	-				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Scout Moor reservoir from 11.3 M/d to 9.8 M/d, a reduction of 1.5 M/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
Rive	0	gical regime	Supports Good	Supports Good by 2015				The ALS shows that the surface water body generally has water available at all flows	
ts for	River con	ntinuity				Installation of new automatic penstock arrangements.		(Q95, Q70, Q50 and Q30). The only exception to this is the small area of the water body that contains the Scout Moor Reservoir and its upstream catchment which has	
	Morpholo	ogical conditions	-			installation of new automatic penstock arrangements. No or minimal impact.	High	water available at low and medium flows, but limited water available at high flows (Q30).	Medium
WFD	General p	physico-chemical	Moderate	Moderate by 2015				A reduction in compensation flow could have an impact of the hydrological regime of the water body, however, given the availability of water throughout the catchment, and the relatively small reduction compared to the total compensation release and the size of the water body as a whole, any effects of the hydrological regime of the water body	
	Specific p	pollutants:	-					would be localised and temporary.	
D ts for rs:	Priority h		Does not require assessment	Does not require assessment					
WFD elements Rivers	Priority s		Does not require assessment	Does not require assessment					
all so	Ecologica	al	Moderate	Moderate by 2015	N/A				
Overall Status\	Chemical	ıl	Good	Good by 2015	N/A				
- " -	Overall		Moderate	Moderate by 2015	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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		Water body ID:		GB112069064670	Scheme:	Group 1 - Improved re	eservoir compensation	n release control - CLOUGH BOTTOM	
		Water body Name:		Whitewell Brook	Scheme Phase:		WR15	9	
		RBMP:		North West	Reference:	Construction		Operational	
		Operational catchment:		Croal Irwell	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily Modified					
		Relevant upstream water bo	dies:						
		Downstream water bodies:							
		WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
		Macrophytes and	l-	-					
	95	phytobenthos							
ical	Biology	Benthic invertebrates	Moderate	Good by 2027					
s: Ecolog		Fish	Good	Good by 2015				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Clough Bottom reservoir	
River	lolog	Hydrological regime	-	-				from 11.3 Ml/d to 9.8 Ml/d, a reduction of 1.5 Ml/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
ts for	norph	River continuity						The ALS states that the part of the surface water body that contains the Clough	
elemen	Hydron	Morphological conditions	-			Installation of new automatic penstock arrangements. No or minimal impact.	High	Bottom Reservoir and its upstream catchment has no water available at any flows. The remainder of the water body downstream of the reservoir has water available at all flows.	Medium
WFD	co-chemical	General physico-chemical	Moderate	Good by 2027				A reduction in the compensation flow could have an effect the hydrological regime of the surface water body. However, given the size of the reduction compared to the overall compensation release, and that water is available across the flow regime, effects of the hydrological regime are not expected to be prolonged or widespread.	
	Physic	Specific pollutants:	-						
s for	- Za	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD	iver	Priority substances	Does not require assessment	Does not require assessment					
= 15	lei.	Ecological	Moderate	Good by 2027	N/A		•		
Overall Status\	otent	Chemical	Good	Good by 2015	N/A				
	п.	Overall	Moderate	Good by 2027	N/A				

Assumptions

1 - Application of standard best practice construction and pollution prevention methods.
2 - Ppe lines will cross water courses with existing road-ways where possible to limit the amount of new watercourse crossings.
3 - Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID:		GB112069064680	Scheme:	Group 1 - Improved	reservoir compensat	ion release control - CLOWBRIDGE		
	Water body Name:		Limy Water	Scheme Phase:		WR15			
	RBMP:		North West	Reference:	Construction		Operational		
	Operational catchment:		Croal Irwell	Impact potential:	Direct		Direct		
	Designation (and uses):		Heavily Modified						
	Relevant upstream water bo	dies:							
	Downstream water bodies:								
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence	
	Phytobenthos	-							
	Macrophytes	-							
25	Macrophytes and phytobenthos	Moderate	Good by 2027						
gical	Benthic invertebrates	-	-						
rs: Ecolog	Fish	-	-				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Clowbridge reservoir from 11.3 Mild to 9.8 Mild, a reduction of 1.5 Mild. (Note: Total reduction for the		
Rive	Hydrological regime	-	-				reservoir Aquator group assumed to take place in this water body.)		
ts for norph	River continuity				Installation of new automatic penstock arrangements.		The ALS states that the part of the surface water body that contains the Clow Bridge Reservoir and its upstream catchment has water available at low flows (095), but no		
elemen	Morphological conditions	-			No or minimal impact.	High	water available at medium and high flows (Q70 to Q30). The remainder of the water body downstream of the reservoir has water available at all flows. A reduction in the compensation flow could have an effect the hydrological regime of the surface water body. However, given the size of the reduction compared to the overall compensation release, and that water is available across the flow regime effects of the hydrological regime are not expected to be prolonged or widespread.	Medium	
WFD	General physico-chemical	Moderate	Good by 2027						
Physi	Specific pollutants:	-							
D ts for rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment						
WFD elements Rivers Chemic	Priority substances	Does not require assessment	Does not require assessment						
all s\ tial	Ecological	Moderate	Good by 2027	N/A	·		·		
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A					
	Overall	Moderate	Good by 2027	N/A					

Assumptions

1- Application of standard best practice construction and pollution prevention methods.
2- Pipe lines will cross water courses with existing readways where possible to limit the amount of new watercourse crossings.
3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID:		GB112069060780	Scheme:	Group 1 - Improved reservoir compensation release control -		ODHEAD, TORSIDE, RHODESWOOD, VALEHOUSE, BOTTOMS & ARNFIELD)	
	Water body Name:		Etherow (Woodhead Res. to Glossop Bk.)	Scheme Phase:		WR15		
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Goyt Etherow Tame	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	dies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
>	Macrophytes and phytobenthos	Good	Good by 2015					
Biolog	Benthic invertebrates	Good	Good by 2015					
	Fish	Poor	Moderate by 2027				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Londendale (Woodhead	
holog	Hydrological regime	-	-				Torside, Rhodeswood, Valehouse, Bottoms and Amfield) reservoirs from 48.6 Ml/d to 45.4 Ml/d, a reduction of 3.2 Ml/d. (Note: Total reduction for the reservoir Aquator	
morp	River continuity				Installation of new automatic penstock arrangements.		group assumed to take place in this water body.)	
Hydro	Morphological conditions	-			No or minimal impact.	High	The ALS shows that the surface water body has no water available at all flows (OSS, Q70, Q50 and Q30). However, the heavily modified water body (HAWB) investigations undertaken by UU and the EA on this water body have not identified any problems with fish passage, downstream flow, downstream habitat/morphology, or downstream water quality, taking both actual and consented compensation flows into account. As such, the reduction in flows are unlikely to have prolonged or widespread effects of the hydrological regime of the surface water body.	Medium
so-chemical	General physico-chemical	High	Good by 2015					
Physic	Specific pollutants:	-						
ts for rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
elements f Rivers: Chemica	Priority substances	Does not require assessment	Does not require assessment					
sl	Ecological	Moderate	Good by 2027	N/A			•	
Status\	Chemical	Good	Good by 2015	N/A				
L	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID:		GB112069061060	Scheme:	Group 1 - Improved rese	ervoir compensation	release control - AUDENSHAW 1, 2 & 3	
	Water body Name:	·		Scheme Phase:	,	WR15		·
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Bollin Dean Mersey Upper	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	dies:	-					
	Downstream water bodies:		Chorlton Brook (Princess Parkway to Me	sey)				
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
>	Macrophytes and phytobenthos	Good	Good by 2015					
gical	Benthic invertebrates	Bad	Good by 2027					
s: Ecolo	Fish						Reduction in compensation flows due to new penstock arrangements.	
River	Hydrological regime	Supports good	Supports good by 2015				Minor level of impact. Reduction of compensation flow from Audenshaw 1, 2 and 3 reservoirs from 48.6 Ml/d to 45.4 Ml/d, a reduction of 3.2 Ml/d. It is not clear which	
ts for norph	River continuity				Installation of new automatic penstock arrangements.		WFD water body would be effected by the release (this water body or Tame (Swineshaw Brook to Mersey). (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
elemen	Morphological conditions				Installation of new automatic peristock arrangements. No or minimal impact.	High	The ALS shows that the surface water body has water available at all flows (Q95,	Medium
WFD chemical	General physico-chemical	All high apart from phosphate which is poor and ammonia which is moderate	#REF!				Q70, 950 and Q30). Given the small reduction compared to the total compensation release, that water is available across most of the surface water body at all flows, and assuming low flow compensation flows would be maintained, any impacts on the hydrological regime of the surface water body would be localised and temporary.	
Physic	Specific pollutants:	Triclosan: high	High by 2015					
D ts for rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements Rivers: Chemics	Priority substances	Does not require assessment	Does not require assessment					
all s\ tial	Ecological	Moderate	Good by 2027	N/A			·	
Overall Status\	Chemical	Good	Good by 2015	N/A				
-	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.
2- Pipe lines will cross water courses with existing readways where possible to limit the amount of new watercourse crossings.
3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID:		GB112069061112	Scheme:	Group 1 - Improved rese		release control - AUDENSHAW 1, 2 & 3	
	Water body Name:		Tame (Swineshaw Brook to Mersey)	Scheme Phase:		WR15		
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Goyt Etherow Tame	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	dies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-					Reduction in compensation flows due to new penstock arrangements.	
	Macrophytes and phytobenthos	Moderate	Moderate by 2015					
gical	Benthic invertebrates	Moderate	Moderate by 2015					
rs: Ecolo	Fish	Poor	Good by 2027					
or Rive	Hydrological regime	-	-				Minor level of impact. Reduction of compensation flow from Audenshaw 1, 2 and 3 reservoirs from 48.6 Ml/d to 45.4 Ml/d, a reduction of 3.2 Ml/d. It is not clear which WFD water body would be effected by the release (this water body or Platt Brook	
its for morph	River continuity				Installation of new automatic penstock arrangements.		(Source to Fallowfield Bk). (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
elemen	Morphological conditions	-			No or minimal impact.	High	The ALS shows that the surface water body has water available at all flows (Q95, Q70, Q50 and Q30). Given the small reduction compared to the total compensation	Medium
WFD	General physico-chemical	Moderate	Moderate by 2015				Q70, Q80 and Q80), swent me small reduction compared to the total compensation release, that water is available across most of the surface water body at all flows, and assuming low flow compensation flows would be maintained, any impacts on the hydrological regime of the surface water body would be localised and temporary.	
Physic	Specific pollutants:	-						
D ts for rs: ical	Priority hazardous substances	Good	Good by 2015					
WFD elements f Rivers: Chemica	Priority substances	Good	Good by 2015					
all st iial	Ecological	Moderate	Moderate by 2015	N/A		•		
Overall Status\	Chemical	Good	Good by 2015	N/A				
- " -	Overall	Moderate	Moderate by 2015	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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		Water body ID:		GB112075070430	Scheme:	Group 2 - Improve	ed reservoir compens	sation release control - Thirlmere	
		Water body Name:		St John's Beck	Scheme Phase:	·	WR15	9	
		RBMP:		North West	Reference:	Construction		Operational	
		Operational catchment:		Derwent	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily Modified					
		Relevant upstream water bo	dies:						
		Downstream water bodies:							
		WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
	2	Macrophytes and phytobenthos	High	Good by 2015					
gical	Biology	Benthic invertebrates	High	Good by 2015					
s: Ecolo	Bolo	Fish	High	Good by 2015				Reduction in compensation flows due to new penstock arrangements.	
River	golor	Hydrological regime	-	÷				Minor level of impact. Reduction of compensation flow from Thirlmere reservoir from 15.0 Ml/d to 13.6 Ml/d, a reduction of 1.4 Ml/d. (Note: Total reduction for the reservoir	
ts for	norph y	River continuity				Installation of new automatic penstock arrangements.		Aquator group assumed to take place in this water body.) The ALS shows that the surface water body has no water available at all flows (Q95,	
elemen	Hydror	Morphological conditions	-			installation of new automatic pensocic arrangements. No or minimal impact.	High	Q70, Q50 and Q30). However, the heavily modified water body (HMWB) investigations undertaken by UI and the EA on this water body have not identified any problems with fish passage, downstream flow, downstream habitat/morphology, or downstream water quality, taking both actual and consented compensation flows into account. As such, the reduction in flows are unlikely to have prolonged or widespread effects of the hydrological regime of the surface water body.	High
WFD	o-chemical	General physico-chemical	High	Good by 2015					
	Physic	Specific pollutants:	-						
D ts for	ical	Priority hazardous substances	Good	Good by 2015					
WFD elements	iver	Priority substances	Good	Good by 2015					
= 15	lia.	Ecological	Moderate	Good by 2027	N/A				
Overall Status\	oten	Chemical	Good	Good by 2015	N/A				
	Pot St	Overall	Moderate	Good by 2027	N/A				

Assumptions

1 - Application of standard best practice construction and pollution prevention methods.
2 - Ppe lines will cross water courses with existing road-ways where possible to limit the amount of new watercourse crossings.
3 - Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID:		GB112070064850	Scheme:	Group 2 - Improve		ation release control – RIVINGTON	
	Water body Name:		Douglas - Upper	Scheme Phase:		WR15		
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Douglas OC	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	dies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
,	Macrophytes and phytobenthos	High	Good by 2015					
gical	Benthic invertebrates	Good	Good by 2015				Reduction in compensation flows due to new penstock arrangements.	
s: Ecolo	Fish	-	-				Minor level of impact. Reduction of compensation flow from Rivington Reservoirs from 26.6 MI/d to 24.7 MI/d, a reduction of 1.9 MI/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
for River	Hydrological regime	-	-				The ALS states that:	
ts for morph	River continuity				Installation of new automatic penstock arrangements.		The part of the surface water body that contains Rivington Reservoirs and their immediate catchment, and the headwater catchment to the east have limited water available at low flows (095), water available at 070, and no water available at	
elemen	Morphological conditions	-			No or minimal impact.	High	medium and high flows (Q50 ad Q30). The southern, lowest most part of the water body, and the headwaters above the Rivington Reservoir have water available at all flows. A reduction in the compensation flow could effect the hydrological regime of the surface water body. However given the small size of the reduction compared to the total compensation release, and that the water body downstream of the Rivington	Medium
WFD	General physico-chemical	Moderate	Good by 2027					
Physi	Specific pollutants:	-					Reservoirs has water available across all flows, and assuming low flow compensation flows would be maintained, any impacts would be localised and temporary.	
D ts for rs: iical	Priority hazardous substances	Good	Good by 2015					
WFD elements Rivers Chemic	Priority substances	Good	Good by 2015					
all s\ tial	Ecological	Moderate	Good by 2027	N/A		•		
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
	Overall Mod	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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		Water body ID:		GB102076070720	Scheme:	Group 2 - Improved	reservoir compensati	on release control – HAWESWATER	
		Water body Name:		Haweswater Beck	Scheme Phase:		WR15	9	
		RBMP:		Solway Tweed	Reference:	Construction		Operational	
		Operational catchment:		Eamont	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily Modified					
		Relevant upstream water bo	odies:	-					
		Downstream water bodies:		Lowther (Lower)					
		WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
	>	Macrophytes and phytobenthos	Good	Good by 2015					
gical	Biology	Benthic invertebrates	Good	Good by 2015					
s: Ecolo	- Bc	Fish	-					Reduction in compensation flows due to new penstock arrangements.	
River	olog	Hydrological regime	-					Minor level of impact. Reduction of compensation flow from Haweswater reservoir from 24.0 Ml/d to 21.8 Ml/d, a reduction of 2.2 Ml/d. (Note: Total reduction for the	
s for	v v	River continuity						reservoir Aquator group assumed to take place in this water body.)	
element	Hydron	Morphological conditions	-			Installation of new automatic penstock arrangements. No or minimal impact.	High	The ALS shows that the surface water body has no water available at all flows (Q95 Q70, Q50 and Q30). However, the heavily modified water body (HMWB) investigations undertaken by UU and the EA on this water body have not identified any problems with fish passage, downstream flow, downstream habitat/morphology or downstream water quality, taking both actual and consented compensation flows into account. As such, the reduction in flows are unlikely to have prolonged or widespread effects of the hydrological regime of the surface water body.	High
WFD	co-chemical	General physico-chemical	All high, except Phosphate which is Moderate	Good by 2027					
	Physic	Specific pollutants:	High						
D ts for	ical	Priority hazardous substances	Good	Good by 2015					
WFD elements	emi	Priority substances	Good	Good by 2015					
= 15	E .	Ecological	Moderate	Good by 2027	N/A				
Overall Status\	oten	Chemical	Good	Good by 2015	N/A				
	St. Pot	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.
2- Pipe lines will cross water courses with existing readways where possible to limit the amount of new watercourse crossings.
3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

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	Water body ID:		GB109054049880	Scheme:	Group 2 - Improv	ed reservoir compen	sation release control – VYRNWY	
	Water body Name:		Vrynwy - Lake Vrynwy to conf Afon Cownwy			WR15		
	RBMP:		Severn	Reference:	Construction		Operational	
	Operational catchment:		Severn Uplands	Impact potential: Direct			Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water be	odies:	Afon Nadroedd - sourc	e to Lake Vyrnwy, Afor	edig - source to Lake Vyrnwy, Eunant - source to Lake Vyrnwy (Pont Eunant)			
	Downstream water bodies:		Afon Vyrnwy - conf Afo	on Cownwy to conf Afo	Afon Banwy			
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos							
>	Macrophytes							
jical	Macrophytes and phytobenthos							
, Š, I,	Benthic invertebrates							
<u> </u>	Fish	High					Reduction in compensation flows due to new penstock arrangements.	
vers:	Hydrological regime	-					Minor level of impact. Reduction of compensation flow from Vyrnwy reservoir from 48.4 Ml/d to 45.0 Ml/d, a reduction of 3.4 Ml/d. (Note: Total reduction for the	
is for Ri	River continuity				Installation of new automatic penstock arrangements.	High	reservoir Aquator group assumed to take place in this water body.) The ALS shows that the surface water body has water available at medium and high	Medium
Hydro	Morphological conditions				No or minimal impact.	riigii	flows (Q30, Q50 and Q70), and limited water available at low flows (Q95). A reduction in the compensation flow could effect the hydrological regime of the surface water body, however due to the small size of the reduction compared to the total	
WFD or	General physico-chemical	All high or good					compensation release, the general water availability, and assuming that low flow compensation is maintained, any impacts of the hydrological regime of the water	
Phys	Specific pollutants:	Moderate					body would be localised and minor.	
WFD elements for Rivers: Chemical	Priority hazardous substances							
elem fc Rive	Priority substances	Good						
all us\ ntial	Ecological	Moderate	Good by 2021					
Overall Status\ Potential	Chemical	Good	Good by 2015					
	Overall	Moderate	Good by 2021					

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

Evidence

Catchment Data Explorer: http://environment.data.qov.uk/catchment-planning/
Engineers Proforma: \war-fs1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Regional\WR159\WR159_Compensation control - Group 1.docx

EA Abstraction Licence Strategy (Sever Corridor): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/291406/LIT_7845_c0b50e.pdf

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	Water body ID:		GB112073071070	Scheme:		River Bela to Thirl	mere Aqueduct	
	Water body Name:		Bela	Reference			WR800	
	RBMP:		Kent and Leven	Scheme Phase	Construction		Operational	
	Operational catchment:		Bela	Impact potential	Direct		Direct	
	Designation (and uses):		Heavily modified					
	Relevant upstream water bo	odies:	Holme Beck, Peasey I	Beck and Stainton Beck				
	Downstream water bodies:		Kent					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
, >	Macrophytes	Not provided						
Biology	Macrophytes and phytobenthos	Not provided					Use of new transfer pipe line, pumping station and surface water	
.	Benthic invertebrates	Good			Transfer pipe line on land.		intake.	
	Fish	High			No or minimal impact.		No or minimal impact.	
_ e :	Hydrological regime	Not provided						
5	River continuity	Not provided			Transfer pipe line with water course crossings.		New surface water abstraction quantity.	
Hyd.	Morphological conditions	Not provided			Minor level of impact.	High	Minor level of impact. New surface water abstraction from the River Bela near Minthorpe of 4.5 M/d. In the ALS, water is identified as available at all of the flow ranges. The abstraction is relatively small in size and the new abstraction would be obtained through abstraction ficence trading, It is assumed that the trading licence is located on the same reach of river, minimising any changes to the hyrological regime of the surface water body.	Low
- osico	General physico-chemical	All high/good			New surface water intake. Minor level of impact.			
Phys.	Specific pollutants:	All high			New pumping station.			
ents rers: ical	Priority hazardous substances	All good			Minor level of impact.			
elements for Rivers: Chemical	Priority substances	All good						
s\ s\ tial	Ecological	Good	Good by 2015	N/A				
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A	1			
, o, Z	Overall	Good	Good by 2015	N/A				

Assumptions

1 - Application of standard best practice construction and pollution prevention methods.
2 - Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
3 - Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proformas: http://environment.data.gov.uk/c

EA Abstraction Licence Strategy (South Cumbria): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300489/LIT

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		Water body ID:		GB41202G102100	Scheme:		River Bela to Thirle	mere Aqueduct	
		Water body Name:		Palaeozoic and Carboniferous Aquifers	Reference		WR80		
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment:		Cumbria South Lower Palaeozoic and Carboniferous Aq		Direct Direct			
		Designation (and uses):		No designation					
		Relevant upstream water Downstream water bodie		Not identified Not identified					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
s for er: re	tatus	Quantitative Dependent	Good						
ement ndwat ntitativ	Quantitativ Eleme		Good					Use of new transfer pipe line, pumping station and surface	
FD el Groun		Quantitative Saline Intrusion	Good					water intake No or minimal impact.	
\$		Quantitative Water Balance	Good			New surface water intake. No or minimal impact.		New surface water abstraction quantity.	
ier:	Element	Chemical Dependent	Poor			Transfer pipe line on land. No or minimal impact.		No or minimal impact. New surface water abstraction from the River Bela near Milnthorpe of 4.5 Ml/d.	
nts for Groundwater: Chemical	tus Ele	Chemical Drinking Water Protected Area	Good			Transfer pipe line with water course crossings.	High	In the ALS, no groundwater management unit is defined for this area. For the surface water body, water is identified as available accross the flow regime. The abstraction is relatively small in size,	Medium
. Grou	Sta	Chemical GWDTEs test	Good			No or minimal impact.		and is unlikely to cause any changes to the wetted area of the River Bela. This secondary aquifer is unlikely to be hightly	
ots for Chemi	Chemical	Chemical Saline Intrusion	Good			New pumping station. No or minimal impact.		dependent on surface water courses to sustain its quantitative status. Given the minor level of impact expected for the surface	
elemer	ਠ	General Chemical Test	Good					water body, no or minimal impact is expected for the groundwater body.	
WFD el	Sortin	ဖု Prevent and Limit Objective	Not provided						
>	idns	Trend Assessment	No trend						
all si	<u>e</u>	Quantitative	Good	Good by 2015	N/A				
Overa	tia tia	Chemical (GW)	Poor	Good by 2027	N/A				
		Overall	Poor	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

Section in the content of any WFD water body catchment, and would not involve the requirement for in-channel works.

To Devatering of excatations would be made taken to reliable years and to content of any WFD water body catchment, and would not involve the requirement for in-channel works.

To Devatering of excatations would be discharged within the same water body.

Section in the content of the content of

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proformas: http://environment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catchment.data.gov.uk/catc

EA Abstraction Licence Strategy (South Cumbria): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300489/LIT_7918_ccfa86.pdf

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		Water body ID:		GB30328860	Scheme:	THIRD PARTY OPTION: Cov	w Green IR to Hawesw	vater via Heltondale aqueduct	
		Water body Name:		Cow Green Reservoir	Reference:			/R810	
		RBMP:		Northumbria	Scheme Phase:	Construction		Operational	
		Operational catchment:		Tees Upper	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily modified					
		Relevant upstream water bo	dies:	•					
		Downstream water bodies:							
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytoplankton	High						
		Macrophytes	-						
=		Phytobenthos	-						
Ecologica	Biology	Macrophytes and phytobenthos	-						
rvoirs: E	ā	Chironomids (CPET)	-						
Rese		Fish	-					New surface water abstraction quantity. No or minimal impact. New abstraction of 40 Ml/d from Cow Green Reservoir,	
lse.	6 g	Hydrological regime	-					transfer via pipeline to Haweswater Reservoir via Heltondale Aqueduct. It is	
for Lake	Hydron	River continuity	-			New surface water intake. Minor level of impact.	High	transfer wa pipeline to Haweswater Reservoir via Heitondaie Aqueduct. It is assumed that the Cow Green Reservoir has capacity for the new abstraction, the volume and surface area of the reservoir will not be significantly changed, and that compensation flows will be maintained to the River Tees. A new abstraction	Low
lements	emical	Morphological conditions	-					licence would be required to be granted by the Environment Agency.	
WFD e	rsico-ch	General physico-chemical	Salinity - High Total Phosphorus - Good						
	Ph	Specific pollutants:	Copper - High						
WFD elements for Lakes\	ervoirs: emical	Priority hazardous substances	Does not require assessment						
		Priority substances	Does not require assessment			·		·	
Status\		Ecological	Moderate	Good by 2027	N/A				
rall St		Chemical	Good	Good by 2015	N/A				
Overall (Pot	Overall	Moderate	Good by 2027	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

 5- A ground investigation will be carried out and will lidentify any contaminated land and any mitigation that may be required.

 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \www.WAR-F51.global.amec.com\shared\Projects\38671 UU wRMP Support\5 Design\Feasible Options\Third Party Options\wR810\wR81 EA Abstraction Licence Strategy (Tees): https://www.gov.uk/government/publications/tees-abstraction-licensing-strategy

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	Water body ID:		GB103025076080	Scheme:	THIRD PARTY OPTION: Cow Green I	IR to Haweswater via	Heltondale aqueduct	
	Water body ID:		Tees from Trout Beck		Thinke Fact 1 of Hote con decent	WR810	Tottoriaan aquoduot	
	RBMP:		Northumbria	Scheme Phase:	Construction		Operational	
	Operational catchment:		Tees Upper	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily modified	impact potential.	Direct		Billoot	
	Relevant upstream water bod	ion	rieavily illoulileu					
	Downstream water bodies:	ies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than		Confidence		Confidence
	1 1 1			Good				
	Phytobenthos							
	Macrophytes							
	Macrophytes and							
>	phytobenthos							
logical								
을 응	D							
8 1 8	Benthic invertebrates							
0								
<u> </u>								
					Transfer pipe line on land.			
S.	Fish				No or minimal impact.			
ē					No or minima impact.		New surface water abstraction quantity.	
ź -							new surface water abstraction quantity.	
	Hydrological regime				Transfer pipe line with water course crossings.		No or minimal impact. New abstraction of 40 Ml/d from Cow Green Reservoir, transfer via	
후 후	i iyai ologicai regiille				Minor level of impact.		pipeline to Haweswater Reservoir via Heltondale Aqueduct.	
ح ما ع	River continuity				Minor level of impact.		1,71	
2 2 5	INVEST COMMITTIES			X				
들 호으					New surface water intake.	High	Abstraction is from the reservoir, rather than a water course in the surface water body. It is	Low
¥ 5	Morphological conditions						assumed that the Cow Green Reservoir has capacity for the new abstraction, the volume	
elen Hyd					Minor level of impact.		and surface area of the reservoir will not be significantly changed, and that compensation	
WFD el							flows will be maintained to the River Tees. A new abstraction licence would be required	
正					New pumping station.			
> \=	General physico-chemical						to be granted by the Environment Agency.	
0 3	General physico-chemical				Minor level of impact.			
is E								
Phy								
ਰ ਹ	Specific pollutants:							
	Specific politicants.							
ģ =	Priority hazardous							
	substances							
D \$5 % 5	oubolumoo.							
WFD ments Rivers: hemica								
> £ & ĕ	Priority substances							
<u> </u>	Thority substances							
9								
Overall Status\Po tential	Ecological	Moderate	Good by 2027	N/A				
Ove		Good	Good by 2015	N/A				
10	Overall	Moderate	Good by 2027	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which wo

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Cathment Data Explorer: http://environment.data.gov.uk/cathment-planning/
Engineers Proforms: \text{Lathment.planning/
Engineers Proforms: https://environment.data.gov.uk/government/publications/tees-abstraction-licensing-strategy
Party Options https://environment.data.gov.uk/government/publications/tees-abstraction-licensing-strategy
Party Options <a href="https://environment.data.gov.uk/

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	Water body ID:		GB40302G700300	Scheme:	THIRD PARTY O	OPTION: Cow Green	IR to Haweswater via Heltondale aqueduct	
	Water body Name:		Tees Carb Limestone & Millstone Grit	Reference			WR810	
	RBMP:		Northumbria	Scheme Phase	Construction		Operational	
	Operational catchment:		Tees Carb Limestone & Millstone Grit	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo	diaa.	No designation					
	Downstream water bodies:	ales:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
Status	Quantitative Dependent Surface Water Body Status	Good						
ve St	Quantitative GWDTEs test	Good						
ntitati	Quantitative Saline Intrusion	Good			New surface water intake. No or minimal impact. Transfer pipe line on land.		New surface water abstraction quantity No or minimal impact. New abstraction of 40 Ml/d from Cow Green Reservoir, transfer via	
Qua	Quantitative Water Balance	Good					pipeline to Haweswater Reservoir via Heltondale Aqueduct. The abstraction is from the reservoir, not a natural water course within the water body. It is	
tatus	Surface Water Body Status	Poor			No or minimal impact. Transfer pipe line with water course crossings.	High	assumed that Cow Green Reservoir has capacity for the new abstraction, the volume and surface area of the reservoir will not be significantly changed, and that compensation flows will be maintained to the River Tees. Therefore significant changes in the status of the	Medium
ical St	Protected Area	Good			Minor level of impact.		groundwater body are unlikely. A new abstraction licence would be required to be granted by the Environment Agency.	
E		Good			New pumping station.			
5		Good			No or minimal impact.			
	General Chemical Test	Good			No or minima impact.		New Transfer Pipe Line and Pumping Station	
rring	Prevent and Limit Objective	-					No or minimal impact.	
Suppo	Trend Assessment	No trend						
ntial	Quantitative	Good	Good by 2015	N/A				
s/Poter	Chemical (GW)	Poor	Poor by 2015	N/A				

- Assumptions

 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of est

Poor by 2015

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relative small continin in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
 7- Dewatering of excavations would not require a permit from Agency/Natural Agency/ 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Catchment Data Explorer: http://environment.data.gov.uk/catchment.planning/
Engineer Proforms: <a href="http://www.new.com/white/decis/abs/de

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		Water body ID:		GB30327698	Scheme:	THIRD PARTY	OPTION: Kielder Wat	ter IR transfer	
		Water body Name:		Kielder Water	Reference:		WF	R812	
		RBMP:		Northumbria	Scheme Phase:	Construction		Operational	
		Operational catchment:		North Tyne Upper	Impact potential:	Direct		Direct	
		Designation (and uses):		(reservoir)					
		Relevant upstream water bo	odies:	-					
		Downstream water bodies:		-					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytoplankton	Not assessed						
		Macrophytes	Not assessed						
-		Phytobenthos	Not assessed						
Ecologic	Siology	Macrophytes and phytobenthos	Not assessed					New surface water abstraction quantity. No or minimal impact. New abstraction of 100 M/d from Kielder Water. Transfer via	
rvoirs: E	omo	Chironomids (CPET)	Not assessed					pipe line to Haweswater Reservoir via Heltondale Aqueduct. It is assumed that Kielder Water has capacity for the new abstraction, the volume and surface area of the reservoir will not be significantly changed, and that compensation	
Rese		Littoral Invertebrates	Not assessed					flows will be maintained to the River North Tyne. A new abstraction licence would be required to be granted by the Environment Agency.	
le S.		Hydrological regime	Not assessed			New surface water intake.		required to be granted by the Environment Agency.	
for Lak		River continuity	Not assessed			Minor level of impact.	High	The surface water body catchment for Kielder Reservoir has not been assessed separately as the reservoir forms part of several river surface water bodies. For brevity the river surface water body assessment is described here. All river surface	Low
elements	iemical	Morphological conditions	Not assessed					water bodies that intersect Kielder Reservoir have water available across all flows, a do all river water bodies directly downstream of the reservoir. No or minimal impact anticipated on river surface water bodies, assuming that Kielder Water has capacity f	
WFD	sico-ch	General physico-chemical	Not assessed					the new abstraction, the volume and surface area of the reservoir will not be significantly changed, and that compensation flows will be maintained to the River North Tyne.	
	Phy	Specific pollutants:	Not assessed					North Tyric.	
VFD ents for	rvoirs:	Expert Judgement	Moderate	Good by 2027					
elem	Res	Mitigation Measures Assessment	Moderate or less	Good by 2027					
= 1	ial	Ecological	Moderate	Good by 2027	N/A				
Overall	otent	Chemical	Good	Good by 2015	N/A				
- 50	<u> </u>	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed. 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6 Extensions, modifications, or new pumping stations, water treatment works, etc. would involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-slamning/
Engineers Proforms: http://environment-slamning/
Engineers Proforms: http://environment.data.gov.uk/catchment-slamning/
Engineers Proforms: http://environment-slamning/
Engineers Proforms: http://environment-slamning/
Engineers Proforms: http://environment-slamning/
Engineers Proforms:

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	Water body ID:		GB40302G702700	Scheme:	1	THIRD PARTY OPTIO	N: Kielder Water IR transfer	
	Water body Name:		Tyne Carboniferous Limestone	Reference			WR812	
	RBMP:		Northumbria	Scheme Phase	Construction		Operational	
			Tyne Carboniferous	Impact potential	Direct		Direct	
	Operational catchment:		Limestone					
	Designation (and uses):		No designation					
	Relevant upstream water bo	dies:	-					
	Downstream water bodies:		-					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
atus	Quantitative Dependent Surface Water Body Status	Good						
ive St	Quantitative GWDTEs test	Good					New surface water abstraction quantity No or minimal impact. New abstraction of 100 M/d from Kielder Water. Transfer via pipe line to Haweswater Reservoir wia Heltondale Aqueduct.	
antita	Quantitative Saline Intrusion	Good			Transfer pipe line on land.			
Ö	Quantitative Water Balance	Good			No or minimal impact. Transfer pipe line with water course crossings.		The abstraction is from the reservoir, not a natural water course within the water body. It is	
tatus	Chemical Dependent Surface Water Body Status	Good			No or minimal impact. New /modified surface water intake.	High	assumed that Kielder Water has capacity for the new abstraction (the ALS indicates that the River North Tyne has water available for abstraction licencing across all flows), the volume and surface area of the reservoir will not be significantly changed, and that	Low
ical S	Chemical Drinking Water Protected Area	Good			New /modified surface water intake. No or minimal impact.		compensation flows will be maintained to the River North Tyne. Therefore significant changes in the status of the groundwater body are unlikely. A new abstraction licence	
E E		Good			New pumping station.		would be required to be granted by the Environment Agency.	
5		Good			No or minimal impact.			
	General Chemical Test	Good			The state of the s		Use of new transfer pipe line and pumping station No or minimal impact.	
ents	Prevent and Limit Objective	-					No or millimal impact.	
Suppo	Trend Assessment	No trend						
ntial	Quantitative	Good	Good by 2015	N/A			·	
s/Poter	Chemical (GW)	Good	Good by 2015	N/A				

- Assumptions
 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good by 2015

- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

N/A

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EANRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

EA Abstraction Licence Strategy (Tyne): https://www.gov.uk/government/publications/tyne-abstraction-licensing-strategy

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	Water body ID:		GB30431243 - GB112073071100	Scheme:	THIRD PARTY OPTION: Scammond			
	Water body Name:		Scammonden Water	Reference:		WR8		
	RBMP:		Humber	Scheme Phase:	Construction		Operational	
	Operational catchment:		Calder Middle	Impact potential:	Direct		Direct	
	Designation (and uses):		heavily modified					
	Relevant upstream water bo	dies:	-					
	Downstream water bodies:		•					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytoplankton	-						
	Macrophytes	-						
-	Phytobenthos	-						
Ecologica	Macrophytes and phytobenthos	-						
rvoirs: E	Chironomids (CPET)	-					New surface water abstraction quantity	
Rese	Fish	-					No or minimal impact. New abstraction of 5 Ml/d from Scammonden Reservoir, transfer via the Huddersfield Narrow Canal for re-abstraction at Buckton Castle	
)SS OF 30	Hydrological regime	-					WTW. It is assumed that Scammonden Reservoir has capacity for the new relatively	
for Lake	River continuity	-			New surface water intake. Minor level of impact.	High	small abstraction, the volume and surface area of the reservoir will not be significantly changed, and that compensation flows will be maintained to the Black Brook. A new abstraction licence would be required to be granted by the Environment Agency.	Low
lements emical	Morphological conditions	-						
WFD e	General physico-chemical	-						
- Phy	Specific pollutants:	-						
FD ants for s\Reservirs: mical	Priority hazardous substances	Does not require assessment						
Lakes	Priority substances	Does not require assessment						
ifi S/ ili	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ Potenti al	Chemical	Good	Good by 2015	N/A				
2 # 6	Overall	Moderate	Good by 2027	N/A				

Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relative wasn't opcome to a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-pla

Engineers Proforma: \\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Third Party Options\WR813\WR813_TPO_Scammonden IR to Buckton Castle.docx

EA Abstraction Licence Strategy (Aire and Calder): https://www.gov.uk/government/publications/abstraction-licensing-aire-and-calder-strategy

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	Water body ID:		GB104027062570	Scheme:	THIRD PARTY OPTION: Scammonden IF	R to Buckton Castle	via Huddersfield Narrows Canal	
	Water body Name:		Black Brook from Source to River Calder	Reference:		WR8	13	
	RBMP:		Humber	Scheme Phase:	Construction		Operational	
	Operational catchment:		Calder Middle	Impact potential:	Direct		Direct	
	Designation (and uses):		heavily modified					
	Relevant upstream water bo	odies:	None.					
	Downstream water bodies:		Calder from Ryburn Confluence	e to River Colne				
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
_ >	Macrophytes and phytobenthos	Good	Good by 2015					
ological	Benthic invertebrates	Good	Good by 2015				Use of new transfer pipe line and pumping station. No or minimal impact.	
ivers: Ec	Fish	Good	Good by 2015		Transfer pipe line on land. No or minimal impact.		No or minimal impact.	
for Ri	Hydrological regime	Not assessed			Transfer pipe line with water course crossings. Minor level of impact.		New surface water abstraction quantity No or minimal impact. New abstraction of 5 Ml/d from Scammonden Reservoir, transfer via the Huddersfield Narrow Canal for re-abstraction at Buckton Castle	
s o	River continuity	Not assessed					WTW. The abstraction is from the reservoir within this surface water body, not a	
elemen	Morphological conditions	Not assessed			New /modified surface water intake. Minor level of impact.	Minor level of impact. High Instruction in the water body. It is assumed that Scammonde Reservoir has capacity for the new relatively small abstraction (the ALS indicate	Low	
WFD	General physico-chemical	All high apart from phosphate which is moderate	Good by 2015, apart from phosphate which is moderate by 2015.		New/modified pumping station. Minor level of impact.		the Black Brook as water available for abstraction licencing across all flows), the volume and surface area of the reservoir will not be significantly changed, and that compensation flows will be maintained to the Black Brook. A new abstraction licence would be required to be granted by the Environment Agency.	
Phy	Specific pollutants:	Not assessed						
D ts for rs: iical	Priority hazardous substances	Does not require assessment						
WFD elements Rivers Chemics	Priority substances	Does not require assessment						
Overall tatus\Po tential	Ecological	Moderate	Moderate by 2015	N/A				
tat O	Chemical	Good	Good by 2015	N/A				
- W	Overall	Moderate	Moderate by 2015	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a

4 New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estua
5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works. 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Third Party Options\WR813\WR813_TP-

EA Abstraction Licence Strategy (Aire and Calder): https://www.gov.uk/government/publications/abstraction-licensing-aire-and-calder-strategy

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				Scheme:	THE PARTY OF THE P		Castle via Huddersfield Narrow Canal	
	Water body ID:		GB71210268 Huddersfield Narrow Canal		THIRD PARTY OPTION: Scammon	den IK to Buckton C	Castle via Huddersfield Narrow Canal	
	Water body Name:		west section	Reference:		W	VR813	
	RBMP:		Humber	Scheme Phase:	Construction		Operational	
	Operational catchment:		Calder canals	Impact potential:	Direct		Direct	
	Designation (and uses):		Artificial					
	Relevant upstream water bo	dies:	-					
	Downstream water bodies:		-					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
	Macrophytes and							
	phytobenthos	l-						
logical Biolog)	Benthic invertebrates	-						
vers: Ecc	Fish	-					Minor level of impact. New surface water abstraction quantity.	
or Ri	Hydrological regime	-					New surface water abstraction quantity. Minor level of impact. New abstraction of 5 Mild from Huddersfield Narrow Canal nea Buckton WTW (water is abstracted from Scammonden Reservoir, and transferred virthe Huddersfield Narrow Canal for re-abstraction at Buckton Castle WTW). The abstraction is of water that has been discharged upstream in the canal. It is assumed the canal will be managed to maintain flows which support the hydrological	
1	River continuity	-			New surface water intake.		the Huddersfield Narrow Canal for re-abstraction at Buckton Castle WTW).	
elemen	Morphological conditions	-			New Surface Water Intake. Minor level of impact.	High	assumed the canal will be managed to maintain flows which support the hydrological	Low
WFD (General physico-chemical	-					regime, so no long term or widespread impacts on the status of the canal are anticipated. A new abstraction licence would be required to be granted by the Environment Agency.	
Physic	Specific pollutants:	-						
D its for rs: iical	Priority hazardous substances	Does not require assessment						
WFD elements Rivers: Chemica	Priority substances	Does not require assessment						
Overall Status/Po tential	Ecological	Moderate	Good by 2027	N/A				
atu te n	Chemical	Good	Good by 2015	N/A				
~ % -	Overall	Good	Good by 2027	N/A				

Assumptions

Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have

4 New pipe line water course crossings would be installed via a relieval new to use the wind and the present a

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \\WAR-F51.global.amec.com\shared\Projects\38671 UU WRMP Support\S Design\Feasible Options\Third Party Options\\WR813\\WR813_TF EA Abstraction Licence Strategy (Upper Mersey): https://www.gov.uk/government/publications/upper-mersey-abstraction-licensing

\WAR-F51.global.amec.com\shared\Projects\38671_UU WRMP Support\\$ Design\Feasible Options\UU WRMP WFD\Report\CombinedReport_Aug2018\Appendices\38671cgos106i1_Combined_WFD_Report_Appendices_v1.xlsx

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	Water body ID:		GB112069061111	Scheme:	THIRD PARTY OPTION: Scammonden IR to	Buckton Castle v	ia Huddersfield Narrows Canal	
	Water body Name:		Tame (Chew Brook to Swineshaw Brook)	Reference:		WR813		
	RBMP:		Humber	Scheme Phase:	Construction		Operational	
	Operational catchment:		Goyt Etherow Tame	Impact potential:	Direct		Direct	
	Designation (and uses):		heavily modified					
	Relevant upstream water bo	odies:	Chew Brook, Tame (Sour	ce to Chew Brook)				
	Downstream water bodies:		Tame (Swineshaw Brook	to Mersey)				
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
	Macrophytes and							
>	phytobenthos	1						
ological	Benthic invertebrates	Moderate	Good by 2017				Use of new transfer pipe line and pumping station. No or minimal impact.	
ivers: Ec	Fish	-					Transfer of water via canal. No or minimal impact.	
for R	Hydrological regime	-			Transfer pipe line on land. No or minimal impact.		New surface water abstraction quantity. No or minimal level of impact. New abstraction of 5 Ml/d from Huddersfield	
at or	River continuity	-					Narrow Canal near Buckton WTW (water is abstracted from Scammonden	
elemer	Morphological conditions	-			New pumping station. Minor level of impact.	High	Reservoir, and transferred via the Huddersfield Narrow Canal for re-abstraction at Buckton Castle WTW).	Medium
WFD vsico-	General physico-chemical	All high apart from phosphate which is good	Good by 2015				The abstraction is from the canal, a managed water course within this water body. It is assumed that there is limited interaction between the canal and the "natural" water courses, so there will not by any significant change to the status of the	
£. 9	Specific pollutants:	Triclosan - high	High by 2015				surface water body. A new abstraction licence would be required to be granted by the Environment Agency.	
D ts for rs: ical	Priority hazardous substances	Does not require assessment						
WFD elements Rivers Chemica	Priority substances	Does not require assessment						
Overall Status\Po tential	Ecological	Moderate	Moderate by 2015	N/A				
tat O	Chemical	Good	Good by 2015	N/A				
ັ ທົ	Overall	Moderate	Moderate by 2015	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have

4 New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of e 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required. 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works. 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ Engineers Proforma: \\WAR-FS1.global.amec.com\shared\\Projects\\38671 UU WRMP Support\5 Design\\Feasible Options\\Third Party Options\\WR813\\WR813\\R813

EA Abstraction Licence Strategy (Upper Mersey): https://www.gov.uk/government/publications/upper-mersey-abstraction-licensing-strategy

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	Water body ID:		GB40402G700400	Scheme:	THIRD PARTY OPTION:	Scammonden IR t	to Buckton Castle via Huddersfield Narrows Canal	
			Aire and Calder Carb	Reference				
			Limestone - Millstone Grit				WR813	
	Water body Name:		Coal - Measures					
	RBMP:		Humber	Scheme Phase	Construction		Operational	
			Aire and Calder Carb	Impact potential				
			Limestone - Millstone Grit		Direct		Direct	
	Operational catchment:		Coal - Measures					
	Designation (and uses):		No designation					
	Relevant upstream water bo	dies:	-					
	Downstream water bodies:		-					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
Status	Quantitative Dependent Surface Water Body Status	Good						
tive S	Quantitative GWDTEs test				Transfer pipe line on land.			
Intital	Quantitative Saline Intrusion	Good			No or minimal impact.		New surface water abstraction quantity No or minimal impact. New abstraction of 5 Ml/d from Scammonden Reservoir, transfer via	
Qua	Quantitative Water Balance	Good			Transfer pipe line with water course crossings. No or minimal impact.		the Huddersfield Narrow Canal for re-abstraction at Buckton Castle WTW. The abstraction is from the reservoir, not a natural water course within the water body. It is	
tatus	Chemical Dependent Surface Water Body Status	Poor			New surface water intake. No or minimal impact.	High	assumed that Scammonden Reservoir has capacity for the new relatively small abstraction (the ALS indicates that the Black Brook as water available for abstraction licencing across all flows), the volume and surface area of the reservoir will not be significantly changed, and	Medium
ical S	Chemical Drinking Water Protected Area	Good			New pumping station. No or minimal impact.		all flows), the volume and surface area of the reservoir will not be significantly changed, and that compensation flows will be maintained to the Black Brook. Therefore significant changes in the status of the groundwater body are unlikely. A new abstraction licence	
트		Good			NO or minimar impact.		would be required to be granted by the Environment Agency.	
5	Chemical Saline Intrusion	Good			New outfall to canal.			
Ĺ	General Chemical Test	Poor			No or minimal impact.		Use of new transfer pipe line, pumping station, surface water intake, and outfall	
nting	Prevent and Limit Objective	-			No or minima impact.		No or minimal impact.	
Suppo	Trend Assessment	Upward trend						
ntial	Quantitative	Good	Good by 2015	N/A				
/Poter	Chemical (GW)		Poor by 2015	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't ha 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of e

Poor by 2015

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \WAR-F51.global.amec.com\shared\Projects\38671 UU WRMP Support\S Design\Feasible Options\Third Party Options\WR813\WR813_1

EA Abstraction Licence Strategy (Aire and Calder): https://www.gov.uk/gov

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		Water body ID:		GB41202G102900	Scheme:	THIRD PARTY OPTION:	Scammonden IR	to Buckton Castle via Huddersfield Narrow Canal	
		Water body Name:		Manchester and East Cheshire Carboniferous Aquifers	Reference			WR813	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment: Designation (and uses):		Manchester and East Cheshire Carboniferous Aquifers No designation	Impact potential	Direct		Direct	
		Relevant upstream water bo		No designation					
		Downstream water bodies:	ales:	-					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
s for antitive	tatus	Quantitative Dependent Surface Water Body Status	Good	Good by 2015				Operational	
nent: r: Qu	Quantitative St. Element	Quantitative GWDTEs test	Good	Good by 2015					
WFD elements for oundwater: Quantit		Quantitative Saline Intrusion	Good	Good by 2015					
WF		Quantitative Water Balance	Good	Good by 2015		New/modified surface water intake. No or minimal impact.		New surface water abstraction quantity.	
ater:	tatus	Surface Water Body Status	Good	Good by 2015		Transfer pipe line on land. No or minimal impact.	High	near Buckton WTW (water is abstracted from Scammonden Reservoir, and transferred via	Medium
w nu	ical S	Chemical Drinking Water Protected Area	Poor	Good by 2027		New pumping station.		' '	
ᇎ	듩교	Chemical GWDTEs test	Good	Good by 2015		No or minimal impact.			
nic 6	5	Chemical Saline Intrusion	Good	Good by 2015				the groundwater body, so there will not by any significant change to the status of the	
nts for Gro Chemical	Ĺ	General Chemical Test	Good	Good by 2015					
lement	orung	Prevent and Limit Objective	-					Environment Agency.	
WFD e	Suppo	Trend Assessment	Upward trend						
	ntial	Quantitative	Good	Good by 2015	N/A				
verall	'Pote	Chemical (GW)	Poor	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have

Good by 2027

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of e

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

2. A ground investigation was detained to dark with a place and a second in a

Evidence

EA Abstraction Licence Strategy (Upper Mersey): https://www.gov.uk/government/publications/upper-mersey-abstraction-licensing-strategy

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		Water body ID:		GB41101G202400	Scheme:	Increa	ased Abstraction Ca	pacity At Heronbridge	
		Water body Name:		Dee Permo-Triassic Sandstone	Reference		WR81	4a	
		RBMP:		Dee GW	Scheme Phase	Construction		Operational	
		Operational catchment:		Gee Permo-Triassic Sandstone	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water	bodies:	Not identified					
		Downstream water bodies	s:	Not identified					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ts for ter: ve	Status	Surface Water Body Status	Good						
VFD elements for Groundwater: Quantitative	ative S	test	Good					Modified water treatment works. No or minimal impact.	
FD el Groun	a	Quantitative Saline Intrusion	Good					·	
>		Quantitative Water Balance	Good					Changed surface water abstraction quantity. No or minimal impact. Increase abstraction for Huntington WTW by 24 Ml/d. Additional licence volume is a result of a proposed increase trade from an existing industrial use abstraction logated at	
ater:	ement	Chemical Dependent Surface Water Body Status			Modified water treatment works. No or minimal impact.	High	licence trade from an existing industrial use abstraction located at Heron Bridge of 35 Ml/d. The licence trade results in an overall reduction in abstraction	High	
wpunc	us Element	Chemical Drinking Water Protected Area	Good					quantity from the River Dee of 11 Ml/d. The Dee AMS indicates there is no new water available for	
for Gro	Stat	Chemical GWDTEs test	Good					abstraction but it may be possible to trade water with an existing abstractor.	
ents fo	Chemical St	Chemical Saline Intrusion	Good					Given the short distance between the old and new abstraction locations, there will be no significant change in groundwater -	
eleme		General Chemical Test	Good					surface water interactions between the River Dee and the groundwater body.	
WFD	oddi	Prevent and Limit Objective	Not provided						
	S t	Trend Assessment	No trend						
≡ s i	Ę	Quantitative	Good	Good by 2015	N\A				
vera	a e	Chemical (GW)	Good	Good by 2015	N\A				
و تناح	9								

Assumptions			

N\A

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proformas: \\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\S Design\Feasible Options\IRZ\WR075\WR075 Stocks Reservior.xlsx

Good by 2015

EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang= e&topic=floodmap#x= EA Historical Landfill: http://maps.environment-

EA HIStorical Landilli. http://maps.environment-2
3GS Geology Mapping: http://mapapps.bgs.ac.uk/geologyofbritain/home.html

Overall

Dee Catchment Abstraction Management Strategy: https://naturalresources.wales/media/674759/dee_cams_2015_english.pdf

Good

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	Water body ID:		GB111067057080	Scheme:	Increase	ed Abstraction Capac		
	Water body Name:		Dee- Chester Weir to Ceiriog	Reference			WR814a	
	RBMP:		Dee	Scheme Phase	Construction		Operational	
	Operational catchment:		Dee	Impact potential	Direct		Direct	
	Designation (and uses):		Heavily modified water body					
	Relevant upstream water be	odies:	Ceiriog - confluence Dee to Teirw, D	Dee - Ceiriog to Alwen, Shell Brook	, Dungrey Brook, Worthenbury Brook - lower, Clyw	edog - Dee to Gwer	nfro, Alyn - Hope to Dee, Pulford Brook, Aldford Brook, Henla	ke Brook
	Downstream water bodies:		N/A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confiden
	Phytobenthos	Good						
>	Macrophytes	Poor						
Biology	Macrophytes and phytobenthos	Good					Modified water treatment works. No or minimal level of impact.	
	Benthic invertebrates	Moderate					Changed surface water abstraction quantity.	
	Fish	Not provided					No or minimal impact. Increase abstraction for Huntington WTW by 24 Ml/d. Additional licence volume is a result of a	
ohd	Hydrological regime	Not provided			Modified water treatment works. No or minimal impact.		proposed licence trade from an existing industrial use abstraction located at Heron Bridge of 35 Ml/d.	Direct ulford Brook, Aldford Brook, Henlake Brook Confidence ter treatment works. mal level of impact. vater abstraction quantity. crease abstraction for Huntington nal licence volume is a result of a from an existing industrial use at Heron Bridge of 35 Mi/d. an overall reduction in abstraction te River Dee of 11 Mi/d. here is no new water available for a possible to trade water with an ng abstractor. stween the old and new abstraction change in water body status will ratil licence quantity may have a hydrological regime of the lower
omor	River continuity	N/A				High	The licence trade results in an overall reduction in abstraction quantity from the River Dee of 11 MI/d.	
Hydr	Morphological conditions	Not provided					The Dee AMS indicates there is no new water available for abstraction but it may be possible to trade water with an	
- oic	General physico-chemical	All reported elements high or good					existing abstractor. Given the short distance between the old and new abstraction	
Phys	Specific pollutants:	All reported elements high or good					locations, no significant change in water body status will occur. The reduced overall licence quantity may have a	
ivers: mical	Priority hazardous substances	All reported elements good apart form Tributyltin Compounds Nonylphenol					positive benefit on the hydrological regime of the lower reaches of the water body.	
for Ri	Priority substances	which fail All reported elements good						
i i	Ecological	Moderate	Good by 2021	N\A				
tatus\ otenti al	Chemical	Fail	Good by 2021	N\A				
2 6 E		0.00	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	loui o				

Assumptions			

Good by 2021

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proformas: \\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\IRZ\WR075\WR075 Stocks Reservior.xlsx EA Flood Maps (WIYBY); http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=markers.

EA Historical Landfill: http://maps.environment-

Dee Catchment Abstraction Management Strategy: https://naturalresources.wales/media/674759/dee_cams_2015_english.pdf

Moderate

N\A

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		Water body ID:		GB111067052060	Scheme:	Increased treatm	nent capacity at Hurle	eston WTW via Canal	
		Water body Name:		Dee - Ceiriog to Alwen	Reference			WR814b	
		RBMP:		Dee	Scheme Phase	Construction		Operational	
		Operational catchment:		Dee	Impact potential	Direct		Direct	
		Designation (and uses):		Heavily Modified					
		Relevant upstream water bo	dies:			r, Eglwyseg, Trefnant Brook, Eitha			
		Downstream water bodies:		Dee - Chester Weir to Cei					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Good						
	nts for Rivers: Ecological	Macrophytes	Good						
ologica		Macrophytes and phytobenthos	Not applicable					Minor level of impact. Increased flow in canal likely to be balanced by reduction in	
S: Ecc		Benthic invertebrates	High						
River		Fish	Not provided					Medium level of impact. Increase in licenced quantity of abstraction from 50 Ml/d to 74 Ml/d from the River Dee at Llantisilio. Additional licence volume a result of a	
ts for		Hydrological regime	Not provided			Transfer of water via canal. No or minimal impact, no construction necessary.	High	Transfer of water via canal. Minor level of impact. Increased flow in canal likely to be balanced by reduction in the Canal and River Trust abstraction. Increased quantity of surface water abstraction. Medium level of impact. Increase in licenced quantity of abstraction from 50 Mild to 14 Mild from the River Dee at Llantislio. Additional licence volume a result of a proposed licence trade from an existing industrial use abstraction located at Heron	Low
lemen		River continuity	Not provided			No or minima impact, no construction necessary.	riigii		LOW
WFD e	Hyd	Morphological conditions	Not provided					The Dee AMS indicates there is no new water available for abstraction but it may	
-	sico- nical		All reported substances good or high.					It is unclear if 24 MI/d would be available at Llantisilio, or if flow restrictions would	
į	Phys		All reported substances good or high.					abstraction. The increase in abstraction at Llantisilio may be balanced by a	
FD ents or ers:	for ivers: emical	Priority hazardous substances	All reported substances good or high apart from Tributyltin					,	
elem fo fo Rive			All reported substances good or high.						
all ss\		Ecological	Good	Good by 2015	N/A				
Overall Status\		Chemical		Good by 2021	N/A				
2002		Overall	Moderate	Good by 2021	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering would be discharged within the same water body.

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		Water body ID:		GB41102G200200	Scheme:	Increase	ed treatment cap	acity at Hurleston WTW via Canal	
		Water body Name:		Dee Silurian/Ordovician	Reference			WR814b	
		RBMP:		Dee	Scheme Phase	Construction		Operational	
		Operational catchment:		Dee Silurian/Ordovician	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water		Not identified					
		Downstream water bodie	s:	Not identified					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
WFD elements for Groundwater:	Status	Status	Good						
emen ndwat ntitati	titative S	Quantitative GWDTEs test	Good						
FD ek Groui Quai	Quantita	Intrusion	Good					Transfer of water via canal. No or minimal impact. No change in the interaction between the	
3	õ	Quantitative Water Balance	Good					canal and groundwater body expected.	
ter:	Element	Chemical Dependent Surface Water Body Status	Good			Transfer of water via canal.		Increased quantity of surface water abstraction. Minor level of impact. Change in flow regime in the River Dee may have an impact on interactions between surface water and	
undwater:		Chemical Drinking Water Protected Area	Good			No or minimal of impact, no construction necessary.	High	groundwater (i.e. leakage of river water to groundwater). However as the River Dee is regulated to support abstraction and environmental needs, and the increase in abstraction may be	Low
9 - B	l Status	Chemical GWDTEs test	Good					balanced by a reduction in other abstractions, there is likely to be a	
elements for (Chemic	Chemical	Chemical Saline Intrusion	Good					significant impact on the groundwater body. Also Silurian and Ordovician strata are not typically primary aquifers or have high permeability and transmissivity, reducing the sensitivity of the	
eme	៦	General Chemical Test	Good					groundwater body.	
WFD el		Prevent and Limit Objective	Not provided						
	dns	Trend Assessment	Not provided						
= 4	_ F .	Quantitative	Good	N/A	N/A		•		
Overall Status \	otent	Chemical (GW)	Good	Good by 2015	N/A				
0 8	Stat Pote	Overall	Good	Good by 2015	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.

- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
 4- New pipe line water course crossings would be installed via a tenchal and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proformas: \\WAR-FS1.global.amec.com\shared\\Projects\38671 UU WRMP Support\5 Design\Feasible Options\\RZ\WR075\WR075 Stocks Reservior.xlsx

EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/wiybyController?r=357683.08y=355134.08scale=18layerGroups=default&ep=map&textonly=off8alang=_e&topic=floodmap#x=3447058y=511476&ig=1_2,10.8scale=7 EA Historical Landfill: http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=waste&layerGroups=default&lang=_e&ep=map&scale=18.x=357682.09999999948y=355133.9999999994#x=3223748y=497910&ig=1_2,3,10.8scale=7

BGS Geology Mapping: http://mapapps.bgs.ac.uk/geologyofbritain/home.html

Dee Catchment Abstraction Management Strategy: https://naturalresources.wales/media/674759/dee_cams_2015_english.pdf

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	Water body ID:		GB111067052060	Scheme:	Increase	d treatment capacity at Hu		
	Water body Name:		Dee - Ceiriog to Alwen	Reference			WR814b	
	RBMP:		Dee	Scheme Phase	Construction		Operational	
	Operational catchment:		Dee	Impact potential	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	odies:			dwr, Eglwyseg, Trefnant Brook, Eitha			
	Downstream water bodies:		Dee - Chester Weir to					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidenc
	Phytobenthos	Good						
	Macrophytes	Good						
Biology	Macrophytes and phytobenthos	Not applicable					Transfer of water via canal. Minor level of impact. Increased flow in canal likely to be balanced by reduction in	
"	Benthic invertebrates	High					the Canal and River Trust abstraction.	
	Fish	Not provided					Increased quantity of surface water abstraction. Medium level of impact. Increase in licenced quantity of abstraction from 50 Ml/d to 74 Ml/d from the River Dee at Llantisilio. Additional licence volume a result of a	
holo	Hydrological regime	Not provided			Transfer pipe line on land. No or minimal impact.		proposed licence trade from an existing industrial use abstraction located at Heron Bridge of 35 MI/d.	
omorp	River continuity	Not provided			Transfer pipe line with water course crossings. Minor level of impact.	High	The licence trade results in an overall reduction in abstraction quantity from the River Dee of 11 Ml/d, but relocates 24 Ml/d of abstraction into the upper reaches	Low
Hydr	Morphological conditions	Not provided			Marion Stores an ampade		of the river. The Dee AMS indicates there is no new water available for abstraction but it may be possible to trade water with an existing abstractor.	
sico-	General physico-chemical	All reported substances good or high.					It is unclear if 24 M/d would be available at Llantisilio, or if flow restrictions would apply. Flows in the River Dee are regulated to allow public water supply	
- 0	Specific pollutants:	All reported substances good or high.					abstraction. The increase in abstraction at Llantisilio may be balanced by a reduction in abstraction by the Canal and River Trust.	
for Rivers: Chemical	Priority hazardous substances	All reported substances good or high apart from Tributyltin						
	Priority substances	All reported substances good or high.						
i	Ecological	Good	Good by 2015	N/A				
otenti al	Chemical	Fail	Good by 2021	N/A				
Ĕ.	Overall	Moderate	Good by 2021	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4 New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed. 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

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		Water body ID:		GB41102G200200	Scheme:	Increased t	reatment capacity a	at Hurleston WTW via Canal	
		Water body Name:		Dee Silurian/Ordovician	Reference		WR81		
		RBMP:		Dee	Scheme Phase	Construction		Operational	
		Operational catchment:		Dee Silurian/Ordovician	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water		Not identified					
		Downstream water bodies	3:	Not identified					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
s for er: ve	status	Quantitative Dependent Surface Water Body Status	Good						
D elements sroundwate Quantitative	ative S	test	Good					Transfer of water via canal.	
WFD ele Groui	lantita	Intrusion	Good					No or minimal impact. No change in the interaction between the canal and groundwater body expected.	
>	Qua	Balance	Good					Increased quantity of surface water abstraction.	
ater:	ment	Chemical Dependent Surface Water Body Status	Good			Transfer pipe line on land. No or minimal impact.	High	Minor level of impact. Change in flow regime in the River Dee may have an impact on interactions between surface water and groundwater (i.e. leakage of river water to groundwater). However	Low
nts for Groundwa Chemical	us Ele	Chemical Drinking Water Protected Area				Transfer pipe line with water course crossings. No or minimal impact.		as the River Dee is regulated to support abstraction and environmental needs, and the increase in abstraction may be	
or Gre	I Stat	Chemical GWDTEs test	Good					balanced by a reduction in other abstractions, there is likely to be a significant impact on the groundwater body. Also Silurian and	
ents f	emica	Intrusion	Good					Ordovician strata are not typically primary aquifers or have high permeability and transmissivity, reducing the sensitivity of the groundwater body.	
eleme	ర్	General Chemical Test	Good					groundwater body.	
WFD	Suppo rting Fleme	Prevent and Limit Objective	Not provided						
		Trend Assessment	Not provided						
= 5		Quantitative	Good	N/A	N/A				
Overall Status \	otent	Chemical (GW)	Good	Good by 2015	N/A				
0 0,	Δ.	Overall	Good	Good by 2015	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of unconfaminated water, and water would be discharged within the same water body. 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EANRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proformas: \\WAR-F51_global.amec.com\shared\Projects\38671 UU WRMP Support\S Design\Feasible Options\Third Party Options\\WR814c\\WR814c_Increased treatment capacity at Hurleston WTW via pipeline.docx
86S Geology Mapping: http://mapapps.bgs.ac.uk/geologyofbritain/home.html

Dee Catchment Abstraction Management Strategy: https://naturalresources.wales/media/674759/dee_cams_2015_english.pdf

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	Wate	ter body ID:		GB112069060840	Scheme:	THIRD PARTY OPTION: I	Manchester Bolton E	Bury Canal to integrated zone	
	Wate	ter body Name:		Irwell (Roch to Croal)	Reference:			WR816	
	RBN	MP:		North West	Scheme Phase:	Construction		Operational	
	Ope	erational catchment:		Croal Irwell	Impact potential:	Direct		Direct	
	Desi	signation (and uses):		heavily modified					
	Rele	levant upstream water bo	dies:	Irwell (Rossendale STW to Roch), R	och (Spodden to Irwell)				
		wnstream water bodies:		Irwell (Croal to Irk)					
	WF	FD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		ytobenthos	-						
	Mac	crophytes	-						
_	nhvt	crophytes and ytobenthos	Moderate						
ological	Ben	nthic invertebrates	Poor			New surface water intake. Minor level of impact.			
vers: Ec	Fish	h	-			New water treatment works. No or minimal impact		New surface water abstraction quantity No or minimal level of impact. New surface water abstraction from the Manchester, Boltor and Bury Canal near Elton Reservoir of 10 Ml/d.	
for Ri	Hyd		Supports good			New pumping station.		The abstraction is from the canal (assumed to be supplied by Elton Reservoir), rather than	
25	Rive	er continuity	-			Minor level of impact.		from rivers within the surface water body. It is assumed the canal will be managed to	
elem	Mor	rphological conditions	-			Minor level of impact. Transfer pipe line on land. No or minimal impact.	High	maintain flows which support the hydrological regime, so no long term or widespread impacts on the status of the surface water body as a whole are anticipated. A new abstraction licence would be required to be issued by the Environment Agency.	Medium
	2.0	neral physico-chemical	Moderate			Transfer pipe line with water course crossings. Minor level of impact.		Use of new transfer pipe line, pumping station, surface water intake, and water treatment works	
i	Spe	ecific pollutants:	High					No or minimal impact.	
D ts for			Does not require assessement						
WFD elements Rivers:	Prio		Does not require assessement						
Overall Status/Po tential			Moderate	Moderate by 2015	N/A				
atr Se	Che	emical	Good	Good by 2015	N/A				
2 %	Ove	erall	Moderate	Moderate by 2015	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a signi

 New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries of 5 are ground investigation will be carried out and will lied 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

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	Water body ID:		GB71210501	Scheme:	THIRD PARTY OPTION: Manchester I	Bolton Bury Car	nal to integrated zone		
	Water body Name:		Manchester, Bolton and Bury Canal (North)	Reference:		WR816	-		
	RBMP:		North West	Scheme Phase:	Construction		Operational		
	Operational catchment:		Croal Irwell Canals	Impact potential:	Direct	Direct			
	Designation (and uses):		artificial						
	Relevant upstream water bo	odies:							
	Downstream water bodies:								
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good	C	Confidence		Confidence	
	Phytobenthos	-							
	Macrophytes	-							
	Macrophytes and	l.							
≥ .	phytobenthos								
Biology	Benthic invertebrates	-							
	Fish	-					New surface water abstraction quantity		
rpho	Hydrological regime	-					Minor level of impact. New surface water abstraction from the Manchester, Bolton and Bury Canal near Elton Reservoir of 10 Ml/d.		
1 2 2	River continuity	-			New surface water intake.		It is assumed that the canal is supplied with water from Elton Reservoir,		
Hydron	Morphological conditions	-			Minor level of impact.	High	therefore the new abstraction would be matched by a corresponding discharge from the reservoir. It is assumed the canal will be managed to maintain flows	Medium	
sico-		-					which support the hydrological regime, so no long term or widespread impacts on the status of the canal are anticipated. A new abstraction licence would be required to be issued by the Environment Agency.		
Phys	Specific pollutants:	-							
rs ror rs: rical	Priority hazardous substances	Does not require assessment							
Rivers: Chemica	Priority substances	Does not require assessment							
Status\	Ecological	Moderate	Moderate by 2015	N/A					
Sta	Chemical	Good	Good by 2015	N/A					
	Overall	Moderate	Moderate by 2015	N/A					

Assumptions

Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
 Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't hav

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of est

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of exavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer: https://environment.data.gov.uk/catchment-planning/
Engineers Proforma: <a href="https://environment.data.gov.uk/gov

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	Water body ID:		Groundwater	Scheme:	THIRD PART	Y OPTION: Manches	ster Bolton Bury Canal to integrated zone		
	Water body Name:		Northern Manchester Carboniferous Aquifers	Reference			WR816		
	RBMP:		North West	Scheme Phase	Construction		Operational		
			Northern Manchester	Impact potential	Direct		Direct		
	Operational catchment:		Carboniferous Aquifers		Direct		Direct		
	Designation (and uses):		No designation						
	Relevant upstream water bo	dies:							
	Downstream water bodies:								
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
atus	Quantitative Dependent Surface Water Body Status	Good							
ve Sta		Good			New surface water intake.				
ntitati Elen	Quantitative Saline Intrusion	Good			New surrace water intake. No or minimal impact.		New surface water abstraction quantity No or minimal level of impact. New surface water abstraction from the Manchester, Bolton and Bury Canal near Elton Reservoir of 10 M/d.		
Ona	Quantitative Water Balance	Good			Transfer pipe line on land. No or minimal impact.		The abstraction is from the canal (assumed to be supplied by Eton Reservoir), rather than from rivers within the surface water body. The canal and the groundwater body are unlikely		
tatus	Chemical Dependent Surface Water Body Status	Poor			Transfer pipe line with water course crossings. No or minimal impact.	High	to by hydraulically connected, and this secondary aquifer is unlikely to be heavily dependent on surface water bodies to maintain its quantitative water balance. Therefore there are unlikely to be widespread or prolonged effects on the status of the groundwater body. A	Medium	
ical S emen	Chemical Drinking Water Protected Area	Good			New pumping station.		new abstraction licence would be required to be issued by the Environment Agency.		
Ē		Good			No or minimal impact.				
ర్		Good			New water treatment works.		Use of new transfer pipe line, pumping station, surface water intake, and water		
	General Chemical Test	Good			No or minimal impact.		treatment works.		
ants water)	Prevent and Limit Objective	-					No or minimal impact.		
Elem	Trend Assessment	Upward trend							
	Quantitative	Good	Good by 2015	N/A					
	Chemical (GW)	Poor	Good by 2027	N/A					
	Overall	Poor	Good by 2027	N/Δ					

Assumptions
1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't h
4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of ε

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EANRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

EA Abstraction Licence Strategy (xxx): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300488/LIT_7849_fa7980.pc 06/08/2018 Page 191 of 201

Phytochemics -		Water body ID:		GB112069061230	Scheme:	THIRD PARTY OPTION: C	Carr Mill Dam to Integ	grated Resource Zone	
Designation actachment: Designation (and uses): Relevant upstream water bodies: To Mersey) Profesional mater bodies: To Mersey) Profesional mater bodies: To Mersey Profesional mater bodies: To Mersey Profesional mater bodies: To Mersey Profesional Report of Status RelMP objective RelMP o		Water body Name:		Black Brook (Mersey Estuary)	Reference:		WR	817	,
Separation (and used): Heavily Modified Relevant upster models: 1		RBMP:		North West	Scheme Phase:	Construction		Operational	
Designation (and used): Heavily Modified Relevant upstern awater bodies: Ownersear) Ow		Operational catchment:		Sankey	Impact potential:	Direct		Direct	
We be because the properties of the properties o		Designation (and uses):		Heavily Modified					
Confidence Con		Relevant upstream water bo	dies:						
Phytohenitos Accreptytes and hytohenitos Benthic invertebrates Accreptytes and hytohenitos Accreptytes and hytohenitos Benthic invertebrates Accreptytes and hytohenitos Accreptytes and hytohenitos Accreptytes and hytohenitos Benthic invertebrates Accreptytes and hytohenitos Accreptition and the surface water abstraction quantity. Accreptition and the surface water abstraction from the SI helens Canal near Carr Mel Dam of SI Mel. And The abstraction is from the canal (assumed to be suppled by Carr Mil Dam), rather than from rivers within the surface water				to Mersey)					
Macrophytes and elliptoples an		WFD Element (Receptor)	Status	RBMP objective			Confidence		Confider
Accrophytes and phytochrhos Benthic invertebrates Moderate Fish Moderate Fish Moderate Moderate		Phytobenthos	-						
Boylobenitos Company		Macrophytes	-						
Fish Moderate Fish Moderate Moderate	>	Macrophytes and phytobenthos	-						
Fish Moderate Fish Moderate	Biolog	Benthic invertebrates	Moderate			New surface water intake.			
Hydrological regime Supports good River continuity		Fish	Moderate			New water treatment works.		No or minimal impact. New surface water abstraction from the St Helens Canal near Carr	
Morphological conditions General physico-chemical Specific pollutants: Specific pollutants: Priority substances Does not require assessment Does not require assessment Minor level of impact.	oyd.		Supports good			No or minimal impact.		The abstraction is from the canal (assumed to be supplied by Carr Mill Dam), rather than	
Morphological conditions Transfer pipe line on land. No or minimal impact. General physico-chemical Specific pollutants: Priority substances Does not require assessment Does not require assessment Transfer pipe line on land. No or minimal impact. Transfer pipe line with water course crossings. Minor level of impact. Transfer pipe line with water course crossings. Minor level of impact. Priority substances Does not require assessment Transfer pipe line on land. No or minimal impact. Use of new transfer pipe line, pumping station, surface water intake, and water treatment works No or minimal impact. Priority substances Does not require assessment Transfer pipe line on land. No or minimal impact. Use of new transfer pipe line, pumping station, surface water intake, and water treatment works No or minimal impact.	و ج	River continuity	-						
General physico-chemical Good Transfer pipe line with water course crossings. Minor level of impact. Specific pollutants: Priority auardous bustances Does not require assessment Priority substances Does not require assessment	Hydron	Morphological conditions	-				High	impacts on the status of the surface water body as a whole are anticipated. A new	Mediu
Specific pollutants: -	-co-	General physico-chemical	Good			No or minimal impact.		Use of new transfer pipe line, pumping station, surface water intake, and water	
Substances Does not require assessment Priority substances Does not require assessment	Physi	Specific pollutants:	-						
	ical		Does not require assessment						
Ecological Moderate Good by 2027 N/A Chemical Good Good Good by 2015 N/A	Chem	Priority substances	Does not require assessment						
Chemical Good Good by 2015 N/A	ntial	Ecological	Moderate	Good by 2027	N/A			· · · · · · · · · · · · · · · · · · ·	
	Ē	Chemical	Good	Good by 2015	N/A				

Assumptions

Application of standard best practice construction and pollution prevention methods.
 Pole lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
 Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a

Good by 2027

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuari
5- A ground investigation will be carried out and will identify any contaminated land and ray mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, cut outdol involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.cov.uk/catchment-planning/ Engineers Proforma: WWAR-F51; algobalamee. com/shared Projects/38671 UU WRMP Support/5 DesigniFeasible Options/White Party Options/WR817/ EA Abstraction Lecence Strategy (xxx): https://dxxxiv.gov.uk/government/uploads/system/uploads/altachment_datafilie/300490.LTT_7881_3639ed.pdf

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	141-4	ter body ID:		GB71210088	Scheme:	THIRD PARTY OPTION:	O MIII D t- It	and all December 7 and	
		ter body ID: ter body Name:		St Helens Canal	Reference:	THIRD PARTY OPTION:	WR8		
	RBN			North West	Scheme Phase:	Construction	WKC	Operational	
				Sankey Canals	Impact potential:	Direct		Direct	
		erational catchment:		heavily modified	impact potential:	Direct		Direct	1
		signation (and uses):		neavily modified					
		evant upstream water boo	dies:						
	Dow	wnstream water bodies:							
	WE	FD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than		Confidence		Confidence
					Good				
		rtobenthos	-						
		crophytes	-						
		crophytes and	-						
_	≥ phyt	rtobenthos							
8	Bent		-						
ogi	.≅ Bent	nthic invertebrates							
ğ	ш								
ш			-						
ž.	Fish	h							
Š.								New surface water abstraction quantity	
	9 Hvd	drological regime	-					Minor level of impact. New surface water abstraction from the St Helens Canal near Carr	
ē	Ω .							Mill Dam of 23 Ml/d.	
ts	P & Rive	er continuity	-			New surface water intake.			
Je	한 의		-			Minor level of impact.	High	It is assumed that the canal is supplied with water from Carr Mill Dam, therefore the new	Medium
e e	Mor	rphological conditions						abstraction would be matched by a corresponding discharge from the reservoir. It is assumed the canal will be managed to maintain flows which support the hydrological	
9	I							assumed the canal will be managed to maintain flows which support the hydrological	
WFD			-					regime, so no long term or widespread impacts on the status of the canal are anticipated.	
>	o g Gen	neral physico-chemical						A new abstraction licence would be required to be issued by the Environment Agency.	
	ig i								
	Physic		-						
	Spec	ecific pollutants:							
Ď			Does not require assessment						
- S :S	<u>ខ</u> subs	stances							
WFD ments Rivers:	E		Does not require assessment						
_ E E	ਨ Prior	ority substances							
9									
- 8			Moderate	Good by 2027	N/A		•		
s/F	Ecol	ological							
Overall Status/Po	Chei	emical	Good	Good by 2015	N/A				
Str	Over		Moderate	Good by 2027	N/A				
	- VO				Janes -				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which wo

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforms: http://environment.data.gov.uk/catchment-planni EA Abstraction Licence Strategy (xxx): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300490/LIT_7881_35d3 06/08/2018 Page 193 of 201

	Water body ID:		GB41202G100100	Scheme:	THIRD PART	Y OPTION: Carr Mil	I Dam to Integrated Resource Zone	
	Water body Name:		Sankey and Glaze Carboniferous aquifers	Reference		w	R817	
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Sankey and Glaze Carboniferous aquifers	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water b	odies:	-					
	Downstream water bodies:		-					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
antitive	Quantitative Dependent Surface Water Body Status	Good						
r: Que	Quantitative GWDTEs test	Good			New surface water intake.		New surface water abstraction quantity	
dwate	Quantitative Saline Intrusion	Good			No or minimal impact.		No or minimal impact. New surface water abstraction from the St Helens Canal near Carr Mill Dam of 23 M/d.	
Groun	Quantitative Water Balance	Good			Transfer pipe line on land. No or minimal impact.		The abstraction is from the canal (assumed to be supplied by Carr Mill Dam), rather than from rivers within the surface water body. The canal and the groundwater body	
arei .	Chemical Dependent Surface Water Body Status	Poor			Transfer pipe line with water course crossings. No or minimal impact.	High	are unlikely to by hydraulically connected, and this secondary aquifer is unlikely to be heavily dependent on surface water bodies to maintain its quantitative water balance. Therefore there are unlikely to be widespread or prolonged effects on the status of the	Medium
ical Si	Chemical Drinking Water Protected Area	Good			New pumping station.		groundwater body. A new abstraction licence would be required to be issued by the Environment Agency.	
cal cal	□ Chemical GWDTEs test	Good			No or minimal impact.		Environment Agency.	
, 는 년 5	Chemical Saline Intrusion	Good			New water treatment works.		Use of new transfer pipe line, pumping station, surface water intake, and water	
- E	General Chemical Test	Poor			No or minimal impact.		treatment works.	
Timg C	STEPPrevent and Limit Objective						No or minimal impact.	
oddns	Trend Assessment	No trend						
ntial	Quantitative	Good	Good by 2015	N/A				
verall s\Poter	Chemical (GW)	Poor	Poor by 2015	N/A				

Assumptions
1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Poor by 2015

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't ha 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of ex

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EANRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforms: http://environment.data.gov.uk/catchment-planning/
Engineers Proforms: WRMP SupportS Design\/ Feasible Options\/ Third Party Options\/ WRMP SupportS Design\/ Feasible Options\/ Third Party Options\/ Third Party Options\/ WRMP SupportS Design\/ Feasible Options\/ Third Party Options EA Abstraction Licence Strategy (xxx): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300490/LIT_7881_35d3ed.pd 06/08/2018 Page 194 of 201

		Water body ID:		GB71210133	Scheme:	THIRD PARTY OPTION: Shropshire	Union Canal to Integ	rrated Resource Zone	
		Water body Name:		Shropshire Union Canal, Market Drayton to Ellesn	Reference:		WR820		
		RBMP:		North West	Scheme Phase:	Construction		Operational	
		Operational catchment:		Weaver Upper Canals	Impact potential:	Direct		Direct	
		Designation (and uses):		Artificial (Canal)					
		Relevant upstream water be	odies:						
		Downstream water bodies:							
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
- E) div	Macrophytes and phytobenthos	-						
Ecologic	Biology	Benthic invertebrates	-						
vers: F		Fish	-			Modified surface water intake. Minor level of impact.		Transfer of water via canal. Minor level of impact.	
for Ri	ρ.	Hydrological regime	-					Increased surface water abstraction quantity. Minor level of impact. Increased abstraction of 15.5. MI/d from existing	
elements	Hydromo logy	Morphological conditions	-				High	pumps on the Shropshire Union Canal. It is assumed that water will be transferred from elsewhere on the canal system to support this abstraction (although the source is not clear in the engineering pro forma). It is assumed that flows within the canal will be maintained, mitigating any	Low
WFD	rsico- mical	General physico-chemical	High					assumed that nows within the canal will be maintained, mitigating any impact on the hydrological regime of the canal. A new abstraction licence would be required to be issued by the Environment Agency.	
	Physi	Specific pollutants:	-						
TS for	ical	Priority hazardous substances	Does not require assessment						
WFD elements f	,	Priority substances	Does not require assessment						
Overall Status\Po		Ecological	Moderate	Good by by 2027	N/A				
tat.	te	Chemical	Good		N/A				
~ 55		Overall	Moderate	Good by by 2027	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact o

 New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal water.
 Squand investigation will be carried out and will lediently any containminated lend and any mitigation that may be required.
 Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works. 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforms: \WAR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/S Design/Feasible Options\Third Party Options\WR820\WR820\THIRD PA EA Abstraction Licence Strategy (xxx): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/319959/lit_7884_52dcff.pdf

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	Water body ID:		GB112068055340	Scheme:	THIRD PARTY OPTION: Shropshire Union Canal to Integrated Resource Zone					
	Water body Name:		Rookery Brook, Burland and Brindley Bk			WR8				
	RBMP:		North West	Scheme Phase:	Construction		Operational			
	Operational catchment:		Weaver upper	Impact potential:	Direct		Direct			
	Designation (and uses):		modified							
	Relevant upstream water bo	odies:								
	Downstream water bodies:									
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence		
	Phytobenthos	-								
	Macrophytes	-								
_	Macrophytes and phytobenthos	Moderate								
ological	Benthic invertebrates	Moderate								
vers: Ec	Fish	-					Increased surface water abstraction quantity. Minor level of impact. Increased abstraction of 15.5. Mi/d from existing pumps on			
for Ri	Hydrological regime	Supports good			Transfer pipe line on land. No or minimal impact.		the Shropshire Union Canal. The abstraction will be on the canal, a managed water course and not directly from the Rookery Brook.			
ts o s	River continuity	-					water course and not directly from the Rookery Brook.			
elemen Hydron	Morphological conditions	Supports good			Transfer pipe line with water course crossings. Minor level of impact.	High	New transfer pipe line and modified water treatment works No or minimal impact.	Medium		
WFD sico-	General physico-chemical	Moderate			Modified water treatment works. No or minimal impact.		Transfer of water via canal. Minor level of impact.			
Phy e	Specific pollutants:	-								
WFD ments for Rivers:	Priority hazardous substances	Does not require assessment	:							
WF elemen Rivel Chem	Priority substances	Does not require assessment								
srall is/Po itial	Ecological	Moderate	Good by by 2021	N/A						

Chemical

1- Application of standard best practice construction and pollution prevention methods.

Good

Moderate

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant ir

Good by 2015

Good by by 2021

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coasta

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

N/A

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforms: http://environment.data.gov.uk/catchment-planni EA Abstraction Licence Strategy (xxx): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/319959/lit_7884_52dcff.pdf

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		Water body ID:		GB41202G991700	Scheme:	THIRD PARTY OF	PTION: Shropshire	Union Canal to Integrated Resource Zone	
		Water body Name:		Weaver and Dane Qu	Reference			WR820	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment:		Weaver and Dane Qu	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo	dies:						
		Downstream water bodies:							
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ents for Quantitive	atus	Quantitative Dependent Surface Water Body Status	Good						
nents r: Qua	ve Sta	Quantitative GWDTEs test	Good						
WFD eleme	ntitati	Intrusion	Good						
WF		Quantitative Water Balance	Good			Transfer pipe line on land. No or minimal impact.		Use of transfer pipe line, surface water intake, water treatment works, transfer of water via a canal No or minimal impact.	
rater:	Status	Surface Water Body Status	Poor			Transfer pipe line with water course crossings. No or minimal impact.	High	Increased surface abstraction quantity. No or minimal level of impact. Increased abstraction of 15.5. MVd from existing pumps on	Medium
wpun	ical S emen	Protected Area	Good			Modified water treatment works.		the Shropshire Union Canal. It is assumed that flows will be maintained at or above current levels within the canal. As interaction between the canal and the groundwater body are	
2 E	ĒΞ		Poor			No or minimal impact.		likely to be limited, only minimal impacts on the groundwater body are likely to occur. There	
5 5	l ĕ	Chemical Saline Intrusion	Good					are no groundwater management units defined in the ALS.	
s fe	_	General Chemical Test	Poor						
ements for Grou Chemical	rting ants	Prevent and Limit Objective	-						
WFDe	Eleme	Trend Assessment	Upward trend						
i		Quantitative	Good	Good by 2015	N/A				
Overall		Chemical (GW)	Poor	Good by 2027	N/A				
-									

- Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time whic

Good by 2027

- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line cros
 5- A ground investigation will be carried out and will identify any containminated land and any mitigation that may be required
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would invoke relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body. 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \\WAR-FS1.global.amec.com\shared\Projects\\38671\ UU\ WRMP\ Support\5\ Design\Feasible\ Options\Third\ Party\ O EA Abstraction Licence Strategy (xxx): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/319959/lit_7884_5.

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	Water body ID:		GB112068055340	Scheme:		Shropshire Unio	on Canal	
	Water body Name:		Rookery Brook, Burland and Brindley Bk. To Weaver	Reference			WR821	
	RBMP:		Weaver Gowy	Scheme Phase	Construction		Operational	
	Operational catchment:		Weaver Upper	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo	odies:		d Rookery Brook, Source to Bur	and and Brindley Bk			
	Downstream water bodies:		Weaver (Marbury Brook to Dan					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
>	Macrophytes	Not provided						
Siolog	Macrophytes and phytobenthos	Moderate						
	Benthic invertebrates	Moderate			Transfer pipe line on land. No or minimal impact.		New surface water abstraction quantity and transfer of water via the canal. No or minimal impact. New asbtraction of 30 M/d from the Shropshire Union Canal,	
	Fish	Not provided			Transfer pipe line with water course crossings.		Middlewich branch. A new abstraction licence would be required.	
Y logy	Hydrological regime	Supports good			Minor level of impact.	High	It is assumed the canal does not interact hydrologically with the Rookery Brook and so there would be no or minimal impacts on WFD status of this water body. The ALS (Abstraction	Medium
Hydro	River continuity	Not provided			Modified surface water intake. Minor level of impact.	riigii	Licensing Strategy) indicates that there is water available at all flow regimes (Q95, Q70, Q50 and Q30).	Medium
Ē	Morphological conditions	Supports good					· · · · · · · · · · · · · · · · · · ·	
sico- nical	General physico-chemical	All high/good except: Phosphate- poor			New / modified water treatment works. Minor level of impact.		Use of new pipe lines, surface water intake and water treatment works. No or minimal impact.	
Phy	Specific pollutants:	Not provided						
ers:	Priority hazardous substances	Does not require assessment						
Rivers: Chemical	Priority substances	Does not require assessment						
ential	Ecological	Moderate	Good by 2021	N/A				
ntië	Chemical	Good	Good by 2015	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Moderate

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2021

- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a trench and cover technique within a dry working area. New pipe line water course crossings of estuaries or coastal waters would be installed via a trench and cover technique within a dry working area. New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works

N/A

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

EA Historical Landfill: http://maps.environment-

Abstraction Licensing Strategies (Weaver and Dane): https://www.gov.uk/government/publications/weaver-and-dane-abstraction-licensing-strategy

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	Water body ID:			Scheme:		Shropshire Union		
	Water body name:		Shropshire Union Canal, Mar				WR821	·
	RBMP:		North West	Scheme Phase	Construction	·	Operational	
	Operational catchmer	nt:	Weaver Upper Canals	Impact potential	Direct		Direct	
	Designation (and use	s):	Artificial					
	Relevant upstream wa		N/A					
	Downstream water bo		N/A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos							
	Macrophytes							
cological	Macrophytes and phytobenthos							
ers: Ec	Benthic invertebrates							
Š	Fish							
-	Hydrological regime						New surface water abstraction quantity and transfer of water via the canal. Minor level of impact. New astraction of 30 Ml/d from the Shropshire Union Canal, Middlewich branch. A new abstraction licence would be required.	
nen ydrc	River continuity				Modified surface water intake. Minor level of impact.	High	· · · · · · · · · · · · · · · · · · ·	Low
	Morphological conditions				maior state of mipast.		It is unclear from the information provided, but it is likely the abstraction would be supported by water sourced from elsewhere (i.e. the canal is used as a transfer) and flows within the canal managed, so there	
5 8	General physico- chemical	High					would only be minor change in the flow regime of the canal.	
Phys	Specific pollutants:							
WFD elements for Rivers: Chemical	Priority hazardous substances	Does not require assessment						
WFD e for R Che	Priority substances	Does not require assessment						
l ential	Ecological	Moderate	Good by 2027	N\A		·	·	
≣ ē				1				

Assumptions

1- Application of standard best practice pollution prevention methods e.g. the GPPs
2- Small scale shallow dewatering would take place

Good

- 2- Small scale shallow dewatering would take place
 3- Stockpling of resources or spoil near watercourse maybe required
 4- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required
 5- Assumed all over ground pipelay will be along roads and over water crossings along existing bridges
 6- An abstraction licence can be granted that will ensure there is no significant environmental impact from the abstraction
 7- A discharge license would need to be saught to meet environmental regulations for WFD for New discharge scour into Rochdale Canal

Good by 2027 Good by 2027

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: WAR-FS1.gibbal.amec.com/shared/Projects\38671.UU WRMP Support\5 Design\Feasible Options\RZ\WR049b
EA Abstraction Licence Strategy (Ribble, Douglas & Crossens)

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	Water body ID:		GB41202G9	Scheme:		Shrop	oshire Union Canal	
	•			Reference			WR821	
	Water body Name:		Quaternary					
	RBMP:			Scheme Phase	Construction		Operational	
	Operational catchment:			Impact potential	Direct		Direct	
	Designation (and uses):		No designat					
	Relevant upstream water		Not identifie					
	Downstream water bodies	S:	Not identifie					
	WFD Element (Receptor)	Status	RBMP	Alternate Objective if		Confidence		Confidence
			objective	less than Good				
ts for ter: we Status	Surface Water Body Status	Good						
emen Indwa Intitati	Quantitative GWDTEs test	Good						
/FD eleme Groundw Quantita	Quantitative Saline Intrusion	Good						
» no	Quantitative Water Balance	Good			Transfer pipe line on land. No or minimal impact.		New surface water abstraction quantity and use of canal for water transfer. No or minimal impact. A new abstraction licence of up to 30 MI/d from the Shropshire Union Canal. It is unclear	
ater:	Chemical Dependent Surface Water Body Status	Poor			Modified surface water intake. No or minimal impact.	High	from the information provided, but it is likely the abstraction would be supported by water sourced from elsewhe (i.e. the canal is used as a transfer). Overall significant reductions in flow are unlikely so impacts on surface water groundwater interactions will be minimal.	Low
wpunc	Chemical Drinking Water Protected Area				New / modified water treatment works.		Use of new pipe lines, surface water intake and water treatment works.	
chemical	Chemical GWDTEs test	Poor			No or minimal impact.		No or minimal impact.	
Sher Cher	Chemical Saline Intrusion	Good						
9	General Chemical Test	Poor						
WFD	Prevent and Limit	Not provided						
<u> </u>	Trend Assessment	Upward trend						
II entia	Quantitative	Good	Good by 2015	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

Chemical (GW)

Overall

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good by

2027 Good by

2027

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities. 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ Engineers Proformas: \\WAR-FS1.global.amec.com\shared\Projects\\38671.UU WRMP Support\S Design\Feasible Options\\IRZ\WR075\WR075 Stocks Reservior.xksx

EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/controller?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang= e&topic=floodmap#x=344705&y=511476& EA Historical Landfill: http://maps.environm

Abstraction Licensing Strategies (Weaver and Dane): https://www.gov.uk/government/publications/weaver-and-dane-abstraction-licensing-strategy

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	Water body ID:		GB103023075580	Scheme:	Third	Party Option: Blenkin	sopp Mine		
	Water body Name:		Tipalt Burn from Source to South Tyne	Reference			WR824		
	RBMP:		Tyne	Scheme Phase	Construction		Operational		
	Operational catchment:		South Tyne Lower	Impact potential	Direct		Direct		
	Designation (and uses):		No designation						
	Relevant upstream water bo	odies:	Not identified					i i	
	Downstream water bodies:		South Tyne from Tipalt Burn to Allen						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
	Phytobenthos	Not provided							
>	Macrophytes	Not provided							
Biology	Macrophytes and phytobenthos	Poor					New groundwater abstraction quantity. Minor level of impact. New abstraction of 2.2 Ml/d from		
ш	Benthic invertebrates	High					Blenkinsopp Mine. The abstraction licensing strategy (ALS)		
	Fish	High			Transfer pipe line on land. No or minimal impact. Transfer pipe line with water course crossings. Minor level of impact.		indicates that there is water available in the groundwater body, and		
01	Hydrological regime	Supports good					in the surface water body across all flows. Although the abstraction		
<u> </u>	River continuity	Not provided				High	is from groundwater (mine water), this is already discharging to the	Medium	
Hydr	Morphological conditions	Supports good				High	Tipalt Burn, so impacts would be see the hydrological regime of the surface water body rather than the quantitative status of the	wearum	
ıysıc o-	General physico-chemical	All high					groundwater body.		
ī	Specific pollutants:	All high					Transfer pipe line.		
iemi	Priority hazardous substances	All good					No or minimal impact.		
ნ "	Priority substances	All good							
	Ecological	Poor	Good by 2027	N/A					
a	Chemical	Good	Good by 2015	N/A					

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

Poor

- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2027

- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a trench and cover technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proformas: [\www.FSt_global_anccom\shared] TU U WRMP Support\S Design\Feasible Options\IRZ\WR075\WR075\Stocks Reservior.xlsx

EA Flood Maps (\www.FSt_global_anccom\shared); http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=floodmap#x=344705&y=511476&lg=1,2,10.&scale=1

EA Historical Landfill: http://maps.environment-

Abstraction Licencing Strategy (Tyne): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/307287/lit_7873_84be79.pdf

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		Water body ID:			Scheme:		Third Party Option:	Blenkinsopp Mine		
					Reference					
		Water body Name:		Permo-Triassic sandstone aquifers			WR	824		
		RBMP:			Scheme Phase	Construction		Operational		
		Operational catchment:		Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Impact potential	Direct		Direct		
		Designation (and uses):		No designation						
		Relevant upstream water		Not identified Not identified						
		Downstream water bodies	s: 	Not identified	Alternate Objective if					
		WFD Element (Receptor)	Status	RBMP objective	less than Good		Confidence		Confidence	
elements for oundwater: uantitative	Status	Surface Water Body Status	Good Good							
emei ndwa	Groundwater Quantitative Quantitative Sta Element	test								
WFD el Grou		Quantitative Saline Intrusion	Good							
3	ð	Balance	Good					New groundwater abstraction quantity. No or minimal impact. New abstraction of 2.2 MI/d from		
vater:	ement	Chemical Dependent Surface Water Body Status	Good			Transfer pipe line on land. No or minimal impact.	High	Blenkinsopp Mine. The abstraction licensing strategy (ALS) indicates that there is water available in the groundwater body, and the abstracted water would be discharging from the mine	Medium	
Groundw	us Ele	Chemical Drinking Water Protected Area	Poor			Transfer pipe line with water course crossings. No or minimal impact.		without the abstraction.		
or Gre	Stat	Chemical GWDTEs test	Poor					Transfer pipe line. No or minimal impact		
ents for Chemic	emica	Chemical Saline Intrusion	Good							
eleme	G Che	General Chemical Test	Good							
WFD		Prevent and Limit Objective	Not provided							
	,, .		Upward trend							
all Is\	Ē		Good	Good by 2015	N/A					
overall status\	al	Chemical (GW)	Poor	Good by 2027	N/A					
5.75				0 11 0007	****					

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

Poor

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good by 2027

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

N/A

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.
- 8- Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells will be designed, constructed, and tested in such a way as to prevent groundwater becoming polluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/

Engineers Proformas: \\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\IRZ\WR075\WR075 Stocks Reservior.xlsx

EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=floodmap#x=344705&EA Historical Landfill: http://maps.environment-

Abstraction Licencing Strategy (Tyne): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/307287/lit_7873_84be79.pdf

Appendix D Summary of Level 1 Screening and Level 2 Detailed Assessments for Resilience Options

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Option		WFD Water Body Info	ormation												Option Detail	_	T	face	re fe on		Impacts				
															e on la	h wate ings	tunnel vafts)	ied sur iver) in	g statik ied wa orks	sed r quantity					
															ne and ated tructur	ne with	unnel/ (inc.sh	modifi (e.g. ri	umpin modifi	'increa e wate iction q		Level 2			
Ref Solutions	Option Description	ID	Туре	Hydro - morphological Designation	Name	Operational Catchment	Ecological Status	Ecological Objective	Quantitative Status	Quantitative Objective	Chemical Status	Chemical Objective	Overall Status	Overall Objective	Pipe li associ infrast	Pipe li course	New t works	New / water	New / New / treatn	New / surfac abstra	Level 1 Screening Results	Screening Required?	Level 2 Screening Results	Confidence	Combined Screening Result
3 C	HA to Raw: 2 Stage filtration Woodgate Hill	-	-	-	-	-	-	-	-	-	-			-	Y	N	N	N	N Y	N	No or minimal impact	N	-	High	No or minimal impact
37-38 B	Haweswater Aqueduct section T05 to T06 (Ribblesdale SW to Woodgate Hill) Haweswater Aqueduct section T05 to T06 (Ribblesdale SW	GB112069064641	River	heavily modified	Irwell (Cowpe Bk to Rossendale STW)	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-38 B	to Woodgate Hill) Haweswater Aqueduct section T05 to T06 (Ribblesdale SW	GB112069064620	River	heavily modified	Irwell (Rossendale STW to Roch)	Croal Irwell	Moderate	Moderate by 2	15 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-38 B	to Woodgate Hill) Haweswater Aqueduct section T05 to T06 (Ribblesdale SW	GB112069064600	River	heavily modified	Roch (Spodden to Irwell)	Roch Irk Medlock	Moderate	Moderate by 2	15 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-38 B	to Woodgate Hill) Haweswater Aqueduct section T05 to T06 (Ribblesdale SW		GroundWaterBoo	d not applicable	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-38 B	to Woodgate Hill) Haweswater Aqueduct section T05 to T06 (Ribblesdale SW		River	heavily modified	Calder - Pendle Water to conf Ribble	Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-38 B	to Woodgate Hill) Haweswater Aqueduct section T05 to T06 (Ribblesdale SW	GB112071065040 GB112069064650	River	heavily modified heavily modified	Hyndburn	Calder Croal Irwell	Moderate Moderate	Good by 2027 Good by 2027	n/a	n/a	Good	Good by 2015 Good by 2015	Moderate	Good by 2027 Good by 2027	, ,	N	- Y	N	N N	N	Medium level of impact Medium level of impact	Y	Medium level of impact Medium level of impact	Low	Medium level of impact Medium level of impact
37-38 B	to Woodgate Hill) Haweswater Aqueduct section T05 to T06 (Ribblesdale SW to Woodgate Hill)		GroundWaterPor	not applicable	Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a	G000 by 2027	Good.	Good by 2015	Roor	Good by 2015	Moderate	Good by 2027	- ' -	N	- '	N N	N N	N	Medium level of impact	Ţ	Medium level of impact	Low	Medium level of impact
37-42 D, E	Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill)	GB112069064641	River	heavily modified	Irwell (Cowpe Bk to Rossendale STW)	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	,	N	- ·	N	N N	N	Medium level of impact	,	Medium level of impact	low	Medium level of impact
37-42 D, E	Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill)	GB112069064620	River	heavily modified	Irwell (Rossendale STW to Roch)	Croal Irwell	Moderate	Moderate by 2	15 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill)	GB112069064600	River	heavily modified	Roch (Spodden to Irwell)	Roch Irk Medlock	Moderate	Moderate by 2		n/a	Good	Good by 2015	Moderate	Moderate by 2015		N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill)	GB41202G101800	GroundWaterBoo	d not applicable	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Υ	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112071065490	River	heavily modified	Calder - Pendle Water to conf Ribble	Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct Sections TO1 to TO6 (Mealbank Haweswater Aqueduct Sections TO1 to TO6 (Mealbank	GB112071065040	River	heavily modified	Hyndburn	Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct Sections TO1 to TO6 (Mealbank Haweswater Aqueduct Sections TO1 to TO6 (Mealbank	GB112069064650	River	heavily modified	Ogden	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB41202G100300	GroundWaterBoo	d not applicable	Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112071065520	River	not designated artificial or I		Ribble Middle - Settle to Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill)	GB112072066050	River	not designated artificial or l		Wenning Hedder and Loud	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y	N	Y	N	N N	N a-	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill)	GB112071065420 GB112071065560	River	not designated artificial or l		Hodder and Loud Hodder and Loud	Good	Good by 2015 Good by 2015	n/a	n/a	Good	Good by 2015 Good by 2015	Good	Good by 2015 Good by 2015	· ·	N N	Y Y	N N	N N	N	Medium level of impact	¥ •	Medium level of impact Medium level of impact	Low	Medium level of impact Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill)	GB112071065560 GB41202G103000	GroundWaterRoa	not designated artificial or I not applicable	h Hodder - conf Easington Bk to conf Ribble Ribble Carboniferous Aquifers	Ribble Carboniferous Aq	n/a	n/a	Good	n/a Good by 2015	Good	Good by 2015 Good by 2015	Good	Good by 2015 Good by 2015	Y	N	Y	N N	N N	N	Medium level of impact Medium level of impact	Y	Medium level of impact Medium level of impact	Low	Medium level of impact Medium level of impact
37-42 D, E	Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill)	GB112073071090	River	heavily modified	Peasey Beck	Bela	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill)	GB112072071690	River		Lune - conf Rawthey to conf Greta	Lune - Rawthey to Greta	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Υ	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill)	GB112073071080	River	not designated artificial or I		Bela	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill)	GB41202G102100	GroundWaterBoo	not applicable	South Cumbria Lower Palaeozoic and Carboniferous Aquifers	Cumbria South Lower Palaeozoic and Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Υ	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB41202G102700	GroundWaterBoo	d not applicable	Lune and Wyre Carboniferous Aquifers	Lune and Wyre Carboniferous Aq	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112073071370	River	not designated artificial or I	h Mint	Kent	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112073071340	River	not designated artificial or I	h Flodder Beck	Kent	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill)	GB112073071100	River	not designated artificial or I	n Stainton Beck	Bela	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
46 A, E	WELM Uprate to 150MI/day	-	-	-	-	-	-	-	=	=	-	-	-	-	Y	N	N	N	N N	N	No or minimal impact	N	-	High	No or minimal impact
112 B, D	HA Outage (4 weeks) for installation of connections HA to Raw: Fober Barn	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N N	N	No or minimal impact	N N	-	High	No or minimal impact
213 C	HA to Raw: Martholme			_			-	_	-		_		_	-	, ,	N	N	N N	N Y	N	No or minimal impact	N N	-	High	No or minimal impact
214 C	HA to Raw: Townsend Fold	-	_	-	_	-	-	-		_	-	-	-	-	Y	N	N	N	N Y	N	No or minimal impact	N	-	High	No or minimal impact
215 E	Alternative Supply: Raw water transfer and WTW at Martholme BSP	GB112071065500	River	heavily modified	Ribble - conf Calder to tidal	Big Ribble	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	Y	N	Υ	Y Y	Y	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
215 E	Alternative Supply: Raw water transfer and WTW at Martholme BSP	GB41202G103000	GroundWaterBoo	d not applicable	Ribble Carboniferous Aquifers	Ribble Carboniferous Aq	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	Y	Υ	N	Y	Y Y	Y	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
216 A, E	Alternative Supply: Raw water abstraction and WTW at Townsend Fold BSP	GB112069064641	River	heavily modified	Irwell (Cowpe Bk to Rossendale STW)	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	Υ	N	Υ	Y Y	Y	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
216 A, E	Alternative Supply: Raw water abstraction and WTW at Townsend Fold BSP Alternative Supply: Raw water transfer and WTW at Fober	GB41202G101800	GroundWaterBoo	not applicable	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y	Υ	N	Υ	Y Y	Y	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
217 E	Barn BSP Alternative Supply: Raw water transfer and WTW at Folder Alternative Supply: Raw water transfer and WTW at Mill	-	-	-	-	_	-	-	-	-	-	-	-	-	Y	Y	N	N	N Y	N	Minor level of impact	N	-	High	Minor level of impact
218 E	Lane Metals & UV treatment of bulk supply points (BSPs):	-	-	-	-	-	-	-	-	-	-	-	-	-	Υ	Y	N	N	N Y	N	Minor level of impact	N N	-	High	Minor level of impact
238 B	Woodgate Hill	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N Y	N	No or minimal impact	N	-	High	No or minimal impact
260 A	Ribblesdale South Well Isolation	-	-	-	-	-	-	-	-	+	-	-	-	-	Y	N	N	N	N N	N	No or minimal impact	N	-	High	No or minimal impact
261 A	Townsend Fold South Well Isolation T05 targeted repair 2025	GB112069064641	River	heavily modified	Irwell (Cowpe Bk to Rossendale STW)	Croal Irwell	- Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	- Moderate	Good by 2027	Y N	N N	N V	N N	N N	N N	No or minimal impact Medium level of impact	N V	Minor level of impact	High	No or minimal impact Minor level of impact
296 A	T05 targeted repair 2025	GB112089064641 GB41202G101800	GroundWaterRoa	not applicable	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2015	Poor	Good by 2027	N	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
297 A	T06 targeted repair 2025	GB112069064620	River	heavily modified	Irwell (Rossendale STW to Roch)	Croal Irwell	Moderate	Moderate by 2	15 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N	N	Y	N	N N	N	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact
297 A	T06 targeted repair 2025	GB112069064600	River	heavily modified	Roch (Spodden to Irwell)	Roch Irk Medlock	Moderate	Moderate by 2		n/a	Good	Good by 2015	Moderate	Moderate by 2015	N	N	Y	N	N N	N	Medium level of impact		Minor level of impact	Low	Minor level of impact
297 A	T06 targeted repair 2025	GB41202G101800	GroundWaterBoo	d not applicable	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N	N	Y	N	N N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
301 C	Lunesdale Siphon BSPs North	-	-	-	-	-	-	-	-	-	-	-	-	-	Y	Y	N	N	N N	N	Minor level of impact	N	-	High	Minor level of impact
303 C	Lunesdale Siphon BSPs South	-	_	-	-	-	-	-	-	-	-	-		-	Y	Y	N	N	N N	N	Minor level of impact	N	-	High	Minor level of impact
306 C	Ribblesdale Siphon BSPs North Metals & UV Treatment of Bulk Supply Points (BSPs):	-	=	-	_	_	-	-	-	-	-	-	-	-	Y	Y	N	N	N N	N	Minor level of impact	N N	-	High	Minor level of impact
348 B	Lunesdale Siphon, Mansergh BSP Metals & UV Treatment of Bulk Supply Points (BSPs):	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N Y	N	No or minimal impact	N	-	High	No or minimal impact
349 B	Lunesdale Siphon, Casterton BSP Metals & UV Treatment of Bulk Supply Points (BSPs):	-	=	-	-	-	-	-	-	=	-	-	-	-	N	N	N	N	N Y	N	No or minimal impact	N	=	High	No or minimal impact
350 B	Lunesdale Siphon, Parkside Farm BSP Metals & UV Treatment of Bulk Supply Points (BSPs):	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N Y	N .	No or minimal impact	N	-	High	No or minimal impact
351 B	Lunesdale Siphon, Jacksons Pasture BSP Metals & UV Treatment of Bulk Supply Points (BSPs): Lunesdale Siphon, Loweill RSP	-	-	-	-	-		-	-			-	-		N N	N	N N	N N	N Y	N N	No or minimal impact	N N	-	High	No or minimal impact
352 B	Lunesdale Siphon, Lowgill BSP Metals & UV Treatment of Bulk Supply Points (BSPs): Lunesdale Siphon, Birks Farm BSP					-		-	-					-	N N	N	N N	N N	N Y	N N	No or minimal impact No or minimal impact	N N	_	High	No or minimal impact No or minimal impact
354 B	Metals & UV Treatment of Bulk Supply Points (BSPs): Hodder Siphon, Fober Barn BSP	-			-	-	-	-	-	_	-	-	-	-	N	N	N	N	N V	N	No or minimal impact	N	-	High	No or minimal impact
355 B	Metals & UV Treatment of Bulk Supply Points (BSPs): Ribblesdale Siphon, Waddington BSP														N	N	N	N	N Y	N	No or minimal impact	N	<u>-</u>	High	No or minimal impact
356 B	Metals & UV Treatment of Bulk Supply Points (BSPs): Ribblesdale Siphon, Bashall Town BSP							-			-			-	N	N	N	N	N Y	N	No or minimal impact	N	-	High	No or minimal impact
357 B	Metals & UV Treatment of Bulk Supply Points (BSPs): Ribblesdale Siphon, Spring Wood BSP	-	_	-	-	-	-	-	-	_	_		-	-	N	N	N	N	N Y	N	No or minimal impact	N	-	High	No or minimal impact
358 B	Metals & UV Treatment of Bulk Supply Points (BSPs): Ribblesdale Siphon, Martholme BSP	-	-	-	_	_	-	-	-	-	-	-	-	-	N	N	N	N	N Y	N	No or minimal impact	N	-	High	No or minimal impact
359 B	Metals & UV Treatment of Bulk Supply Points (BSPs): Ribblesdale Siphon, Brown Birks BSP Metals & UV Treatment of Bulk Supply Points (BSPs):	-	-	-	-	-	-	-	-	-	-	-		-	N	N	N	N	N Y	N	No or minimal impact	N	-	High	No or minimal impact
360 B	Haslingden Walmsley Tunnel (Townsend Fold BSP)	-	÷	-	-	_	-	-	=	÷	-	-	-	-	N	N	N	N	N Y	N	No or minimal impact	N	=	High	No or minimal impact
382 C	HA to Raw: Watchgate WTW reduced flow	-	1-	-	1-	_	-	-	-	-	-	-	-	-	Y	Y	N	N	N Y	N	Minor level of impact	N	-	High	Minor level of impact

Appendix E Level 2 Detailed Assessments for Resilience Options

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W	Vater body ID:		GB112069064641	Scheme:	Haweswater Aqueduct section T05 to 1	T06 (Ribblesdale SW	f to Woodgate Hill)	
W	Vater body Name:		Irwell (Cowpe Bk to Rossendale STW)	Reference		Option - 37-38		
	RBMP:		North West	Scheme Phase	Construction		Operational	
o	Operational catchment:		Croal Irwell	Impact potential	Direct		Direct	
D	Designation (and uses):		Heavily modified					
R	Relevant upstream water bo	dies:	Irwell (Source to Whitewell	Brook), Limy Water and Whitewe	all Brook			
D	Downstream water bodies:		Irwell (Rossendale STW to	Roch)				
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
Р	Phytobenthos	Not provided						
M	Macrophytes	Not provided			New connections to Haweswater Aqueduct. Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe construction between			i
	Macrophytes and hytobenthos	Moderate	Good by 2027		penstock chamber and new tunnel.			
В	Benthic invertebrates	Good	Good by 2015		Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater levels and flows, which could in turn impact on baseflows to nearby water courses, but this would be localised and temporary. It is assumed that no			
F	ish	Not provided			water courses would be crossed or diverted for the new connection.			
9	lydrological regime	Supports good	Supports good by 2015		Accidental leakages or spills from construction machinery may affect the chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in		New connections to Haweswater Aqueduct.	
R	River continuity	Not provided			light, or the chemical status of the surface water body, particularly if contaminated.		Minor level of impact. Penstock shaft. The presence of a new concrete lined shaft may disrupt	
<u>a</u> w	Morphological conditions	Not provided			However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.		groundwater levels and flows, which could in turn impact on baseflows to nearby water courses, but this would be localised.	
G	General physico-chemical	All high except: Phosphate- moderate and pH- moderate	Phosphate and pH good by 2027		Construction of new tunnel.		Presence and operation of new tunnel.	
s	Specific pollutants:	Not provided			Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Ribblesdale South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 12.0 m and has a total length of 19.2 km. Temporary shafts every 3 km. The ALS states that the surface water body has water available across all flow regime. Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in turn impact on baseflows to nearby water courses. This could result in a reduction in ecological or chemical status. However impacts are likely to be	Low	Medium level of impact. Part of new 2.5 m diameter conduit and 2.85 m diameter tunnel between Ribblesdale South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total length of 19.2 km. Disruption of groundwater flows and levels may occur (see tab 37-38 - GB41202G101800). This may result in long term or widespread changes to baseflow to watercourses. The ALS states that there is water available across all flows, but the potential magnitude of impacts are at present poortly	Low
	Priority hazardous substances	Does not require assessment			heatry water courses. I his could result in a reduction in ectopical or chemical satus. However impacts are inkey to be temporary and localised and the availability of water in the water body indicates some temporary reduction in baseflow could be tolerated. Accidental leakages or splils from construction machinery at the surface may affect the chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or		understood. If reductions in baseflow are of a large magnitude there could be a deterioration in the hydrological regime of the surface water body.	
P	Priority substances	Does not require assessment			reduction in light, or the chemical status of the surface water body, particularly if contaminated. However, construction best practice and pollution prevention measures would help prevent and/or miligate against a prolonged or widespread impact on the surface water body.			
Е	cological	Moderate	Good by 2027	N/A				
С	Chemical	Good	Good by 2015	N∖A				
-	Overall	Moderate	Good by 2027	N/A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.
2- Pige lines will cross water courses with existing readways where possible to limit the amount of new watercourse crossings.
3- Laying of the pipeline across water courses with existing readways where possible to limit the amount of new watercourse crossings.
3- Laying of the pipeline across water courses with existence of the bed.
4- New pipe line water course crossings would be installed via a tranch and cover inchnique within a dry working area. New pipe line or crossings would be installed via a tench and cover inchnique within a dry working area. New pipe line or crossings would be installed via a tench and cover inchnique within a dry working area. New pipe line or crossings would be installed via a tench and cover inchnique within a dry working area. New pipe line or crossings would be installed via a tench and cover inchnique within a dry working area. New pipe line or crossings well as the pipeline across the pipe

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforms: http://environment/uploads/system/uploads/statchment.data/file/300488.LTT
Coal Authority. http://environment.data/file/300488.LTT
Tocal Authority. https://environment.data/file/300488.LT
Tocal Auth

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[Water body ID:		GB112069064620	Scheme:	Haweswater Aqueduct section T05 to T	T06 (Ribblesdale SW	to Woodgate Hill)	
	Water body Name:		Irwell (Rossendale STW to Roch)	Reference		Option - 37-38		
l	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Croal Irwell	Impact potential	Direct	Direct		
ļ	Designation (and uses):		Heavily modified					
	Relevant upstream water bo	dies:		dale STW), Kirklees Brook and 0	Ogden			
ļ	Downstream water bodies:		Irwell (Roch to Croal)					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
		Not provided						
go	Macrophytes and phytobenthos	Moderate	Moderate by 2015		Construction of new tunnel.			
0	Benthic invertebrates	Good	Good by 2015		Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Ribblesdale South Well and Woodgate Hill, including associated temporary and permanent			
~	Fish	Not provided			shafts. Tunnel depth is up to 120 m and has a total length of 19.2 km. Temporary shafts every 3 km. The ALS states that the surface water body has water available across all flow regime.		Presence and operation of new tunnel.	
	Hydrological regime	Supports good	Supports good by 2015		Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in turn		Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Ribblesdale South Well and Woodgate Hill, including	
у	River continuity	Not provided			impact on baseflows to nearby water courses. This could result in a reduction in ecological or chemical status. However impacts are likely to be temporary and localised to the vicinity of the shaft	Low	associated permanent shafts. Tunnel depth is up to 120 m and has a total length of 19.2 km.	Low
нуаго	Morphological conditions	Not provided			locations, and the availability of water in the water body indicates some temporary reduction in baseflow could be tolerated.		Disruption of groundwater flows and levels may occur (see tab 37-38 - GB41202G101800). This may result in long term or widespread changes to	
sico- nical	General physico-chemical	All high/good except: Phosphate- poor	Phosphate poor by 2015		Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water body. Release of sediments from construction work may affect the		baseflow to watercourses. The ALS states that there is water available across all flows, but the potential magnitude of impacts are at present poorly understood. If	
cher	Specific pollutants:	Not provided			ecological status due to smothering of habitats or reduction in light, or the chemical status of the surface water body, particularly if contaminated. However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact		reductions in baseflow are of a large magnitude there could be a deterioration in the hydrological regime of the surface water body.	
	Priority hazardous substances	Does not require assessment			on the surface water body.			
5	Priority substances	Does not require assessment						
	Ecological	Moderate	Moderate by 2015	N\A				
	Chemical	Good	Good by 2015	N\A				
	Overall	Moderate	Moderate by 2015	N\A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

- 5. A ground investigation will be carried out and will identify any contaminated land and any miligation that may be required.
 6. Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the cortext of any WFD water body catchment, and would not involve the required memory and the context of any WFD water body catchment, and would not involve the required memory and the context of any WFD water body catchment, and would not involve the required memory and the context of any WFD water body catchment, and would not involve the required and and any miligation that may be required.
 6. Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the cortext of any WFD water body catchment, and would not involve the required a permit from the Environment Agency/Natural Reprovises and the context of any WFD water body catchment, and would not require a permit from the Environment Agency/Natural Reprovises and the context of any WFD water body water treatment works, etc. would not require a permit from the Environment Agency/Natural Reprovises and the context of any WFD water body water treatment works, etc. would not require a permit from the Environment Agency/Natural Reprovises and the context of any WFD water body water treatment works, etc. would not require a permit from the Environment Agency/Natural Reprovises and the context of any WFD water body water treatment works, etc. would not require a permit from the Environment Agency/Natural Reprovises and the context of any WFD water body water treatment works, etc. would not require a permit from the Environment Agency/Natural Reprovises and the context of a permit from the Environment Agency/Natural Reprovises and the context of a permit from the Environment Agency Natural Reprovises and the context of a permit from the Environment Agency Natural Reprovises and the context of a permit from the Environment Agency Natural Reprovises

Catchment Data Explorer; http://environment.data.gov.uk/catchment-planning/
Engineers Proforma; WRMP\C11\/ New Turnorment.data.gov.uk/catchment-planning/
Engineers Proforma; <a href="http://environmen EA Abstraction Licence Strategy (Northern Manchester): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300488/LI Coal Authority: http://mag

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wat	ter body ID:		GB112069064600	Scheme:	Haweswater Aqueduct section T05 to T06 (F	Kippiesdale SW to W	ooagate Hill)	
100	and the standard Manager		Doob (Occadedon to 1 1111	Reference		Option - 37-38		
	ter body Name: MP:		Roch (Spodden to Irwell)	Scheme Phase	Construction		Operational	
KBI	WP:		North West	Impact potential				
One	erational catchment:		Roch Irk Medlock	impact potential	Direct		Direct	
	ignation (and uses):		Heavily modified					T
Des	ignation (and uses).		Tieavily illoullieu					
Pole	evant upstream water bod	llanı	Nadan Brook Book (Cours	ce to Spodden), Spodden and Whi	Male Proof (Invall)			
	vnstream water bodies:	nes.	Irwell (Roch to Croal)	ce to Spodden), Spodden and Will	the Brook (irweil)			
DOW	viistream water boules.		II Well (Kocil to Croal)	Alternate Objective if less than				
W	FD Element (Receptor)	Status	RBMP objective	Good		Confidence		(
Phy	rtobenthos	Not provided						1
					New connections to Haweswater Aqueduct.			
Mac	crophytes	Not provided			Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe construction between			
		•			penstock chamber and new tunnel.			
	crophytes and	Not provided			Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater levels and flows, which could			
phy	tobenthos	rtor provided			in turn impact on baseflows to nearby water courses, but this would be localised and temporary. It is assumed that no water			
_					courses would be crossed or diverted for the new connection.			
Ben	thic invertebrates	Moderate	Good by 2027		Accidental leakages or spills from construction machinery may affect the chemical status of the surface water body. Release of			
					sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the chemical status of the surface water body, particularly if contaminated.		Noncompatible to the control of the	
					However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or		New connections to Haweswater Aqueduct. Minor level of impact. Penstock shaft. The presence of a new concrete lined shaft may disrupt	
Fish	n	Not provided			widespread impact on the surface water body.		groundwater levels and flows, which could in turn impact on baseflows to nearby water courses,	
					widespread impact on the surface water body.		but this would be localised.	
					Construction of new tunnel,		Dat this World Do toodhood.	
Hvd	Irological regime	Not provided			Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Ribblesdale South		Presence and operation of new tunnel.	
g ''yu	irological regime	Not provided			Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total		Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between	1
5					length of 19.2 km. Temporary shafts every 3 km. The ALS states that the surface water body has water available across all flow	Low	Ribblesdale South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth	n e
Ē.,					regime.		is up to 120 m and has a total length of 19.2 km.	
Rive	er continuity	Not provided					Discouling of country for an electric service of the AT AN ACT COUNTRY TO	
2				4	Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in turn impact on baseflows to nearby water courses. This could result in a reduction in ecological or chemical status. However impacts are likely to be temporary and		Disruption of groundwater flows and levels may occur (see tab 37-38 - GB41202G101800). This may result in long term or widespread changes to baseflow to watercourses. The ALS states that	
ý					localised and the availability of water in the water body indicates some temporary reduction in baseflow could be tolerated.		there is water available across all flows, but the potential magnitude of impacts are at present	
Mor	rphological conditions	Not provided			countries and the artifacturity of water three water body indicates some temporary reduction in paseitor countries.		poorly understood. If reductions in baseflow are of a large magnitude there could be a	
					Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water body.		deterioration in the hydrological regime of the surface water body.	
7					Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light,			
Gen	neral physico-chemical	All high/good except:	Phosphate poor by 2015		or the chemical status of the surface water body, particularly if contaminated. However, construction best practice and pollution			
5		Phosphate- poor			prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.			
5					The order is believed a control of the control of t			
Sne	cific pollutants:	Iron- High			The option includes a conduit bridge over the Gypsy Brook. In channel works may reduce the chemical status due to deterioration in water quality due to disturbance of soils and sediments, particularly if contaminated, or due to accidental spillage or leakage of			
E Ope	omo ponumito.	non riigii			In water quality due to disturbance or soils and sediments, particularly if contaminated, or due to accidental spillage or leakage of fuels, oils and other chemicals associated with construction machinery. The ecological status may reduce due to smothering of			
					habitats or reduction in light due to release of sediments, or changes to in hydrological regime, river continuity or morphological			
Prio	ority hazardous				conditions due to impoundments or changes to the structure of the channel. However, construction best practice and pollution			
	stances	Does not require assessment			prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.			
Prio	ority substances	Pentachlorophenol- good						
Eco	logical	Moderate	Moderate by 2015	N\A				
	emical	Good	Good by 2015	N/A				

Overall

Moderate by 2015

Assumptions

1. Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4. New pipe line veater courses gwould be installed via a tronk and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5. A ground investigation will be carried out and will identify any contaminated land and any mitigation has may be required.

Moderate

6- Extensions, modifications, or new pumping stations, water freatment works, etc. would involve a relatively small fodprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Devatering of excavations would not require a permit from the Environment Agency/Natural Resources Water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforms: https://www.gov.uk/government/uploads/system/uploads/stachment.data/file/3004894.IT.7
Coal Authority: https://mapagos2.bps.ac.uk/coalsuthority/home.html

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	Water body ID:		GB41202G101800	Scheme:	Haweswater Aqueduc	t section T05 to T06 (Ribblesdale SW to Woodgate Hill)	
	Water body Name:		Northern Manchester Carboniferous Aquifers			Ор	tion - 37-38	
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Manchester Northern Carboniferous Aq	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water	bodies:	N\A					
	Downstream water bodie	s:	N\A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
dwater:	Quantitative Dependent Surface Water Body Status	Good	Good by 2015		New connections to Haweswater Agueduct.			
or Ground	Quantitative GWDTEs test	Good	Good by 2015		Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe construction between penstock chamber and new tunnel.			
ements for Quantit	Quantitative Saline Intrusion	Good	Good by 2015		Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater levels and flows, but this would be localised and temporary. Accidental leakages or spills from construction machinery may affect the chemical status of the groundwater body, but construction best practice and polition prevention measures would help		New connections to Haweswater Aqueduct. Minor level of impact. Penstock shaft. The presence of a new concrete lined shaft may disrupt groundwater levels and flows, but this would be localised.	
WFD el	Quantitative Water Balance	Good	Good by 2015		prevent and/or mitigate against a prolonged or widespread impact on the groundwater body. Construction of new tunnel.		Presence and operation of new tunnel. Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Ribblesdale South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a	
	Chemical Dependent Surface Water Body Status	Poor	Good by 2027		Medium level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter turnel between Ribblesdale South Verbauer and the lill, including associated temporary and permanent Sur Turnel depth is up to 12 m and verbauer lill, including associated temporary shafe every 3 km. Solid geology is Carboniferous Milistone Gritt, and Pennine Lower Coal Measures, a		total length of 19.2 km. Solid geology is Carboniferous Millstone Grit, and Pennine Lower Coal Measures, a secondary A aquifer.	
hemical	Chemical Drinking Water Protected Area	Good	Good by 2015		secondary A aquifer. Quantitative Status: Dewatering of the tunnel and shafts may affect groundwater levels and flows and	Low	Quantitative Status: No dewatering of the tunnel or shafts would take place post construction, and ground ingress is expected to be minimal (the tunnels would be designed and maintained to prevent groundw: ingress in order to protect raw water quality). The tunnel will be constructed within the saturated zone of the aquifer and the presence of a low permet.	Low
dwater: C	Chemical GWDTEs test	Good	Good by 2015		the quantitative water balance of the groundwater body. Although temporary in nature, due to the length of the tunnel, and number and depth of shafts, the impacts could be widespread. Chemical status: There is the potential for the interception of shallow contaminated land or deeper		linear structure may alter groundwater flows and levels, particularly where the tunnel is shallower and within the zone of active groundwater flow, or if the orientation of the tunnel is perpendicular to the direction of groundwater flow. In addition disturbance of the strata surrounding the tunnels and shafts may result in altered or preferential groundwater flow pathways. Changes in shallow groundwater levels and flow may affect surface water bodies	
or Ground	Chemical Saline Intrusion	Good	Good by 2015		coal mine workings in the Carboniferous strata. The option information indicates a landfill at the surface, and information from The Coal Authority shows mine entries and abandoned mine workings close to the route of the tunnel. Interception of these features may result in vertical or lateral migration of contaminated groundwater or mine waters into previously unaffected parts of the		groundwater now partways. Changes in shallow groundwater levels and now may affect surface water booles and groundwater dependent terrestrial ecosystems (i.e. reductions in baseflow). Chemical Status: The tunnel would be used to transfer raw water of potable standard. Any leakages from the	
ements f	General Chemical Test	Good	Good by 2015		Leakages or spillages from construction machinery could affect the chemical status of the groundwater body. While construction machinery could affect the chemical status of the groundwater body. While construction best practice and pollution prevention measures would limit		tunnel to the groundwater body would locally after the groundwater chemistry, but it is assumed the potable standard water would be free from hazardous and priority hazardous substances and other pollutants, and would therefore not have a significant negative effect on the chemical status of the groundwater body.	ı
WFD ele	Prevent and Limit Objective	Not provided			groundwater body. While construction best practice and pollution prevention measures would limit the occurrence of While construction phase their impact, any uncontrolled leak could rapidly transmit to the saturated zone. Although the construction phase is temporary, the effects of a deterioration in groundwater quality could be propaged. Impacts would be localised, but could occur deterioration in groundwater quality could be propagated by the could occur in several locations.			
agns	Trend Assessment	Upward trend			in several locations.			
l ential	Quantitative	Good	Good by 2015	N\A				
iverall s\Pote	Chemical (GW)	Poor	Good by 2027	N\A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.

Good by 2027

- 2. Application of standard Dest practice on structural array portion prevention memoria.

 2. Pipe line and tooss water courses with existing goadways where possible to limit the amount of new watercourse crossings.

 3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

 4. New pipe line water course crossings would be installed via a terchal and cover technique within a dry working and any water course crossings would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6 Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \www.AF-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support\5 Design/Resilience EA Abstraction Licence Strategy (Northern Manchester): https://www.gov.uk/government/uploads/system/uploads/a Coal Authority: http://mapapps2.bgs.ac.uk/coalauthority/home.html
BGS Geology Viewer: http://mapapps.bgs.ac.uk/geologyofbritain/home.html

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Wate	ter body ID:		GB112071065490	Scheme:	Haweswater Aqueduct section	T05 to T06 (Ribbles	sdale SW to Woodgate Hill)	
Wate	ter body Name:		Calder - Pendle Water to conf Ribble	Reference		Option	1 - 37-38	
RBM			North West	Scheme Phase	Construction		Operational	
T.D.III			North West	Impact potential	Provi		Provide	
Oper	erational catchment:		Calder		Direct		Direct	
Desig	ignation (and uses):		Heavily modified					
				•				
Relev	evant upstream water boo	dies:	Calder- conf Brun to Pend	le Water, Green Brook, Hyndburn	Brook- Lower, Pendle Water - Colne Water to Walverden Water, Sabden Brook and Walverden Water			
	vnstream water bodies:		Ribble- conf Calder to tida					
	FD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confider
Phyto	rtobenthos	Not provided						
Macr	crophytes	Not provided						
		Not provided			New connections to Haweswater Aqueduct.			
Macr	crophytes and tobenthos	Moderate	Good by 2027		Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe construction between penstock chamber and new tunnel.			
					Chamber and Hew turner.			
Benti	thic invertebrates	Good			Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater levels and flows, which could			
Fish		01			in turn impact on baseflows to nearby water courses, but this would be localised and temporary. It is assumed that no water courses			
FISN	1	Good			would be crossed or diverted for the new connection.			
Hude	Irological regime	Not provided			Accidental leakages or spills from construction machinery may affect the chemical status of the surface water body. Release of		New connections to Haweswater Aqueduct.	
Hydr	irological regilile	Not provided			sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the chemical		Minor level of impact. Penstock shaft. The presence of a new concrete lined shaft may disrupt groundwater levels and flows,	
> Divor	er continuity	Not provided			status of the surface water body, particularly if contaminated.		which could in turn impact on baseflows to nearby water courses, but this would be localised.	
Kivei	er continuity	Not provided			However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or			
Morn	phological conditions	Not provided			widespread impact on the surface water body.		Presence and operation of new tunnel.	
MOT	phological conditions	Not provided				Low	Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Ribblesdale South Well and	Low
Gono		All high/good except:	Phosphate good by 2027		Construction of new tunnel. Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Ribblesdale South		Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total length of 19.2 km.	
- Gene	ierai pirysico-chemicai	Phosphate- poor	Filospilate good by 2027		Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length		Disruption of groundwater flows and levels may occur (see tab 37-38 - GB41202G100300). This may result in long term or	
윤					of 19.2 km. Temporary shafts every 3 km. The ALS states that the surface water body has water available across all flow regime.		widespread changes to baseflow to watercourses. The ALS states that there is water available across all flows, but the	
Snec	cific pollutants:	All high					potential magnitude of impacts are at present poorly understood. If reductions in baseflow are of a large magnitude there could	l e
o lobec	omo ponatanto.	, at ringer			Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in turn impact on baseflows to nearby		be a deterioration in the hydrological regime of the surface water body.	
					water courses. This could result in a reduction in ecological or chemical status. However impacts are likely to be temporary and			
					localised and the availability of water in the water body indicates some temporary reduction in baseflow could be tolerated.			
	ority hazardous	Good			Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water body.			
subs	stances				Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or			
					the chemical status of the surface water body, particularly if contaminated. However, construction best practice and pollution			
					prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.			
Prior	ority substances	Good						
1.110	,			1				
Ecolo	logical	Moderate	Good by 2027	N\A				
	emical	Good	Good by 2015	N/A	1			

Good by 2027

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Lying of the pipe line across water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Lying of the pipe line across water courses with existing roadways where possible to limit the amount of new watercourse crossings.

4- Wave pipe line water courses water the course crossing would be installed via a tench and cover textinate within a dry working area. New pipe line crossings would be installed via a tench and cover textinate within a dry working area. New pipe line crossings of estuaries or coassil waters would be installed via a tench and cover textinate within a dry working area. New pipe line crossings would be installed via a tench and cover textinate within a dry working area. New pipe line crossings would be installed via a tench and cover textinate within a dry working area. New pipe line crossings would be installed via a tench and cover textinate within a dry working area. New pipe line crossings would be installed via a tench and cover textinate within a dry working area. New pipe line crossings would be installed via a tench and cover textinate within a dry working area. New pipe line crossings would be discharged within the same water body.

7- Devalering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Cachment Data Explorer: http://improgroment.data.gov.uk/calchment-planning/
Engineers Profiners: WIAR-RS1 of betal annec comish and Projected 38671 ULU VIRMP SupportS Design Resilience Options WIRMPC11 New Tunne
EA Abstraction Licence Strategy (Northern Manchester): https://www.gov.uk/government-uploads/system/uploads/attachment_data/file/300469.LIT
Coal Authority http://managops.bsa.ac.uk/goalustroft/borne html
BGS Geology Viewer: http://managops.bsa.ac.uk/goelonyoft/vitain-home html

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		Water body ID:		GB112071065040	Scheme:	Haweswater Aqueduct section T05	5 to T06 (Ribblesdale	SW to Woodgate Hill)	
		Water body Name:		Hyndburn	Reference		Option - 37	7-38	
		RBMP:		North West	Scheme Phase	Construction		Operational	
					Impact potential	Direct		Direct	
		Operational catchment:		Calder		Direct		Direct	
		Designation (and uses):		Heavily modified					
		Relevant upstream water bo	dies:	Not provided					
		Downstream water bodies:							
		WFD Element (Receptor)	Status	Hyndburn Brook - Lower RBMP objective	Alternate Objective if less		Confidence		Confidence
		, , ,			than Good				
			Not provided Not provided						
- =		Macrophytes and				Construction of new tunnel.			
ogic	ogy	phytobenthos	Not provided			Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m			
: Ecolog	Biology	Benthic invertebrates	Good			diameter tunnel between Ribblesdale South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length of 19.2			
vers	5	Fish	Good			km. Temporary shafts every 3 km. The ALS states that the surface water body has water available across all flow regime.		Presence and operation of new tunnel. Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m	
for Ri	mor	Hydrological regime	Supports good			Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in		diameter tunnel between Ribblesdale South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total	
t t	유공	River continuity	Not provided			turn impact on baseflows to nearby water courses. This could result in a reduction in ecological or chemical status. However impacts are likely to be temporary and localised and	Low	length of 19.2 km. Disruption of groundwater flows and levels may occur (see tab 37-38 -	Low
amer	축 된	Morphological conditions	Not provided			the availability of water in the water body indicates some temporary reduction in baseflow	Low		Low
WFD ele	ico-	General physico-chemical	All high except: Phosphate- moderate	Phosphate good by 2027		could be tolerated. Accidental leakages or spills from construction machinery at the surface may affect the		GB41202G100300). This may result in long term or widespread changes to baseflow to watercourses. The ALS states that there is water available across all	
\$	Phys	Specific pollutants:	Not provided			chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the chemical		flows, but the potential magnitude of impacts are at present poorly understood. If reductions in baseflow are of a large magnitude there could be a deterioration in	
-D ents	ıcaı	Priority hazardous substances	Does not require assessment			status of the surface water body, particularly if contaminated. However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a		the hydrological regime of the surface water body.	
WFD elements for Rivers:	for Rive Chemic	Priority substances	Does not require assessment			prolonged or widespread impact on the surface water body.			
Overall Status\		Ecological	Moderate	Good by 2027	N\A				
Ove		Chemical	Good	Good by 2015	N\A				
		Overall	Moderate	Good by 2027	N\A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 2. Expiring of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

 4. New pipe line water course crossings would be installed via a trend-nique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a tenchique that does not involve disturbance of the bed.

 5. A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

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	Water body ID:		GB112069064650	Scheme:	Haweswater Aqueduct section T05	to T06 (Ribblesdale	SW to Woodgate Hill)	
	Water body Name:		Ogden	Reference		Option - 37		
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Croal Irwell	Impact potential	Direct		Direct	
	Designation (and uses):		Heavily modified					
	Designation (and uses).		Tieavily mounieu					
	Relevant upstream water bo	dies:	Not provided					
	Downstream water bodies:	<u> </u>	Irwell (Rossendale STW t	n Roch)				
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
	Macrophytes	Not provided						
A So	Macrophytes and phytobenthos	Not provided			Construction of new tunnel. Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter			
Biol	Benthic invertebrates	Good			tunnel between Ribblesdale South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length of 19.2 km. Temporary			
	Fish	Good			shafts every 3 km. The ALS states that the surface water body has water available across all flow regime.		Presence and operation of new tunnel. Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m	
mor	Hydrological regime	Not provided			Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in		diameter tunnel between Ribblesdale South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total length	
2 5	River continuity	Not provided			turn impact on baseflows to nearby water courses. This could result in a reduction in ecological or chemical status. However impacts are likely to be temporary and localised and the	Low	of 19.2 km.	Low
Į,	Morphological conditions	Not provided			availability of water in the water body indicates some temporary reduction in baseflow could be		Disruption of groundwater flows and levels may occur (see tab '37 - GB41202G101800). This may result in long term or widespread changes to baseflow to watercourses. The ALS states that there is water available across all	LOW
- ico	General physico-chemical	All high except: Phosphate- moderate	Good by 2027		tolerated. Accidental leakages or spills from construction machinery at the surface may affect the			
Phys	Specific pollutants:	Not provided			chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the chemical		flows, but the potential magnitude of impacts are at present poorly understood. If reductions in baseflow are of a large magnitude there could be a deterioration in the hydrological regime of the surface water body.	
ents vers: nical	Priority hazardous substances	Does not require assessment			status of the surface water body, particularly if contaminated. However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.		the hydrological regime of the surface water body.	
elements for Rivers: Chemical	Priority substances	Does not require assessment			prolonged of widespread impact on the surface water body.			
a la	Ecological	Moderate	Good by 2027	N\A				
Status/ Potential	Chemical	Good	Good by 2015	N\A				
, 0, 2	Overall	Moderate	Good by 2027	N\A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3 - Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4 - New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5 - A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6 Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small flootprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

EA Abstraction Licence Strategy (Northern Manchester): https://www.gov.uk/go Coal Authority: http://mapapps2.bgs.ac.uk/coalauthority/home.html
BGS Geology Viewer: http://mapapps.bgs.ac.uk/geologyofbritain/home.html

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	Water body ID:			GB41202G100300	Scheme:	Haweswater Aqueduct section T	05 to T06 (Ribblesdal	e SW to Woodgate Hill)				
	Water body Nam			Douglas, Darwen and Calder Carboniferous Aquifer	Reference		Option - 37-3	8				
	RBMP:			North West	Scheme Phase	Construction		Operational				
	Operational catcl			Douglas Darwen and Calder Carboniferous Aq No designation	Impact potential	Direct		Direct				
	Relevant upstrea			N\A								
	Downstream wat		·	N/A								
		WFD Element (Receptor) Status		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence			
dwater:	Quantitative Depo							New connections to Haweswater Aqueduct. Minor level of impact. Penstock shaft, 12.5 m diameter, 6 m deep. The presence of a new concrete lined shaft may disrupt groundwater levels and flows, but this would be localised. Presence and operation of new tunnel.				
for Groun titative	Quantitative GWI	Good Good				New connections to Hawsewater Aqueduct. Minor level of impact. Construction of pensitock chamber around existing aqueduct. Open cut pipe construction between penstock chamber and new tunnel.						
lements for Quantita	Quantitative Salir Intrusion	Good				Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater levels and flows, but this would be localised and remporary. Accidental leakages or spills from construction machinery may affect the chemical status of the groundwater						
WFDe	Quantitative Water	Good				body, but construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widesprevention impact on the groundwater body.		Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Ribblesdale South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total length of 19.2 km. Solid geology is Carboniferous Milistone Grit, and				
_	Chemical Depend Surface Water Bo Status			Good by 2027					Medium level of impact. Construction of new tunnel. Medium level of impact. Construction of part of new 2.5 m diameter conduit and 2.85 m diameter tunnel between Ribblesdale South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total lendrol of 19.2 km. Temporary shafts every 3 km. Sold geology		Pennine Lower Coal Measures, a secondary A aquifer. Quantitative Status: No dewatering of the tunnel or shafts would take place post construction, and groundwater ingress is expected to be minimal (the tunnels would be desined and maintained to	
Chemica	Chemical Drinkin Protected Area	Water Good				is Carboniferous Milstone Grit, and Pennine Lower Coal Measures, a secondary A aquifer. Quantitative Status: Dewatering of the tunnel and shafts may affect groundwater levels and flows and the	Low	groundwater rightess is expected to be minimal for the turniers who do designed and maintained to prevent groundwater ingress in order to protect raw water quality). The turnel will be constructed within the saturated zone of the aquifer and the presence of a low permeability linear structure may after groundwater flows and levels, particularly where the turnel is	Low			
dwater: (Chemical GWDTI	s test Good				quantitative water balance of the groundwater body. Although temporary in nature, due to the length of the tunnel, and number and depth of shafts, the impacts could be widespread.		shallower and within the zone of active groundwater flow, or if the orientation of the tunnel is perpendicular to the direction of groundwater flow. In addition disturbance of the strata surrounding the tunnels and shafts may result in altered or preferential groundwater flow pathways. Changes in				
or Groun	Chemical Saline Intrusion	Good				<u>Chemical status</u> : There is the potential for the interception of shallow contaminated land or deeper coal mine workings in the Carboniferous strata. Information from The Coal Authority shows mine entries and abandoned mine workings close to the route of the tunnel. Interception of these features may result in vertical or lateral migration of contaminated groundwater or mine waters into previously unaffected parts of		shallow groundwater levels and flow may affect surface water bodies and groundwater dependent terrestrial ecosystems (i.e. reductions in baseflow). Chemical Status: The tunnel would be used to transfer raw water of potable standard. Any				
ments fo	General Chemica	Test Good				ventical or lateral migration of contaminated groundwater for third waters into previously distincted parts of the groundwater body. Leakages or spillages from construction machinery could affect the chemical status of the groundwater body. While construction best practice and oplution prevention measures would limit the occurrence of		chemical status: The furnier would be used to dianster haw water of potacle stantard. Any leakages from the turnel to the groundwater body would locally after the groundwater chemistry, but it is assumed the potable standard water would be free from hazardous and priority hazardous substances and other pollutants, and would therefore no have a significant negative effect on the				
WFD ele	Prevent and Limi	Not pro	ovided			spillages and help mitigate their impact, any uncontrolled leak could rapidly transmit to the saturated zone. Although the construction phase is temporary, the effects of a deterioration in groundwater quality could be prolonged. Impacts would be localised, but could occur in several locations.		chemical status of the groundwater body.				
	Trend Assessmen	Upwar	rd trend									
= = =	Quantitative	Good		Good by 2015	N\A							
wera	Chemical (GW)	Poor		Good by 2027	N\A							

Overall

- 1- Application of standard best practice construction and pollution prevention methods.
 2- Pipe lines will cross water courses with existing mackways where possible to limit the amount of new watercourse crossings.
 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2027

N\A

- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

- 5 Key pipe line waste toutise cussuings would be instanted via a testinity required.

 5 A ground investigation will be carried out and will identify any contaminated land and any mispation that may be required.

 5 Extensions, modifications, or new pumping stations, waster treatment works, etc. would invoke a relatively small footprint in the context of any WFD water body catchment, and would not invoke the relatively small footprint in the context of any WFD water body catchment, and would not invoke the required.

 5 Extensions, modifications, or new pumping stations, which is the property of example of example

Evidence
Catchment Data Explorer, http://environment.data.gov.uk/catchment-planning/
Engineers Proforma:\text{\text{WAR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support\s Design\text{Resilience}}
EA Abstraction Licence Strategy (Northern Manchester): https://www.gov.ut/government/uploads/system/uploads/si

Coal Authority: http://mapapps2.bgs.ac.uk/coalauthority/home.html
BGS Geology Viewer: http://mapapps.bgs.ac.uk/geologyofbritain/home.html

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Water body ID:		GB112069064641	Scheme:	Haweswater Aqueduct sections T01 to T06	6 (Mealbank South V	Vell to Woodgate Hill)		
Water body Name:		Irwell (Cowpe Bk to Rossendale STW)	Reference		Option - 37-38			
RBMP:		North West	Scheme Phase	Construction		Operational		
			Impact potential	Direct		Direct		
Operational catchment:		Croal Irwell		Direct		Direct		
Designation (and uses):		Heavily modified						
Relevant upstream water I	odies:		Brook), Limy Water and Whitewe	III Brook				
Downstream water bodies		Irwell (Rossendale STW to						
WFD Element (Receptor,	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confide	
Phytobenthos	Not provided							
Macrophytes	Not provided							
Macrophytes and				New connections to Haweswater Aqueduct.				
phytobenthos	Moderate	Good by 2027		Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe construction between penstock chamber and new tunnel.				
Benthic invertebrates	Good	Good by 2015		Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater levels and flows, which				
Fish	Not provided			could in turn impact on baseflows to nearby water courses, but this would be localised and temporary. It is assumed that no water courses would be crossed or diverted for the new connection.				
Hydrological regime	Supports good	Supports good by 2015		Accidental leakages or spills from construction machinery may affect the chemical status of the surface water body.		New connections to Haweswater Aqueduct.		
River continuity	Not provided			Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in		Minor level of impact. Penstock shaft. The presence of a new concrete lined shaft may disrupt		
Morphological conditions	Not provided			light, or the chemical status of the surface water body, particularly if contaminated.		groundwater levels and flows, which could in turn impact on baseflows to nearby water courses, but this would be localised.		
				However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a		this would be localised.		
General physico-chemical	All high except: Phosphate- moderate and pH- moderate	Phosphate and pH good by 2027		prolonged or widespread impact on the surface water body.		Presence and operation of new tunnel. Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between		
Specific pollutants:	Not provided			Construction of new tunnel. Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Temporary shafts every 3 km. The ALS states that the surface water body has water available across all flow regimes.	Low	Mealbank South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Disruption of groundwater flows and levels may occur (see tab 37.38 - GB41202G101800). This may result in long term or widespread changes to baseflow to watercourses. The ALS states that there is water available across all flows, but the potential magnitude of impacts are at present poorty	Lov	
Priority hazardous substances	Does not require assessment			Dewatering of the turned and shafts may affect groundwater levels and flows, which could in turn impact on baseflows to nearby water curses. This could result in a reduction in ecological or chemical status. However impacts are likely to be temporary and localised and the availability of water in the water body indicates some temporary reduction in baseflow could be tolerated. Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water		understood. If reductions in baseflow are of a large magnitude there could be a deterioration in the hydrological regime of the surface water body.		
Priority substances	Does not require assessment			Accidental stategies or highest front construction fracrintery at the surface new judiction detection of the status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the chemical status of the surface water tody, particularly if contaminated. However, construction best practice and publishin prevention measures would help prevent markor imagels egainst a prolonged or widespread impact on the surface water body.				
Ecological	Moderate	Good by 2027	N/A					
Chemical	Good	Good by 2015	N\A					

Assumptions

Good by 2027

N\A

1- Application of standard best practice construction and pollution prevention methods.
2- Pige lines will cross water courses with existing readways where possible to limit the amount of new watercourse crossings.
3- Laying of the pipeline across water courses with existing readways where possible to limit the amount of new watercourse crossings.
3- Laying of the pipeline across water courses with existence of the bed.
4- New pipe line water course crossings would be installed via a tranch and cover inchnique within a dry working area. New pipe line or crossings would be installed via a tench and cover inchnique within a dry working area. New pipe line or crossings would be installed via a tench and cover inchnique within a dry working area. New pipe line or crossings would be installed via a tench and cover inchnique within a dry working area. New pipe line or crossings would be installed via a tench and cover inchnique within a dry working area. New pipe line or crossings well as the pipeline across the pipe

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforms: http://environment/uploads/system/uploads/statchment.data/file/300488.LTT
Coal Authority. http://environment.data/file/300488.LTT
Toal Authority. https://environment.data/file/300488.LT
Toal Authority. <a href

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	Water body ID:		GB112069064620	Scheme:	Haweswater Aqueduct sections T01 to T06	6 (Mealbank South V	Vell to Woodgate Hill)	
	Water body Name:		Irwell (Rossendale STW to Roch)	Reference		Option - 37-38		
Ī	RBMP:			Scheme Phase	Construction		Operational	
	Operational catchment:		Croal Irwell	Impact potential	Direct		Direct	
Į	Designation (and uses):		Heavily modified					
	Relevant upstream water bo	dies:	Irwell (Cowpe Bk to Rossendale STW), Kirklees Brook and O		Ogden			
Į.	Downstream water bodies:		Irwell (Roch to Croal)					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Not provided						
		Not provided						
	Macrophytes and phytobenthos	Moderate	Moderate by 2015		Construction of new tunnel.			
5	Benthic invertebrates	Good	Good by 2015		Minor level of impact. Construction of new tunnel. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and Woodgate Hill, including associated			
	Fish	Not provided			temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Temporary shafts every 3 km. The ALS states that the surface water body has water available		Presence and operation of new tunnel.	
goior	Hydrological regime	Supports good	Supports good by 2015		across all flow regime. Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in turn impact on baseflows to nearby water courses. This could result in a reduction in ecological or chemical status. However impacts are likely to be temporary and localised to the vicinity of the shaft locations, and the availability of water in the water body indicates some temporary reduction in baseflow could be tolerated.		Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and Woodgate Hill, including	
y y	River continuity	Not provided				Low	associated permanent shafts. Turnel depth is up to 120 m and has a total length of 51.8 km. Disruption of groundwater flows and levels may occur (see tab 37-38 - GB412026101800). This may result in long term or widespread changes to baseflow to watercourses. The ALS states that there is water available across all flows, but the potential manquitude of impacts are at present poorfu understood. If	Low
нуаго	Morphological conditions	Not provided				20		
ical	General physico-chemical	All high/good except: Phosphate- poor	Phosphate poor by 2015		Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water body. Release of sediments from construction work may affect the			
chen	Specific pollutants:	Not provided			ecological status due to smothering of habitats or reduction in light, or the chemical status of the surface water body, particularly if contaminated. However, construction best practice and pollution		reductions in baseflow are of a large magnitude there could be a deterioration in the hydrological regime of the surface water body.	
2	Priority hazardous substances	Does not require assessment			prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.			
	Priority substances	Does not require assessment						
	Ecological	Moderate	Moderate by 2015	N\A				
	Chemical	Good	Good by 2015	N\A				
	Overall	Moderate	Moderate by 2015	N\A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

- 5. A ground investigation will be carried out and will identify any contaminated land and any miligation that may be required.
 6. Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the cortext of any WFD water body catchment, and would not involve the required memory to the context of any WFD water body catchment, and would not involve the required memory to the context of any WFD water body catchment, and would not involve the required memory to the context of any WFD water body catchment, and would not involve the required a permit from the Environment Agency/Natural Reprov/Natural Reprov/Natural

Catchment Data Explorer; http://environment.data.gov.uk/catchment-planning/
Engineers Proforma; WRMP\C11\/ New Turnorment.data.gov.uk/catchment-planning/
Engineers Proforma; <a href="http://environmen

EA Abstraction Licence Strategy (Northern Manchester): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300488/LI Coal Authority: http://ma

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Phytobenthos Not provided Macrophytes Not provided Macrophytes and phytobenthos Not provided Not	١	Water body ID:		GB112069064600	Scheme:	Haweswater Aqueduct sections T01 to T06 (Me	ealbank South Well t	to Woodgate Hill)	
Septiment of the service of the serv		Water hody Name:		Roch (Spodden to Irwell)	Reference		Option - 37-38		
Septimized accidence: Necessity - Septimized accid					Scheme Phase	Construction		Operational	
Segretation and unserval. Next provided users and segretation was bridged. Next provided users and segretation of provided users and segretation	Î					Direct		Direct	
Networks prevent water bodies Covertience as where bodies Covertience Were Distanced Royald and Covertience as where bodies are covertience as where the covertience are covertience and the covertience are covertience as where the covertience are covertience as where the covertience are covertience and the covertience are covertience as where the covertience are covertience and the covertience and	(Operational catchment:		Roch Irk Medlock		Direct		bliect	1
Were Continued to the Coral Montane (Pleague)	1	Designation (and uses):		Heavily modified					
Well Element (Reception State of Ram Polychiche What provided State of Ram Polychiche Macrophylas and Nat provided State of Ram Polychiche									
With Distance (Recognition) Status Rabbro Objective Plance Island Cooled Cool Cool Cool Cool Cool Cool Cool Co			dies:		e to Spodden), Spodden and Whi	ttle Brook (Irwell)			
Physiological regime Not provided Not provid	1	Downstream water bodies:		Irwell (Roch to Croal)					
Macrophyles and phylipsis and phylipsis and phylipsis production. Macrophyles and phylipsis and phylipsis production. Macrophyles and phylipsis phylipsis production. Macrophyles and phylipsis		WFD Element (Receptor)	Status	RBMP objective			Confidence		Confidence
New connections to Hawewester Aguadusc. Macrophysis and Myrophysis and Myrophysi	F	Phytobenthos	Not provided						
More polytyses and physics planted and the provided set of migrat. Contamination of permittic chamilate and real page contacts on permitting and pages. One in page contacts on permitting and pages. One in the page of pages and pages are paged by the pages of pages and pages and pages are paged by the page of pages and pages are paged by the page of pages and pages are paged by the page of pages and pages are paged by the page of pages and pages are paged by the page of pages and pages are paged by the pages are paged by the page of pages are paged by the page of pages and pages are paged by the page of pages are paged by the pages are paged by the page of pages are paged by		,							
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Macrophyse and physice-benical attack of the purpose of the dame in report or groundwater levels and flows, which could be former to make the purpose of the	Ш	Macrophytes	Not provided			Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe construction between			
physichemines Not provided in the number of baselines to nearby water courses, but miss would be located or divesting of the necessary to divesting of the necessary to divesting of the necessary of whether of the necessary of the number of the necessary of the necessa						penstock chamber and new tunnel.			
physichestines: Not provided Benthic invertebrases Moderate Good by 2027 Fish Not provided Fish Not provided Not provid	41								
Conservation for the new connection. Benthic invertebrates Moderate Good by 2027 Accidental laidages or split from connection making may gained the personal status of the surface water body. Release of ediments from constitution making status of the surface water body. Proceedings of the surface water body. Proceedings of the surface water body. Proceedings of the surface water body. Plydrological regime Not provided Not prov			Not provided						
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sedments from construction work may affect the acclogical status due to amothemic of habitatio or reduction in light, or the chemical status of the surface water body. Fish Not provided Not provi	Ш								
Chemical situs of the surface water body, particularly is contaminated. However, construction between the surface water body, particularly is contaminated. However, construction between the surface water body, particularly is contaminated. Most provided Mos		Benthic invertebrates	Moderate	Good by 2027					
However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a protonged or widespread impact on the surface water body. Bydrological regime Not provided Morphological regime Not provided Morphological conditions Not provided Morpholog	ш							New connections to Housewater Agreeduct	
Fish Not provided Not provide	411								
Mor provided More level of impact. Construction of part of nev 2.6 m diameter counts are 2.5 m diameter counts are 2.5 m diameter tunnel between Mealbank South Well and Woodpate Hill, including associated temporary and permanent shafts. Turnel depth is up to 120 m and has a total legish of 51 km. Not provided Develoring of the turnel and shafts may affect ground-rater levels and fiber, which could in turn impact on baselfores to nearly value of the countries. This could result in a reduction in ecological or chemical status. However impacts are larger to the states and levels are 15 km. The option includes some temporary reduction in the self-occur to the states of the surface water body. The continuity of the states of self-ore 15 km. The option includes a conduct thing the surface water body. The provided substances on the surface water body. The continuity of the surface water body and the prevent and or migrate against a prolonged or widespread impact on the surface water body. The continuity of the surface water body. The continuity of the surface water body. The continuity of the surface water body. The continuities altern of the surface water body. The continuities altern of the water and levels against a prolonged or widespread impact on the surface water body. The continuities altern of the water and publicate some temporary enducion in the large and publication in the surface water body. The continuities altern of the water and publicate some temporary enducion in the large of publication in the surface water body. The continuities altern of the water and publicate some temporary enduced in the sometime and the surface water body. The continuities altern of the water and publicate some temporary enduced and the control their publication in the hydrological regime of the surface water body. The continuities altern of the water and publicate accounts thrifties a three of the control to the surface water body. The option includes a condit thrifties water body and the publication mechanisms. The conti		Fish	Not provided					groundwater levels and flows, which could in turn impact on baseflows to nearby water courses,	
Hydrological regime Not provided Not provide								but this would be localised.	
Well and Woodpate Hill, including associated temporary and permanent shafts. Turnel depth is up to 120 m and has a total tength of 51.8 km. Temporary shafts every 3 km. The ALS states that the surface water body has water available across all flow points. The ALS states that the surface water body has water available across all flow up to 120 m and has a total length of 51.8 km. Temporary shafts every 3 km. The ALS states that the surface water body has water available across all flow. Which could in turn impact on baseflow to be temporary and tocalled and the availability of water in the water courses. This could result in a reduction in ecological or chemical status. However impacts are likely to be temporary and tocalled and the availability of water in the evaluation in ecological or chemical status. However impacts are likely to be temporary and tocalled and the availability of water in the evaluation in ecological or chemical status. However impacts are likely to be temporary and tocalled and the availability of water in the evaluation in ecological or chemical status. However impacts are likely to be temporary and tocalled and the availability of water in the evaluation in ecological or chemical status of the surface water body. All high/good except: Phosphate- poor Phosphate- poor Phosphate- poor Phosphate- poor Priority hazardous substances Does not require assessment Priority substances Periachicropherol- good Ecological Moderate M	ш								
River continuity Not provided N	P	Hydrological regime	Not provided						
River continuity Not provided Dewatering of the tunnel and shafts may affect groundwater levels and production in exclosing at on the management of the surface water body, and the authority of the surface water body, and the authority of the surface water body, and the surface water body and the surface water body, and the surface water body and the surface water body. Priority aubstances Does not require assessment Description Descri	46						Low		Low
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Morphological conditions Morphological leakages or pills from construction machinery are business or equivalent the bufface acts and in the wallability of water in the water body, in channel works may reduce the chemical status of the surface water body. Morphological conditions Morphological expenses Morphological conditions Morphological expenses Morphological conditions Morphological expenses Morphologic									
Accidental leakages or spills from construction warplinery at the surface may affect the eclogical status of the surface water body. Release of sediments from construction work may affect the eclogical status due to smothering of habitats or reduction in light, or the chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light due to siturbaneal. However, construction between the deterioration in the hydrological regime of the surface water body. The option includes a conduit bridge over the Gypey Brook. In channel works may reduce the chemical status due to deterioration in the hydrological regime of the surface water body. The option includes a conduit bridge over the Gypey Brook. In channel works may reduce the to excidental spillage or leakage of fuses, oils and other chemicals associated with construction machinery. The ecological status may reduce due to smothering of habitats or reduction in light due to release of sediments, or changes to in hydrological regime of the surface water body. Priority substances Periority	4		l						
General physico-chemical All high/good except: Phosphate poor Phos	all'	Morphological conditions	Not provided			localised and the availability of water in the water body indicates some temporary reduction in baseliow could be identiced.			
General physico-chemical Phosphate-poor Phosphate-p	4								
Priority substances Priority substances Priority substances Pertachiorophenol- good Moderate Moderate Moderate Moderate Moderate by 2015 MA Priority substances Priority s			All high/good except:	DI 1					
Specific pollutants: Iron- High The option includes a conduit bridge over the Cypsy Brook. In channel works may reduce the chemical status due to deterioration in water quality due to disturbance of solls and sediments, particularly if contaminated, or due to accidental spillage or leakage of tuels, clis and other chemicals associated with construction machinery. The accopigal status may reduce due to smothering of habitats or reduction in light due to disturbance of solls and sediments, particularly if contaminated, or due to accidental spillage or leakage of tuels, clis and other chemicals associated with construction machinery. The accopigal status may reduce due to smothering of habitats or reduction in light due to release of sediments, or changes to in hydrodigical regime, river continuity or morphological conditions due to impoundments or changes to the structure of the channel. However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a protonged or widespread impact on the surface water body. Ecological Moderate Moderate would be prevent and/or mitigate against a protonged or widespread impact on the surface water body.	ea C	General physico-chemical		Phosphate poor by 2015					
Specific pollutants: Inch- Pirgri I in water quality due to disturbance of soils and sediments, particularly if contaminated, or due to accidental spillage or feakage of fuels, citizen and the provision machinery. The ecological status may reduce due to smothering of habitats or reduction in light due to release ed sodiments, or changes to in hydrogical regime, there continuity or morphological conditions due to impoundments or changes to the structure of the changes to the surface water body. Priority substances Pentachlorophenol- good Ecological Moderate Moderate by 2015 NA.	ĝ.					provention measures would help prevent and/or mitigate against a protonged or widespread impact on the surface water body.			
Priority hazardous substances Does not require assessment Does not require assessment Priority substances Does not require assessment Does not require asses	ē,	0	Iron High			The option includes a conduit bridge over the Gypsy Brook. In channel works may reduce the chemical status due to deterioration			
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Priority substances Pentachicrophenol- good Ecological Moderate Moderate by 2015 NA	5	substances	Does not require assessment						
Ecological Moderate Moderate by 2015 NA	46		l			, , , , , , , , , , , , , , , , , , , ,			
Ecological Moderate Moderate by 2015 NA		Priority substances	Pentachlorophenol- good						
	ı li	Thority substances	i entacritoroprienoi- good						
Chemical Good Good by 2015 MA	E	Ecological	Moderate	Moderate by 2015	ΝA				
		Chemical	Good	Good by 2015	NΑ				
Overall Moderate Moderate by 2015 NA		Overall	Moderate	Moderate by 2015	NΔ				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

1- Application of standard oest practice construction and poliution prevention memorias.
2- Pop lines but cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
4- New pipe line acrossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a trench and work in the stalled via a trench and cover technique within a dry working area. New pipe line crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings would be installed via a trench and cover technique working area. New pipe line crossings would be installed via a trench and cover technique working area. New pipe line crossings would be installed via a trench and water work and a cover the bed.
5- A ground investigation will be carried out and will identify any contaminated and and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would into the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Performs: \(\text{WARPS-1 dobs a misc.com/shared/Projects\)38671_UU_WRMP_Support\(5 \) Design\(\text{Pestings-1 dobs a misc.com/shared/Projects\)38671_UU_WRMP_Support\(5 \) Design\(5 \) Desi

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	Water body ID:		GB41202G101800	Scheme:	Haweswater Aqueduct se	ctions T01 to T06 (M	ealbank South Well to Woodgate Hill)	
	Water body Name:		Northern Manchester Carboniferous Aquifers	Reference		Ор	tion - 37-38	
	RBMP:		North West	Scheme Phase	Construction		Operational	
			Manchester Northern	Impact potential	Direct		Direct	
	Operational catchment:		Carboniferous Aq No designation					
	Designation (and uses): Relevant upstream water	hadias:	No designation N/A					
	Downstream water bodie		N/A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
dwater:	Quantitative Dependent Surface Water Body Status	Good	Good by 2015		New connections to Haweswater Aqueduct.			
or Ground itative	Quantitative GWDTEs test	Good	Good by 2015		Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe construction between penstock chamber and new tunnel.		New connections to Haweswater Aqueduct. Minor level of impact. Penstock shaft. The presence of a new concrete lined shaft may disrupt groundwater levels and flows, but this would be localised.	
lements fo	Quantitative Saline Intrusion	Good	Good by 2015		Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater levels and flows, but this would be localised and temporary. Accidental leakages or spills from construction machinery may affect the chemical status of the groundwater body, but construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the groundwater body. Construction of new tunnel. Medium level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Meabank South Well and Woodgate Hiji, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Temporary shafts every 3 km. Sold geology is Carboniferous Millstone Girl, and Penniel Lover Coal Measures, a			
WFDe	Quantitative Water Balance	Good	Good by 2015				Presence and operation of new tunnel. Medium level of impact. Part of new 2.5 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and Woodqate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a	
	Chemical Dependent Surface Water Body Status	Poor	Good by 2027				total length of 51.8 km. Solid geology is Carboniferous Milistone Grit, and Pennine Lower Coal Measures, a secondary A aquifer. Quantitative Status: No dewatering of the tunnel or shafts would take place post construction, and groundwate ingress is expected to be minimal (the tunnels would be designed and maintained to prevent groundwater ingress in separate to the status of the aquifer and the presence of a low permeability linear structure may alter groundwater flows and levels, particularly where the tunnel is shallower and within the score of active groundwater flow, or if the orientation of the tunnel is perpendicular to the direction of groundwate flow. In addition disturbance of the strata surrounding the tunnels and shafts may result in altered or preferential.	
hemical	Chemical Drinking Water Protected Area	Good	Good by 2015		secondary A aquifer. Quantitative Status: Dewatering of the tunnel and shafts may affect groundwater levels and flows and	Low		Low
dwater: C	Chemical GWDTEs test	Good	Good by 2015		the quantitative water balance of the groundwater body. Although temporary in nature, due to the length of the tunnel, and number and depth of shafts, the impacts could be widespread. Chemical status: There is the potential for the interception of shaflow contaminated land or deeper			
or Ground	Chemical Saline Intrusion	Good	Good by 2015		coal mine workings in the Cathoniferous strata. The option information indicates a landfill at the surface, and information from The Coal Authority shows mine entries and abandoned mine workings close to the route of the turnel. Interception of these features may result in vertical or lateral migration of contaminated groundwater or mine waters into previously unaffected parts of the		groundwater flow pathways. Changes in shallow groundwater levels and flow may affect surface water bodies and groundwater dependent terrestrial ecosystems (i.e. reductions in baseflow). Chemical Status: The tunnel would be used to transfer raw water of potable standard. Any leakages from the	
ements fo	General Chemical Test	Good	Good by 2015		Impraion of contaminated groundwater or mine waters into previously unanected parts or not groundwater body. Leakages or spillages from construction machinery could affect the chemical status of the groundwater body. While construction best practice and pollution prevention measures would limit.		tunnel to the groundwater body would locally after the groundwater chemistry, but it is assumed the potable standard water would be free from hazardous and priority hazardous substances and other pollutants, and would therefore not have a significant negative effect on the chemical status of the groundwater body.	
WFD ele	Prevent and Limit Objective	Not provided			the occurrence of spillages and help mitigate their impact, any uncontrolled leak could rapidly transmit to the saturated zone. Although the construction phase is temporary, the effects of a deterioration in groundwater quality could be prolonged. Impacts would be localised, but could occur in several locations.			
ddns	Trend Assessment	Upward trend			н зехена юсания.			
II ential	Quantitative	Good	Good by 2015	N\A				
Overall us\Poter	Chemical (GW)	Poor	Good by 2027	N\A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.

Good by 2027

- 2. Application of standard Dest practice on structural array portion prevention memoria.

 2. Pipe line and tooss water courses with existing goadways where possible to limit the amount of new watercourse crossings.

 3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

 4. New pipe line water course crossings would be installed via a terchal and cover technique within a dry working and any water course crossings would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6 Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \www.AF-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support\5 Design/Resilience EA Abstraction Licence Strategy (Northern Manchester): https://www.gov.uk/government/uploads/system/uploads/a Coal Authority: http://mapapps2.bgs.ac.uk/coalauthority/home.html
BGS Geology Viewer: http://mapapps.bgs.ac.uk/geologyofbritain/home.html

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Water body ID:		GB112071065490	Scheme:	Haweswater Aqueduct sections TO	01 to T06 (Mealbank	South Well to Woodgate Hill)	
Water body Name:		Calder - Pendle Water to conf Ribble	Reference		Option	- 37-38	
RBMP:		North West	Scheme Phase	Construction		Operational	
			Impact potential	Pine.		Pin	
Operational catchment:		Calder		Direct		Direct	
Designation (and uses):		Heavily modified					
			'				
Relevant upstream water bo	dioe:	Caldor, conf Brun to Bond	lo Water Green Brook Hundburn	Brook- Lower, Pendle Water - Colne Water to Walverden Water, Sabden Brook and Walverden Water			
Downstream water bodies:	uies.	Ribble- conf Calder to tida		Drove-Lower, Ferrure Water - Come Water to Warverden Water, Sabden brook and Warverden Water			
			Alternate Objective if less				
WFD Element (Receptor)	Status	RBMP objective	than Good		Confidence		Confidenc
Phytobenthos	Not provided						
Macrophytes	Not provided			New connections to Haweswater Aqueduct.			
	not provided						
Macrophytes and phytobenthos	Moderate	Good by 2027		Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe construction between penstock chamber and new tunnel.			
phytobelitios				Chamber and new turner.			
Benthic invertebrates	Good			Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater levels and flows, which could			
				in turn impact on baseflows to nearby water courses, but this would be localised and temporary. It is assumed that no water courses			
Fish	Good			would be crossed or diverted for the new connection.			
Hydrological regime	Not provided			Accidental leakages or spills from construction machinery may affect the chemical status of the surface water body. Release of		New connections to Haweswater Aqueduct.	
				sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the chemical status of the surface water body, particularly if contaminated.		Minor level of impact. Penstock shaft. The presence of a new concrete lined shaft may disrupt groundwater levels and flows, which could in turn impact on baseflows to nearby water courses, but this would be localised.	
River continuity	Not provided			However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or		which could in turn impact on baseliows to hearby water courses, but this would be localised.	
				widespread impact on the surface water body.		Presence and operation of new tunnel.	
Morphological conditions	Not provided					Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and	_
	All high/good except:			Construction of new tunnel.	Low	Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km.	Low
General physico-chemical	Phosphate- poor	Phosphate good by 2027		Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank South			
	т поорные росі			Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length		Disruption of groundwater flows and levels may occur (see tab 37-38 - GB41202G100300). This may result in long term or	
				of 51.8 km. Temporary shafts every 3 km. The ALS states that the surface water body has water available across all flow regime.		widespread changes to baseflow to watercourses. The ALS states that there is water available across all flows, but the	
Specific pollutants:	All high			Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in turn impact on baseflows to nearby		potential magnitude of impacts are at present poorly understood. If reductions in baseflow are of a large magnitude there could be a deterioration in the hydrological regime of the surface water body.	
				watering of the tunnel and sharts may affect groundwater levels and flows, which could in turn impact on basellows to hearby water courses. This could result in a reduction in ecological or chemical status. However impacts are likely to be temporary and		be a deterioration in the hydrological regime of the surface water body.	
				localised and the availability of water in the water body indicates some temporary reduction in baseflow could be tolerated.			
Priority hazardous substances	Good			Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water body.			
Substances				Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or			
				the chemical status of the surface water body, particularly if contaminated. However, construction best practice and pollution			
				prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.			
Priority substances	Good						
Ecological	Moderate	Good by 2027	N\A				
Chemical	Good	Good by 2015	N\A				
Overall	Moderate	Good by 2027	N/A				

Assumptions

Assumptions
1-Application of standard best practice construction and pollution prevention methods.
2- Pipe lines will cross water courses with assing roadways where possible to limit the amount of new watercourse crossings.
3- Lying of the pepilere across wester courses with assing roadways where possible to limit the amount of new watercourse crossings.
3- Lying of the pepilere across water courses with assing roadways where possible to limit the amount of new watercourse crossings.
3- Lying of the pepilere across water courses with late on none than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
3- A ground investigation will be carried out and will identify any contaminated land and any miligation that may be required.
3- A ground investigation will be carried out and will identify any contaminated land and any miligation that may be required.
3- A ground investigation will be carried out and will identify any contaminated land and any miligation that may be required.
3- Extensions, monofications, or new pumping stations, water treatment votes, site: vould invote or a relietively small optoprint in the contact of any WFD water body cuch-ment, and would not involve the requirement for in-channel works.
3- Devalering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Devalering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Devalering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Cashmen Data Eylorer, http://emyronmen.data.gov.ub/catchment-planning/
Engineers Professions: WIAR-PS1 dicted amec.com/sharedProjects/38671 UJ WRMP Support5 Design/Resilience Options/WRMPC11 New Tunne
EA abstraction Licence Strategy (Northern Manchester): https://www.gov.uk/government/uploads/system/uploads/stachment.data/file/300469.LIT
Code Authority-http://macapage2.bgs.ac.uk/code/authority-htma.html
BGS Gedory Viewer: http://macapage2.bgs.ac.uk/code/authority-htma.html

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		Water body ID:		GB112071065040	Scheme:	Haweswater Aqueduct sections T01	to T06 (Mealbank S	South Well to Woodgate Hill)	
		Water body Name:		Hyndburn	Reference		Option -	37-38	
		RBMP:		North West	Scheme Phase	Construction		Operational	
					Impact potential	Direct		Direct	
		Operational catchment:		Calder		Direct		Direct	
		Designation (and uses):		Heavily modified					
				•					
		Relevant upstream water bo	odies:	Not provided					
		Downstream water bodies:		Hyndburn Brook - Lower					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Not provided						
_		Macrophytes	Not provided						
ogica	ogy	Macrophytes and phytobenthos	Not provided			Construction of new tunnel. Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m			
Ecol	Biol	Benthic invertebrates	Good			diameter tunnel between Mealbank South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length of			
ivers:		Fish	Good			51.8 km. Temporary shafts every 3 km. The ALS states that the surface water body has water available across all flow regime.		Presence and operation of new tunnel. Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m	
for R	mor	Hydrological regime	Supports good			Dewatering of the tunnel and shafts may affect groundwater levels and flows, which	Low	diameter tunnel between Mealbank South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total length	
uts	d do	River continuity	Not provided			could in turn impact on baseflows to nearby water courses. This could result in a reduction in ecological or chemical status. However impacts are likely to be temporary		of 51.8 km. Disruption of groundwater flows and levels may occur (see tab 37-38 -	Low
emer	ξ.g	Morphological conditions	Not provided			and localised and the availability of water in the water body indicates some temporary			Low
WFD el	sico-	General physico-chemical	All high except: Phosphate- moderate	Phosphate good by 2027		reduction in baseflow could be tolerated. Accidental leakages or spills from construction machinery at the surface may affect the		GB41202G100300). This may result in long term or widespread changes to baseflow to watercourses. The ALS states that there is water available across all	
>	Phys	Specific pollutants:	Not provided			chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the		flows, but the potential magnitude of impacts are at present poorly understood. If reductions in baseflow are of a large magnitude there could be a deterioration in the hydrological regime of the surface water body.	
D ents	ical	Priority hazardous substances	Does not require assessment			chemical status of the surface water body, particularly if contaminated. However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.		ute nyutological regime of the surface water body.	
WFD elements for Rivers:	Chem	Priority substances	Does not require assessment			miligate against a protonged or widespread impact on the surface water body.			
= 16	Overall Status\ Potential	Ecological	Moderate	Good by 2027	N\A				
vera		Chemical	Good	Good by 2015	N\A				
0 %		Overall	Moderate	Good by 2027	N\A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6 Extensions, modifications, or new pumping stations, water freatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer; http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \text{WAR-FSt.global.amec.com/shared/Projects/38671 UU WRMP Support/S Design/Resilience Options/WRMP/C11 New Tun
EA Abstraction Licence Strategy (Northern Manchester): \text{ttps://www.gov.uk/government/uploads/system/uploads/attachment.data/file/300488/LIT
Coal Authority: \text{http://mapapps.bgs.ac.uk/goologyofbritain/home.html}
BGS Geology Viewer: \text{http://mapapps.bgs.ac.uk/goologyofbritain/home.html}

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	Water body ID:		GB112069064650	Scheme:	Haweswater Aqueduct sections T01	to T06 (Mealbank S	outh Well to Woodgate Hill)	
	Water body Name:		Ogden	Reference		Option -	37-38	
	RBMP:		North West	Scheme Phase	Construction		Operational	
				Impact potential	Direct		Direct	
	Operational catchment:		Croal Irwell		Direct		Direct	
	Designation (and uses):		Heavily modified					
	Relevant upstream water bo	dies:	Not provided					
	Downstream water bodies:		Irwell (Rossendale STW to	Roch)				
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
	Macrophytes	Not provided						
) do	Macrophytes and phytobenthos	Not provided			Construction of new tunnel. Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m			
Biolog	Benthic invertebrates	Good			diameter tunnel between Mealbank South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length of			
	Fish	Good			51.8 km. Temporary shafts every 3 km. The ALS states that the surface water body has water available across all flow regime.		Presence and operation of new tunnel. Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m	
mor	Hydrological regime	Not provided			Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could		diameter tunnel between Mealbank South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total length	
일	River continuity	Not provided			in turn impact on baseflows to nearby water courses. This could result in a reduction in ecological or chemical status. However impacts are likely to be temporary and localised	1	of 51.8 km.	Low
, F 교	Morphological conditions	Not provided			and the availability of water in the water body indicates some temporary reduction in	Low	Disruption of groundwater flows and levels may occur (see tab '37 -	Low
ico-	General physico-chemical	All high except: Phosphate- moderate	Good by 2027		baseflow could be tolerated.		GB41202G101800). This may result in long term or widespread changes to baseflow to watercourses. The ALS states that there is water available across all	
Phys	Specific pollutants:	Not provided			Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the		flows, but the potential magnitude of impacts are at present poorly understood. If reductions in baseflow are of a large magnitude there could be a deterioration in the hydrological regime of the surface water body.	
vers:	Priority hazardous substances	Does not require assessment			chemical status of the surface water body, particularly if contaminated. However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.		the hydroxylear regime of the surface water body.	
for Riv Cherr	Priority substances	Does not require assessment			initigate against a provinged of widespread impact on the surface water body.			
a	Ecological	Moderate	Good by 2027	N\A				
Potential	Chemical	Good	Good by 2015	N\A				
ď	Overall	Moderate	Good by 2027	N\A				

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: WWAR-FS1.global.amec.com/shared/Projects/38671.UU WRMP Support/S Design/Resilience Options/WRMP/C11 New Turnor (1) EA Abstraction Licence Strategy (Northern Manchester): <a href="https://www.gov.uk/government/uploads/system/up

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		Water body ID:		GB41202G100300	Scheme:	Haweswater Aqueduct sections T0	11 to T06 (Mealbank So	outh Well to Woodgate Hill)	
		rrator body ib.		Douglas, Darwen and	Reference				1
				Calder Carboniferous			Option - 37-	38	
		Water body Name:		Aquifer					
		RBMP:		North West	Scheme Phase	Construction		Operational	
				Douglas Darwen and	Impact potential			.,	
				Calder Carboniferous		Direct		Direct	
		Operational catchment:		Aq					
		Designation (and uses):		No designation					
		Relevant upstream wate	r bodies:	N\A					
		Downstream water bodie		N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Quantitative Dependent							
lter	ŧ	Surface Water Body	Good						
Na Na	ie.	Status							
₽	ē					New connections to Haweswater Aqueduct.			
nents for Grou Quantitative	ш	Quantitative GWDTEs	Good			Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe			
a i	ate	test	0000			construction between penstock chamber and new tunnel.		New connections to Haweswater Aqueduct.	
호별	St					construction between pensions chamber and new turner.		Minor level of impact. Penstock shaft, 12.5 m diameter, 6 m deep. The presence of a new concrete	
ıts	Ve.	Quantitative Saline				Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater levels		lined shaft may disrupt groundwater levels and flows, but this would be localised.	
j o	ati	Intrusion	Good			and flows, but this would be localised and temporary.		and drak may disrapt ground ratio foreignation in the ground be recalled a	
<u>=</u>	Ę					Accidental leakages or spills from construction machinery may affect the chemical status of the groundwater		Presence and operation of new tunnel.	
De	Ea	Quantitative Water				body, but construction best practice and pollution prevention measures would help prevent and/or mitigate		Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between	
Ē	ø	Balance	Good			against a prolonged or widespread impact on the groundwater body.		Mealbank South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up	
>		Dalatice						to 120 m and has a total length of 51.8 km. Solid geology is Carboniferous Millstone Grit, and	
		Chemical Dependent				Construction of new tunnel.		Pennine Lower Coal Measures, a secondary A aquifer.	
		Surface Water Body	Poor	Good by 2027		Medium level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel			
		Status		,		between Mealbank South Well and Woodgate Hill, including associated temporary and permanent shafts.		Quantitative Status: No dewatering of the tunnel or shafts would take place post construction, and	
_	×					Tunnel depth is up to 120 m and has a total length of 51.8 km. Temporary shafts every 3 km. Solid geology		groundwater ingress is expected to be minimal (the tunnels would be designed and maintained to	
<u>:</u> 2	ē	Chemical Drinking	Good			is Carboniferous Millstone Grit, and Pennine Lower Coal Measures, a secondary A aquifer.	Low	prevent groundwater ingress in order to protect raw water quality).	Low
E	<u> </u>	Water Protected Area	0000				20.11	The tunnel will be constructed within the saturated zone of the aquifer and the presence of a low	
ਤੱ	ш				1	Quantitative Status: Dewatering of the tunnel and shafts may affect groundwater levels and flows and the		permeability linear structure may alter groundwater flows and levels, particularly where the tunnel is	
ii.	ž					quantitative water balance of the groundwater body. Although temporary in nature, due to the length of the		shallower and within the zone of active groundwater flow, or if the orientation of the tunnel is	
ate	Sta	Chemical GWDTEs test	Good			tunnel, and number and depth of shafts, the impacts could be widespread.		perpendicular to the direction of groundwater flow. In addition disturbance of the strata surrounding	
ş	<u>8</u>				1			the tunnels and shafts may result in altered or preferential groundwater flow pathways. Changes in	
5	ë	Chemical Saline				Chemical status: There is the potential for the interception of shallow contaminated land or deeper coal mine workings in the Carboniferous strata. Information from The Coal Authority shows mine entries and		shallow groundwater levels and flow may affect surface water bodies and groundwater dependent terrestrial ecosystems (i.e. reductions in baseflow).	
G.	ē	Intrusion	Good			abandoned mine workings close to the route of the tunnel. Interception of these features may result in vertical		terrestrial ecosystems (i.e. reductions in basellow).	
for O	ਹ	International Property of the Control of the Contro				or lateral migration of contaminated groundwater or mine waters into previously unaffected parts of the		Chemical Status: The tunnel would be used to transfer raw water of potable standard. Any leakages	
5						groundwater body.		from the tunnel to the groundwater body would locally alter the groundwater chemistry, but it is	
ŧ		General Chemical Test	Good			Leakages or spillages from construction machinery could affect the chemical status of the groundwater body.		assumed the potable standard water would be free from hazardous and priority hazardous	
ã.						While construction best practice and pollution prevention measures would limit the occurrence of spillages		substances and other pollutants, and would therefore not have a significant negative effect on the	
9						and help mitigate their impact, any uncontrolled leak could rapidly transmit to the saturated zone. Although		chemical status of the groundwater body.	
WFD	פֿי פֿ	Prevent and Limit	Not provided			the construction phase is temporary, the effects of a deterioration in groundwater quality could be prolonged.			
\$		Objective				Impacts would be localised, but could occur in several locations.			
	2 2 2								
	유음								
	n – È	Trend Assessment	Upward trend						
ntial		Quantitative	Good	Good by 2015	N\A				
verall Pote		Chemical (GW)	Poor	Good by 2027	N\A				

Assumptions

Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good by 2027

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

N\A

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relative wasn't ground in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Resilien

EA Abstraction Licence Strategy (Northern Manchester): http://mapapps2.bgs.ac.uk/coalauthority/home.html
BGS Geology Viewer: http://mapapps.bgs.ac.uk/geologyofbritain/home.html

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,	Water body ID:		GB112071065520	Scheme:	Haweswater Aqueduct sections T01 to		•	
ſ	Water body Name:		Bashall Brook	Reference		Option - 3	7-42	
	RBMP:		North West	Scheme Phase	Construction		Operational	
ł			Ribble Middle - Settle to	Impact potential	***		*******	
ı			Calder	impact potential	Direct		Direct	
	Operational catchment:							
- 1	Designation (and uses):		Not designated					
-	Relevant upstream water bo	dies:	Not provided					
ı	Downstream water bodies:		Ribble DS Stock Beck					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confider
				Good				
	B1	No. a constitution						
	Phytobenthos	Not provided						
					New connections to Haweswater Aqueduct.			
					Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe			
	Managhutan	Nat and dated			construction between penstock chamber and new tunnel.			
	Macrophytes	Not provided		X	construction between pensions chamber and new turnel.			
		I						
3					Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater			
, ,	Macrophytes and				levels and flows, which could in turn impact on baseflows to nearby water courses, but this would be			
5	phytobenthos	Moderate	Good by 2015		leading and the second of the			
	priytobelitios				localised and temporary. It is assumed that no water courses would be crossed or diverted for the new			
					connection.			
	Benthic invertebrates	Not provided			Accidental leakages or spills from construction machinery may affect the chemical status of the surface		New connections to Haweswater Aqueduct.	
ŀ					water body. Release of sediments from construction work may affect the ecological status due to		Minor level of impact. Penstock shaft. The presence of a new concrete lined shaft may	
					smothering of habitats or reduction in light, or the chemical status of the surface water body, particularly		disrupt groundwater levels and flows, which could in turn impact on baseflows to nearby	
	Fish	Not provided			if contaminated.		water courses, but this would be localised.	
					However, construction best practice and pollution prevention measures would help prevent and/or		water coulded, but the mould be localised.	
_				3				
					mitigate against a prolonged or widespread impact on the surface water body.		Presence and operation of new tunnel.	
2	Hydrological regime	Supports good					Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel	
8	,				Construction of new tunnel.		between Mealbank South Well and Woodgate Hill, including associated permanent shafts.	
ᅙᆝ				<u> </u>		Low		Low
동					Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel		Tunnel depth is up to 120 m and has a total length of 51.8 km.	
5	River continuity	Not provided			between Mealbank South Well and Woodgate Hill, including associated temporary and permanent			
Ĕ	,				shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Temporary shafts every 3 km.		Disruption of groundwater flows and levels may occur (see tab 37-42-	
9					The ALS states that the surface water body has water available at all flows.		GB412025G103000). This may result in long term or widespread changes to baseflow to	
<u>و</u> ا					The ALS states that the surface water body has water available at all hows.			
f l	Morphological conditions	Supports good					watercourses. The ALS states that the surface water body has water available at all flows,	
					Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in turn impact		but the potential magnitude of impacts are at present poorly understood. If reductions in	
				<u> </u>	on baseflows to nearby water courses. This could result in a reduction in ecological or chemical status.		baseflow are of a large magnitude there could be a deterioration in the hydrological regime	
		All high/good except:			Impacts are likely to be temporary and localised however, and the availability of water in the water body		of the surface water body.	
=	General physico-chemical		Phosphate good by 2027		impacts are likely to be temporary and localised nowever, and the availability of water in the water body		of the Surface Water Dudy.	
3		Phosphate- poor	3, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5,		indicates that temporary reduction in baseflow could be tolerated.			
Ε								
9					Accidental leakages or spills from construction machinery at the surface may affect the chemical status			
Ö	Specific pollutants:	Not provided			of the surface water body. Release of sediments from construction work may affect the ecological			
				X	status due to smothering of habitats or reduction in light, or the chemical status of the surface water			
	Daianitus hamandassa	I			body, particularly if contaminated. However, construction best practice and pollution prevention			
	Priority hazardous	Does not require assessment			measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface			
	substances				water body.			
				3	water body.			
		I						
	Priority substances	Does not require assessment		4				
	Substances	Doco not require assessifient						
	E I I		0	an a				
	Ecological	Moderate	Good by 2027	N\A				
		l						
	Chemical	Good	Good by 2015	N\A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body

EA Abstrac https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300488/LIT_7849_fa7980.pdf

EA Abstrac https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300484/LIT7919v3_f881c4.pdf
EA Abstrac https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300485/LIT7917v1_161231.pdf

EA Abstrac https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300489/LIT_7918_ccfa86.pdf

Coal Author http://mapapps2.bgs.ac.uk/coalauthority/home.html
Catchment http://environment.data.gov.uk/catchment-planning/

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	Water body ID:		GB112072066050	Scheme:	Haweswater Aqueduct sections T01 to T06 (Mea	albank South Well to	o Woodgate Hill)		
	Water body Name:		Hindburn	Reference	C	Option - 37-42			
	RBMP:		North West	Scheme Phase	Construction		Operational		
				Impact potential					
	Operational catchment:		Wenning	,	Direct		Direct		
	Designation (and uses):		Not designated						
	Designation (and asso).		reor deorgrated						
	Relevant upstream water bo	dies:	Roeburn						
	Downstream water bodies:		Wenning- Lower						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confiden	
	Phytobenthos	Not provided							
	- nytobontnoo	rtot providod							
					New connections to Haweswater Aqueduct.				
	Macrophytes	Not provided			Minor level of impact. Construction of penstock chamber around existing aqueduct, Open cut pipe construction between				
					penstock chamber and new tunnel.				
5	Macrophytes and				Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater levels and flows, which				
	phytobenthos	Good			could in turn impact on baseflows to nearby water courses, but this would be localised and temporary. It is assumed that no				
1	p.i., tobelitios				water courses would be crossed or diverted for the new connection.				
		High			Accidental leakages or spills from construction machinery may affect the chemical status of the surface water body. Release of				
	Benthic invertebrates	riign			sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the				
					chemical status of the surface water body, particularly if contaminated. However, construction best practice and pollution		New connections to Haweswater Aqueduct.		
					prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.		Minor level of impact. Penstock shaft. The presence of a new concrete lined shaft may		
	Fish	Good					disrupt groundwater levels and flows, which could in turn impact on baseflows to nearby water		
	1 1011	0000			Construction of new tunnel.		courses, but this would be localised.		
					Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank		courses, but this would be localised.		
					South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a		Presence and operation of new tunnel.		
	Hydrological regime	High			total length of 51.8 km. Temporary shafts every 3 km. The ALS states that the surface water body has water available at high		Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel		
9		1 *			flows (Q30), but limited water availability at low and medium flows (Q95 - Q50).		between Mealbank South Well and Woodgate Hill, including associated permanent shafts.		
olo						Low	Tunnel depth is up to 120 m and has a total length of 51.8 km.	Low	
d d					Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in turn impact on baseflows to		runnar deput is up to 120 fit and has a total length of 51.8 km.		
10	River continuity	Not provided			nearby water courses. This could result in a reduction in ecological or chemical status. Impacts are likely to be temporary and		Disruption of groundwater flows and levels may occur (see tab 37-42- GB41202G102700).		
ou					localised however, and the of availability of water in the water body indicates that temporary reduction in baseflow could be		This may result in long term or widespread changes to baseflow to watercourses. The ALS		
į.					tolerated.		I his may result in long term or widespread changes to basellow to watercourses. The ALS states that the surface water body has water available at high flows (Q30), but limited water		
£		I					availability at low and medium flows (Q95 - Q50), and the potential magnitude of impacts are		
	Morphological conditions	Supports good			Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water		at present poorly understood. If reductions in baseflow are of a large magnitude or impacts are		
					body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction		be a deterioration in the hydrological regime of the surface water body.		
a					in light, or the chemical status of the surface water body, particularly if contaminated. However, construction best practice and		De a deterioration in the hydrological regime of the Surface Water Dody.		
Sic	General physico-chemical	All high			pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface				
en	Conc. ar physico-chellical	,gii			water body.				
Ÿ				4					
8					The option includes a conduit bridge over the Wellbeck and Millbeck. In channel works may reduce the chemical status due to				
ys	Specific pollutants:	All high			deterioration in water quality due to disturbance of soils and sediments, particularly if contaminated, or due to accidental				
곱					spillage or leakage of fuels, oils and other chemicals associated with construction machinery. The ecological status may				
					reduce due to smothering of habitats or reduction in light due to release of sediments, or changes to in hydrological regime,				
	Priority hazardous				river continuity or morphological conditions due to impoundments or changes to the structure of the channel. However,				
	substances	All good			construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or				
	out out to the				widespread impact on the surface water body.				
		l., .							
	Priority substances	All good							
	Ecological	Good	Good by 2015	N/A					
	Chemical	Good	Good by 2015	N/A					
	Overall	Good	Good by 2015	MA					

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the repletine across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

EA Abstractio https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300488/LIT_7849_fa7980.pdf

EA Abstractio https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300484/LIT7919v3_f881c4.pdf

EA Abstració https://www.gov.uk/government/usides/s/stern/usides/s/sternen-ides/file/300485/UT-7918-cfa8/sternen-ides/file/300485/UT-7918-cfa8/sternen-ides/file/300485/UT-7918-cfa8/sternen-ides/file/300485/UT-7918-cfa8/sternen-ides/file/300485/UT-7918-cfa8/sternen-ides/file/300485/UT-7918-cfa8/s.pdf
COG Alurhority http://www.gov.uk/government/usides/s/ytern/usides/s/starhment-data/file/300485/UT-7918-cfa8/s.pdf
COG Alurhority http://mapagagaga.gov.a.uk/godalarhority/home.html

Catchment Di http://environment.data.gov.uk/catchment-planning/

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	Water body ID: Water body Name:		GB112071065420	Scheme:	Haweswater Aqueduct sections T01 to T00	6 (Mealbank South V	Vell to Woodgate Hill)		
			Whitendale River	Reference		Option - 37-42			
	RBMP:		North West	Scheme Phase	Construction		Operational		
	Operational catchment:		Hodder and Loud	Impact potential	Direct		Direct		
	Designation (and uses):		Not designated						
	Relevant upstream water bo	dies:	Not identified						
	Downstream water bodies:		Dunsop						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
	Phytobenthos	Not provided							
	Macrophytes	Not provided							
	Macrophytes and phytobenthos	High	Good by 2015						
	Benthic invertebrates	High	Good by 2015						
	Fish	Good	Good by 2015						
8	Hydrological regime	Supports good	Supports Good by 2015		Construction of new tunnel.				
3 -	River continuity	Not provided			Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and Woodgate Hill, including associated temporary and permanent				
H _d	Morphological conditions	Supports good	-		shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Temporary shafts every 3 km.		Presence and operation of new tunnel. Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m		
<u>г</u>	General physico-chemical	All high	Good by 2015		The ALS states that the surface water body has water available at all flows.		diameter tunnel between Mealbank South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total length		
Physico-chemica	Specific pollutants:	Not provided			Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in turn impact on baseflows to nearby water courses. This could result in a reduction in ecological or chemical status. Impacts are likely to be temporary and localised however, and the availability of water in the water body indicates that temporary reductions in baseflow could be tolerated. Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the chemical status of the surface water body, particularly if contaminated. However, construction best practice and pollution	Low	of 51.8 km. Disruption of groundwater flows and levels may occur (see tab 37-41-GB41202G103000). This may result in long term or widespread changes to baseflow to watercourses. The ALS states that the surface water body has water available at all flows, but the potential magnitude of impacts are at present poorly understood. If reductions in baseflow are of a large magnitude there could be a deterioration in the hydrological regime of the surface water body.	Low	
	Priority hazardous substances	Does not require assessment			prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.				
	Priority substances	Does not require assessment							
	Ecological	Good	Good by 2015	N\A					
	Chemical	Good	Good by 2015	N\A					
	Overall	Good	Good by 2015	N\A					

1- Application of standard best practice construction and pollution prevention methods.

P- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Engineers (1)WAR-F51 global amec.com/shared/Projects/38671 UU WRMP Support\S Design\Resilience Options\WRMP\C11 New Tunnels\PBDs\037 Duplication of T06 tunnel and conduit.xlsx.
Engineers (1)WAR-F51 global amec.com/shared\Projects\38671 UU WRMP Support\S Design\Resilience Options\WRMP\C11 New Tunnels\PBDs\037 Duplication of T05 tunnel and conduit.xlsx.
Engineers (1)WAR-F51 global-amec.com/shared\Projects\38671 UU WRMP Support\S Design\Resilience Options\WRMP\C11 New Tunnels\PBDs\039 Duplication of T05 tunnel and conduit.xlsx.
Engineers (1)WAR-F51 global-amec.com/shared\Projects\38671 UU WRMP Support\S Design\Resilience Options\WRMP\C11 New Tunnels\PBDs\040 Duplication of T03 tunnel and conduit.xlsx.
Engineers (1)WAR-F51 global-amec.com/shared\Projects\38671 UU WRMP Support\S Design\Resilience Options\WRMP\C11 New Tunnels\PBDs\040 Duplication of T03 tunnel and conduit.xlsx.
Engineers (1)WAR-F51 global-amec.com/shared\Projects\38671 UU WRMP Support\S Design\Resilience Options\WRMP\C11 New Tunnels\PBDs\040 Duplication of T03 tunnel and conduit.xlsx.

Engineers F \\WAR-F51_global.amec.com\shared\Projects\38671 UU WRMP Support\S Design\Resilience Options\WRMP\C11 New Tunnels\PBDs\042 Duplication of T01 tunnel and conduit.xlsx

EA Abstrac https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300488/LIT_7849_fa7980.pdf

EA Abstrac https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300484/LIT7919v3_f881c4.pdf

EA Abstrac https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300485/LIT7917v1_161231.pdf
EA Abstrac https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300489/LIT_7918_ccfa86.pdf

Coal Author http://mapapps2.bgs.ac.uk/coalauthority/home.html

Catchment http://environment.data.gov.uk/catchment-planning/

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	Water body ID:		GB112071065560	Scheme:	Haweswater Aqueduct sections T01 to T06 (Mealbank South Wel	Il to Woodgate Hill)	
	Water body Name:		Hodder - conf Easington Bk to conf Ribble	Reference		Option - 37-42		
	RBMP:		North West	Scheme Phase	Construction		Operational	
				Impact potential	Direct		Direct	
	Operational catchment:		Hodder and Loud		Direct		Direct	
- [Designation (and uses):		Not designated					
	Relevant upstream water boo		D Faalantan Baarta I	laddan and Caradala Distance	onf Easington Bk, Langden Brook and Loud - Lower			
	Downstream water bodies:	iles:	Ribble DS Stock Beck	Hodder - conf Croasdale BK to co	on Easington BK, Langden Brook and Loud - Lower			
		Status		Alternate Objective if less than				
	WFD Element (Receptor)	Status	RBMP objective	Good		Confidence		Confidence
	Phytobenthos	Not provided						i
					New connections to Haweswater Aqueduct.			
					Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe construction between			
					penstock chamber and new tunnel.			
	Macrophytes	Not provided			portocol of an few fulfilles.			
					Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater levels and flows, which			
					could in turn impact on baseflows to nearby water courses, but this would be localised and temporary. It is assumed that no			
	Macrophytes and							
	phytobenthos	Good			water courses would be crossed or diverted for the new connection.			
1	p.,,							
					Accidental leakages or spills from construction machinery may affect the chemical status of the surface water body. Release			
	Double levels bear	I II also			of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or			
	Benthic invertebrates	High			the chemical status of the surface water body, particularly if contaminated. However, construction best practice and pollution			
					prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water		New connections to Haweswater Aqueduct.	
					body.		Minor level of impact. Penstock shaft. The presence of a new concrete lined shaft may disrupt	
4	Fish	Not provided					groundwater levels and flows, which could in turn impact on baseflows to nearby water courses,	1
		Tot provided			Construction of new tunnel.		but this would be localised.	
					Medium level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank		Dat this House do toculous.	
					South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has		Presence and operation of new tunnel.	
	Hydrological regime	Supports good			a total length of 51.8 km. Temporary shafts every 3 km. The ALS states that the surface water body has no water available at		Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between	
6	,g				low flows (Q95 and Q70, limited water available at medium flows (Q50), and water available at high flows (Q30).		Mealbank South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is	
공					iow nows (αθο and ανό, innited water available at medium nows (αου), and water available at high nows (αθυ).	Low		Low
8					Description of the transfer of the first own of the transfer of the state of the st		up to 120 m and has a total length of 51.8 km.	
5	River continuity	Not provided			Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in turn impact on baseflows to		B)	
E	•	-			nearby water courses. This could result in a reduction in ecological or chemical status. Reductions in baseflow are likely to		Disruption of groundwater flows and levels may occur (see tab 37-42- GB412025G103000). This	
ŧ					be temporary and localised, however the lack of availability of water in the water body at low flows indicates that a temporary		may result in long term or widespread changes to baseflow to watercourses. The ALS states that	
À					reduction in baseflow could cause a prolonged deterioration in WFD status.		the surface water body has no water available at low flows (Q95 and Q70, limited water available at	
	Morphological conditions	Supports good					medium flows (Q50), and water available at high flows (Q30), and the potential magnitude of	
					Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water		impacts are at present poorly understood. If reductions in baseflow are of a large magnitude there	
æ					body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or		could be a deterioration in the hydrological regime of the surface water body.	
١٥	O	All blob			reduction in light, or the chemical status of the surface water body, particularly if contaminated. However, construction best			
eu	General physico-chemical	All high			practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on			
-S					the surface water body.			
ò		· · · · · · · · · · · · · · · · · · ·						
Si	Specific pollutants:	Copper- high			The option includes a conduit bridge over the Bonstone Brook near Hodger SW. In channel works may reduce the chemical			
٤	-p pondunto.	g			status due to deterioration in water quality due to disturbance of soils and sediments, particularly if contaminated, or due to			
ш.					accidental spillage or leakage of fuels, oils and other chemicals associated with construction machinery. The ecological			
	Delaste bassadana				status may reduce due to smothering of habitats or reduction in light due to release of sediments, or changes to in			
	Priority hazardous	Does not require assessment			hydrological regime, river continuity or morphological conditions due to impoundments or changes to the structure of the			
	substances				channel. However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a			
				1	prolonged or widespread impact on the surface water body.			
					prolonged or widespread impact on the surface water body.			
	Priority substances	Does not require assessment						
		·						
	Ecological	Good	Good by 2015	NA				
	Louisgical		0000 by 2010					
	Chemical	Good	Good by 2015	N/A				

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines wild cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

Good by 2015

Secretary to the pipeware actives weater actives water water water actives water wat

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EA Abstrac https://www.gov.uk/government/uploads/system/uploads/attachment data/file/300484/LIT7919v3 f881c4.pdf
EA Abstrac https://www.gov.uk/government/uploads/system/uploads/attachment data/file/300485/LIT7917v1 161231.pdf

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		Water body ID:		GB41202G103000	Scheme:	Haweswater Aqueduct sections T01 to T06 (M	ealbank South Well t	o Woodgate Hill)		
		Water body Name:		Ribble Carboniferous Aquifers	Reference	Op	tion - 37-42			
		RBMP:		North West	Scheme Phase	Construction		Operational		
		Operational catchment:		Ribble Carboniferous	Impact potential	Direct		Direct		
		Designation (and uses):		No designation						
		Relevant upstream water	hodies:	N\A						
		Downstream water bodie		N\A						
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
à		Quantitative Dependent	Good							
ents for vater: ative	ative	Quantitative GWDTEs test	Good							
eleme vundv iantit	antita us El	Quantitative Saline Intrusion	Good			New connections to Haweswater Aqueduct.		New connections to Haweswater Aqueduct. Minor level of impact. Penstock shaft. The presence of a new concrete lined shaft		
WFD Gro	Stat	Quantitative Water Balance	Good			Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe construction between penstock chamber and new tunnel.		may disrupt groundwater levels and flows, but this would be localised.		
		Chemical Dependent	Good			Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater levels and		Presence and operation of new tunnel. Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter		
		Chemical Drinking Water Protected Area	Good			lemporary correr dam, excavarions, and associated dewatering may have an impact on groundwater levels and flows, but this would be localised and temporary. Accidental leakages or spills from construction machinery may affect the chemical status of the groundwater body,		tunnel between Mealbank South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km.		
	ment	Chemical GWDTEs test	Good			but construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the groundwater body.		Solid geology is Carboniferous mudstones, sandstones, shales and limestones, a secondary A aquifer.		
ter: Chemical	nical Status Ele	Chemical Saline Intrusion	Good			Construction of new tunnel. Medium level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Temporary shafts every 3 km. Solid geology is Carboniferous mudstones, sandstones, shales and limestones, a secondary A aquifer.	Low	Quantitative Status: No dewatering of the tunnel or shafts would take place post construction, and groundwater ingress is expected to be minimal (the tunnels would be designed and maintained to prevent groundwater ingress in order to protect raw water quality). The tunnel will be constructed within the saturated zone of the aquifer and the presence	Low	
for Groundwat	Chem	General Chemical Test	Good			Quantitative Status: Dewatering of the tunnel and shafts may affect groundwater levels and flows and the quantitative water balance of the groundwater body. Although temporary in nature, due to the length of the tunnel, and number and depth of shafts, the impacts could be widespread.		of a low permeability linear structure may alter groundwater flows and levels, particularly where the tunnel is shallower and within the zone of active groundwater flow, or if the orientation of the tunnel is perpendicular to the direction of groundwater flow. In addition disturbance of the strata surrounding the tunnels and shafts may result in altered or preferential groundwater flow pathways. Changes in shallow		
WFD elements	Elements vater)	Prevent and Limit Objective	Not provided			Chemical status: Interception of shallow contaminated land may result in vertical or lateral migration of contaminated groundwater or mine waters into previously unaffected parts of the groundwater body. Leakages or spillages from construction machinery could affect the chemical status of the groundwater body. While construction best practice and pollution prevention measures would limit the occurrence of spillages and help		groundwater levels and flow may affect surface water bodies and groundwater dependent terrestrial ecosystems (i.e. reductions in baseflow). Chemical Status: The tunnel would be used to transfer raw water of potable standard. Any leakages from the turnel to the groundwater body would locally after the		
\$	Supporting Eler (groundwate	Trend Assessment	No trend			mitigate their impact, any uncontrolled leak could rapidly transmit to the saturated zone. Although the construction phase is temporary, the effects of a deterioration in groundwater quality could be prolonged. Impacts would be localised, but could occur in several locations.		groundwater chemistry, but it is assumed the potable standard water would be free from hazardous and priority hazardous substances and other pollutants, and would therefore not have a significant negative effect on the chemical status of the groundwater body.		
_ ;	ential	Quantitative	Good	Good by 2015	N\A					
Overall	us/Pot	Chemical (GW)	Good	Good by 2015	N\A					
	Star	Overall	Good	Good by 2015	N\A					

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6 Extensions, modifications, a construction of the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

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EA Abstrac https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300485/LIT7917v1_161231.pdf EA Abstract https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300489/LIT_7918_ccla86.pdf
Coal Author http://mapaps2.bgs.ac.uk/coalauthority/home.html

Catchment http://environment.data.gov.uk/catchment-planning

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				Scheme:				
	Water body ID:		GB112073071090		Haweswater Aqueduct sections To	•	-	
	Water body Name:		Peasey Beck	Reference		Option	- 37-42	
	RBMP:		North West	Scheme Phase	Construction		Operational	
				Impact potential	Direct		Direct	
	Operational catchment:		Bela					
	Designation (and uses):		Heavily modified					
	Relevant upstream water bo	odies:	Lupton (Farleton) Beck					
	Downstream water bodies:		Bela					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
	Macrophytes	Not provided						
Siology	Macrophytes and phytobenthos	Good			Construction of new tunnel. Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m			
	Benthic invertebrates	High			diameter tunnel between Mealbank South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Temporary shafts every 3 km. The ALS states that the		Presence and operation of new tunnel.	
	Fish	Not provided			surface water body has water available across all flow regime. Dewatering of the tunnel and shafts may affect groundwater levels and flows, which		Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total length	
hology	Hydrological regime	Not provided			could in turn impact on baseflows to nearby water courses. This could result in a reduction in ecological or chemical status. However impacts are likely to be temporary and localised and the availability of water in the water body indicates some	Low	of 51.8 km. Disruption of groundwater flows and levels may occur (see tab 37-42-	Low
omorp	River continuity	Not provided			temporary reduction in baseflow could be tolerated.		GB41202G102100). This may result in long term or widespread changes to baseflow to watercourses. The ALS states that there is water available across all	
Hydr	Morphological conditions	Not provided			Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or		flows, but the potential magnitude of impacts are at present poorly understood. If reductions in baseflow are of a large magnitude there could be a deterioration in the hydrological regime of the surface water body.	
/sico- mical	General physico-chemical	All high/good			reduction in light, or the chemical status of the surface water body, particularly if contaminated. However, construction best practice and pollution prevention		tile hydrological regime of the surface water body.	
Physi	Specific pollutants:	Not provided			measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.			
Chemical	Priority hazardous substances	Does not require assessment						
Che	Priority substances	Does not require assessment						
	Ecological	Moderate	Good by 2027	N\A				
	Chemical	Good	Good by 2015	N\A				
	Overall	Moderate	Good by 2027	N\A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

- 5- A ground investigation will be carried out and will identify any contaminated land and any miligation that may be required.
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small bootprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
 7- Devastering of exacuations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

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EA Abstrac https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300485/LIT7917v1_161231.pdf
EA Abstrac https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300485/LIT7917v1_161231.pdf

EA Abstrac https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300489/LIT_7918_ccfa86.pdf

Coal Author http://mapapps2.bgs.ac.uk/coalauthority/home.html Catchment http://environment.data.gov.uk/catchment-planning

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	Water body ID:		GB112072071690	Scheme:	Haweswater Aqueduct sections T01 to 7	Γ06 (Mealbank Sout	h Well to Woodgate Hill)	
			Lune- conf Rawthey to conf	Reference		Option - 37	.42	
	Water body Name:		Greta			Option - 37		
Į	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Lune- Rawthey to Greta	Impact potential	Direct		Direct	
	Designation (and uses):		Not designated					
Ī	Relevant upstream water bo	dies:		Leck Beck (Ease Gill), Lune- cor	of Birk Beck to conf Rawthey and Rawthey- Lower			
Ī	Downstream water bodies:		Lune- conf Greta to conf We	enning	· ·			
Ī	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confid
	Phytobenthos	Not provided						
	Macrophytes	Not provided						
	Macrophytes and phytobenthos	Good						
_ H					New connections to Haweswater Aqueduct.			
	Benthic invertebrates	High			Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe construction between penstock chamber and new tunnel.			
	Fish	Good			Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater			
ರಾ	Hydrological regime	Supports good			levels and flows, which could in turn impact on baseflows to nearby water courses, but this would be localised and temporary. It is assumed that no water courses would be crossed or diverted for the new			
olo	River continuity	Not provided			connection.			
, d	Morphological conditions	Supports good			Accidental leakages or spills from construction machinery may affect the chemical status of the surface		New connections to Haweswater Aqueduct. Minor level of impact. Penstock shaft. The presence of a new concrete lined shaft may	
	General physico-chemical	All high			water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the chemical status of the surface water body, particularly		disrupt groundwater levels and flows, which could in turn impact on baseflows to nearby	
a I					if contaminated.		water courses, but this would be localised.	
=					However, construction best practice and pollution prevention measures would help prevent and/or		Presence and operation of new tunnel.	
5					mitigate against a prolonged or widespread impact on the surface water body.		Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel	
ξ						_	between Mealbank South Well and Woodgate Hill, including associated permanent	
2	Specific pollutants:	Not provided			Construction of new tunnel. Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel	Low	shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km.	Lo
					between Mealbank South Well and Woodgate Hill, including associated temporary and permanent		Disruption of groundwater flows and levels may occur (see tab 37-42-	
					shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Temporary shafts every 3 km.		GB41202G102700). This may result in long term or widespread changes to baseflow to	
					The ALS states that the surface water body has water available at high flows (Q30), but limited water		watercourses. The ALS states that there is water available at high flows (Q30), and	
					availability at low and medium flows (Q95 - Q50).		limited water availability at low and medium flows (Q95 - Q50), but the potential	
					Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in turn impact		magnitude of impacts are at present poorly understood. If reductions in baseflow are of a large magnitude there could be a deterioration in the hydrological regime of the surface	
					on baseflows to nearby water courses. This could result in a reduction in ecological or chemical status.		water body.	
	Priority hazardous	Does not require assessment			Impacts are likely to be temporary and localised and the availability of water in the water body indicates			
	substances				some temporary reduction in baseflow could be tolerated.			
					Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water body. Release of sediments from construction work may affect the ecological status			
					or the surrace water body. Release or sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the chemical status of the surface water body,			
					particularly if contaminated. However, construction best practice and pollution prevention measures			
		L			would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.			
	Priority substances	Does not require assessment						
	Ecological	Good	Good by 2015	N\A				
	Chemical	Good	Good by 2015	N\A				
		Good	Good by 2015	N/A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed. 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

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Catchment http://

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	Water body ID: Water body Name: RBMP: Operational catchment: Designation (and uses):		GB112073071080 Lupton (Farleton) Beck North West Bela Not designated	Scheme: Reference Scheme Phase Impact potential	Haweswater Aqueduct sections Construction Direct	·	nk South Well to Woodgate Hill) on - 37-42 Operational Direct	
	Relevant upstream water bo	dies:	Not identified Peasey Beck					
	Downstream water bodies: WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
WFD WFD elements for Rivers: Ecological for Rivers: Ecological for Rivers: Chemical Chemical Phology Phology Phology	Morphological conditions General physico-chemical Specific pollutants: Priority hazardous substances	Not provided Not provided High High Not provided High Not provided Supports good All high Not provided Does not require assessment			Construction of new tunnel. Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Temporary shafts every 3 km. The ALS states that the surface water body has water available across all flow regime. Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in turn impact on baseflows to nearby water courses. This could result in a reduction in ecological or chemical status. However impacts are likely to be temporary and localised and the availability of water in the water body indicates some temporary reduction in baseflow could be tolerated. Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the chemical status of the surface water body, particularly if contaminated. However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.	Low	Presence and operation of new tunnel. Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Disruption of groundwater flows and levels may occur (see tabs 37-42-GB412020102100 and 37-42 - GB412020102700). This may result in long term or widespread changes to baseflow to watercourses. The ALS states that there is water available across all flows, but the potential magnitude of impacts are at present poorly understood. If reductions in baseflow are of a large magnitude there could be a deterioration in the hydrological regime of the surface water body.	Low
Overall Status\ Potential	Ecological Chemical Overall	Good Good	Good by 2015 Good by 2015 Good by 2015	N\A N\A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharged within the same water body.

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EA Abstract https://www.gov.uk/governmen/upladed/system/upladed/s4tachment_date/file/p20489/tiT_7918_cda86.pdf Coal Auth http://mapaps2.bes.ac.uk/coalauther/tr/home.html Cathment http://mapaps2.bes.ac.uk/coalauther/tr/home.html Cathment http://mapaps2.bes.ac.uk/coalauther/tr/home.html

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	Water body ID:		GB41202G102100	Scheme:	Haweswater Aqueduct sections T01 to	o T06 (Mealbank Sou	uth Well to Woodgate Hill)		
	Water body Name:		South Cumbria Lower Palaeozoic and Carboniferous Aquifers	Reference		Option - 37-42	1		
	RBMP:		North West	Scheme Phase	Construction		Operational		
	Operational catchment:		Cumbria South Lower Palaeozoic and Carboniferous Aq	Impact potential	Direct		Direct		
	Designation (and uses):		No designation						
	Relevant upstream water	bodies:	N\A						
	Downstream water bodie	es:	N\A						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
5	Custons Water Deduction	Good							
water: ative	Quantitative GWDTEs test	Good							
ound) uantit	Quantitative Saline Intrusion	Good			New connections to Haweswater Aqueduct. Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe		New connections to Haweswater Aqueduct.		
5 6 6	Quantitative Water Balance	Good			construction between penstock chamber and new tunnel.		Minor level of impact. The presence of a new concrete lined shaft may disrupt groundwater levels and flows, but this would be localised.		
	Confess Mates Dade	Poor			Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater				
<u> </u>	Chemical Drinking Water Protected Area	Good			levels and flows, but this would be localised and temporary. Accidental leakages or spills from construction machinery may affect the chemical status of the		Presence and operation of new tunnel. Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel		
l leme	Chemical GWDTEs test	Good			groundwater body, but construction best practice and pollution prevention measures would help prevent and/or mitigate against a profonged or widespread impact on the groundwater body. Construction of new tunnel. Medium level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Temporary shafts every 3 km. Solid geology is Silurian Rocks (undifferentiated) - sandstone and conglomerate, a secondary B aquifer. Quantitative Status: Dewatering of the tunnel and shafts may affect groundwater levels and flows and the quantitative water balance of the groundwater body. Although temporary in nature, due to the length of the tunnel, and number and depth of shafts, the impacts could be widespread.		between Mealbank South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Solid geology is Silurian		
lical	Chemical Saline Intrusion	Good					Rocks (undifferentiated) - sandstone and conglomerate, a secondary B aquifer.		
r Groundwater: Chem	General Chemical Test	Good				Low	Quartitative Status. No dewatering of the tunnel or shafts would take place post construction and groundwater ingress is expected to be minimal (the tunnels would be designed and maintained to prevent groundwater ingress in order to protect raw water quality). The tunnel will be constructed within the saturated zone of the aquifer and the presence of a low permeability linear structure may after groundwater flows and levels, particularly where th tunnel is shallower and within the zone of active groundwater flow, or if the orientation of the tunnel is perpendicular to the direction of groundwater flow. In addition disturbance of the strata surrounding the tunnels and shafts may result in altered or preferential groundwater flo	Low	
WFD elements fo	Prevent and Limit Objective	Not provided			Chemical status: Interception of shallow contaminated land may result in vertical or lateral migration of contaminated groundwater or mine waters into previously unaffected parts of the groundwater body. Leakages or spillages from construction machinery could affect the chemical status of the groundwater body. While construction best practice and pollution prevention measures would limit the occurrence of		pathways. Changes in shallow groundwater levels and flow may affect surface water bodies and groundwater dependent terrestrial ecosystems (i.e. reductions in baseflow). Chemical Status: The tunnel would be used to transfer raw water of potable standard. Any leakages from the tunnel to the groundwater body would locally after the groundwater chemistry, but it is assumed the potable standard water would be free from hazardous and		
W	Trend Assessment	No trend			spillages and help mitigate their impact, any uncontrolled leak could rapidly transmit to the saturated zone. Although the construction phase is temporary, the effects of a deterioration in groundwater quality could be prolonged. Impacts would be localised, but could occur in several locations.		priority hazardous substances and other pollutants, and would therefore not have a significant negative effect on the chemical status of the groundwater body.		
I ential	Quantitative	Good	Good by 2015	N\A					
Overall us\Poter	Chemical (GW)	Poor	Good by 2027	N\A					
Statu	Overall	Poor	Good by 2027	N\A					

- Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4 New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed. 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

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	Water body ID:		GB41202G102700	Scheme:	Haweswater Aqueduct sections T01 to	T06 (Mealbank Sout	th Well to Woodgate Hill)			
	Water body Name:		Lune and Wyre Carboniferous Aguifers	Reference		Option - 37-42				
	RBMP:		North West	Scheme Phase	Construction		Operational			
			Lune and Wyre	Impact potential						
	Operational catchment:		Carboniferous Aq	impaor potentiai	Direct		Direct			
	Designation (and uses):		No designation							
	Relevant upstream water	hadiası	N\A							
	Downstream water bodies		N\A							
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confiden		
	Quantitative Dependent	Good		II less than Good						
tive	Quantitative GWDTEs test	Good								
ıntita s Ele	Quantitative Saline	Good			New connections to Haweswater Aqueduct.					
Qua	Intrusion Quantitative Water	Good			Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe construction between penstock chamber and new tunnel.		New connections to Haweswater Aqueduct. Minor level of impact. Penstock shaft. The presence of a new concrete lined shaft may			
	Balance Chemical Dependent				Temporary coffer dam, excavations, and associated dewatering may have an impact on groundwater		disrupt groundwater levels and flows, but this would be localised.			
	Confess Mates Dade	Good			levels and flows, but this would be localised and temporary.					
	Chemical Drinking Water Protected Area	Good			Accidental leakages or spills from construction machinery may affect the chemical status of the groundwater body, but construction best practice and pollution prevention measures would help		Presence and operation of new tunnel. Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter			
Ħ	Chemical GWDTEs test	Poor			prevent and/or mitigate against a prolonged or widespread impact on the groundwater body.		tunnel between Mealbank South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Solid			
Status Elem	Chemical Saline Intrusion	Good			Construction of new tunnel. Medium level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Temporary shafts		geology is Silurian Rocks (undifferentiated) - sandstone and conglomerate, a secondary B aquifer, and Carboniferous Milistone Grit a secondary A aquifer. <u>Quantitative Status</u> : No dewatering of the tunnel or shafts would take place post construction, and groundwater ingress is expected to be minimal (the tunnels would be			
Chemical	General Chemical Test	Good			every 3 km. Solid geology is Silurian Rocks (undifferentiated) - sandstone and conglomerate, a secondary 8 aquifer, and Carbonfferous Millatone Grit a secondary A aquifer. Quantitative Status: Dewatering of the tunnel and shafts may affect groundwater levels and flows and the quantitative water balance of the groundwater body. Although temporary in nature, due to the length of the tunnel, and number and depth of shafts, the impacts could be widespread. Chemical status: There is the potential for the interception of shallow contaminated land or deeper coal	Low	designed and maintained to prevent groundwater ingress in order to protect raw water quality). The tunnel will be constructed within the saturated zone of the aquifer and the presence of a low permeability linear structure may alter groundwater flows and levels, particularly where the tunnel is shallower and within the zone of active groundwater flow, or if the orientation of the tunnel is perpendicular to the direction of groundwater flow. In addition disturbance of the strata surrounding the tunnels and shafts may result in altered or preferential groundwater flow and pathways. Changes in shallow groundwater flewels and			
ilen	Prevent and Limit Objective	Not provided			mine workings in the Carboniferous strata. Information from The Coal Authority shows mine entries and abandoned mine workings close to the route of the tunnel between Lunesdals EW and Hodder NW. Interception of these features may result in vertical or lateral migration of contaminated groundwater or mine waters into previously unaffected parts of the groundwater body. Leakages or spillages from construction machinery could affect the chemical status of the groundwater body. While construction best practice and pollution prevention measures would limit the occurrence		In the control of the	1		
Supporting E (groundw	Trend Assessment	Upward trend			of spillages and help mitigate their impact, any uncontrolled leak could rapidly transmit to the saturated zone. Although the construction phase is temporary, the effects of a deterioration in groundwater quality could be prolonged. Impacts would be localised, but could occur in several locations.		not have a significant negative effect on the chemical status of the groundwater body.			
	Quantitative	Good	Good by 2015	N\A						
	Chemical (GW)	Good	Good by 2015	N\A						
	Overall	Good	Good by 2015	N\A						

- 1- Application of standard best practice construction and pollution prevention methods.
- 2. Pipe lines will cross water courses with existing readways where possible to limit the amount of new watercourse crossings.

 3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

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		Water body ID:		GB112073071370	Scheme:	Haweswater Aqueduct sections T01	to T06 (Mealbank S	outh Well to Woodgate Hill)	
		Water body Name:		Mint	Reference		Option -	37-42	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Kent	Impact potential	Direct		Direct	
		Designation (and uses):		Not designated					
		Designation (and uses).		Not designated	1				
		Relevant upstream water bo	dies:	Flodder Beck and Mint- Upp	per				
		Downstream water bodies:		Kent- conf Sprint to tidal					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Not provided			New connections to Haweswater Aqueduct. Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe			
		Macrophytes	Not provided			construction between penstock chamber and new tunnel. Temporary coffer dam, excavations, and associated dewatering may have an impact on			
a a	Biology	Macrophytes and phytobenthos	High			groundwater levels and flows, which could in turn impact on baseflows to nearby water courses, but this would be localised and temporary. It is assumed that no water courses would be crossed or diverted for the new connection.			
Ecologica	logy	Benthic invertebrates	High			Accidental leakages or spills from construction machinery may affect the chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habit		New connections to Haweswater Aqueduct. Minor level of impact. Penstock shaft. The presence of a new concrete lined shaft may	
Rivers:		Fish	Not provided			particularly if contaminated. However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.		disrupt groundwater levels and flows, which could in turn impact on baseflows to nearby water courses, but this would be localised.	
ents for		Hydrological regime	High			Construction of new tunnel. Minor level of impact. Construction of part of new 2.6 m diameter conduit and 2.85 m diameter	Low	Presence and operation of new tunnel. Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and Woodqate Hill, including associated permanent shafts.	Low
WFD elem	omorpho	River continuity	Not provided			tunnel between Mealbank South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Temporary shafts every 3 km. The ALS states that the surface water body has water available across all flow		Tunnel depth is up to 120 m and has a total length of 51.8 km. Disruption of groundwater flows and levels may occur (see tab 37-42-	Low
>	Hydr	Morphological conditions	Supports good			watercourses. The ALS st Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in turn potential magnitude of impacts	GB41202G102100). This may result in long term or widespread changes to baseflow to watercourses. The ALS states that there is water available across all flows, but the potential magnitude of impacts are at present poorly understood. If reductions in baseflow are of a large magnitude there could be a deterioration in the hydrological regime of the		
	sico- nical	General physico-chemical	All high			impact on baseriows to nearby water courses. Inits could result in a reduction in ecological or chemical status. However impacts are likely to be temporary and localised and the availability of water in the water body indicates some temporary reduction in baseflow could be tolerated.	chemical status. However impacts are likely to be temporary and localised and the availability of	surface water body.	
	Phys	Specific pollutants:	Not provided			Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the chemical status of the			
ements ivers:	mical	Priority hazardous substances	Does not require assessment			surface water body, particularly if contaminated. However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.			
WFD elements		Priority substances	Does not require assessment						
rerall Status\		Ecological	Good	Good by 2015	N\A				
all Sta		Chemical	Good	Good by 2015	N\A				
Over		Overall	Good	Good by 2015	N\A				

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body

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	Downstream water bodies:	Vater body Name: EMP: North West Scheme! Impact properational catchment: essignation (and uses): Not designated Not identified ownstream water bodies: Mint Mint		Scheme: Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill) Reference Option - 37-42 Scheme Phase Construction Operational Impact potential Direct Direct Alternate Objective if less than Confidence				Confidence
WFD elements for Rivers: Ecological elements for Rivers: Cological Chemical Physico Hydromor Biology Biology	Phytobenthos Macrophytes Macrophytes and phytobenthos Benthic invertebrates Fish Hydrological regime River continuity Morphological conditions General physico-chemical Specific pollutants: Priority hazardous substances Priority substances	Not provided Not provided Good High Not provided High Not provided All high Not provided Does not require assessment		Good	Construction of new tunnel. Minor level of impact. Construction of part of new 2.8 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and Woodgate Hill, including associated temporary and permanent shafts. Turnel depth is up to 120 m and has a total length of 51.8 km. Temporary shafts every 3 km. The ALS states that the surface water body has water available across all flow regime. Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in turn impact on baseflows to nearby vater courses. This could result in a reduction in ecological or chemical status. However impacts are likely to be temporary and localised and the availability of water in the water body indicates some temporary reduction in baseflow could be tolerated. Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of shabitas or reduction in light, or the chemical status of the surface water body, particularly if contaminated. However, construction bet practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.	Low	Presence and operation of new tunnel. Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and Woodgate Hill, including associated permanent shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Disruption of groundwaters was and levels may occur (see tab 37-42-GB41202G102100). This may result in long term or widespread changes to baseflow to watercourses. The ALS states that there is water available across all flows, but the potential magnitude of impacts are at present poorly understood. If reductions in baseflow are of a large magnitude there could be a deterioration in the hydrological regime of the surface water body.	Low
Overall Status\ Potential	Ecological Chemical Overall	Good Good Good	Good by 2015 Good by 2015 Good by 2015	N\A N\A				

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

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Engineers [1]WAR-FS1.global amec.com/shared\Projects\38671 UU WRMP Support\S Design\Resilience Options\WRMP\C11 New Tunnels\PBD\30040 Duplication of TO3 tunnel and conduit.xlsx
Engineers [1]WAR-FS1.global amec.com/shared\Projects\38671 UU WRMP Support\S Design\Resilience Options\WRMP\C11 New Tunnels\PBD\30040 Duplication of TO3 tunnel and conduit.xlsx
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					Scheme:	Haweswater Aqueduct sections T01 to T06	(Mealbank South We	ell to Woodgate Hill)	
		Water body ID: Water body Name:		GB112073071100 Stainton Beck	Reference	<u> </u>	Option - 37-42		
		RBMP:		North West	Scheme Phase	Construction	Option - 37-42	Operational	
		KDMF.		NOITH WEST	Impact potential				
		Operational catchment:		Bela	impact potential	Direct		Direct	
		Designation (and uses):		Not designated					
		Relevant upstream water bo	dies:	Not identified					
		Downstream water bodies:		Bela					
					Alternate Objective if less				
		WFD Element (Receptor)	Status	RBMP objective	than Good		Confidence		Confidence
		Phytobenthos	Not provided			New connections to Haweswater Aqueduct.			
		Macrophytes	Not provided			Minor level of impact. Construction of penstock chamber around existing aqueduct. Open cut pipe construction between penstock chamber and new tunnel			
	Biology	Macrophytes and phytobenthos	Moderate	Good by 2027		Temporary coffer dam, excavations, and associated devatering may have an impact on groundwater levels and flows, which could in turn impact on baseflows to nearby water courses, but this voluble be localised and temporary, it is assumed that no water courses would be crossed or diverted for the new connection.			
cological		Benthic invertebrates	Good			Accidental leakages or spills from construction machinery may affect the chemical status of the surface water body. Release of sediments from construction work may affect the cological status due to smothering of habitats or reduction in light, or the chemical status of the surface water body, particularly if contaminated. However, construction best practice and pollution prevention measures would help prevent and/or mitigate		New connections to Haweswater Aqueduct.	
Rivers: Ec		Fish	Not provided			against a prolonged or widespread impact on the surface water body. Construction of new tunnel. Minor level of impact. Construction of part of new 2.5 m diameter conduit and 2.85 m diameter tunnel between		Minor level of impact. Penstock shaft. The presence of a new concrete lined shaft may disrupt groundwater levels and flows, which could in turn impact on baseflows to nearby water courses, but this would be localised.	
ments for	logy	Hydrological regime	High			Meabank South Well and Woodgate Hill, including associated temporary and permanent shafts. Tunnel depth is up to 120 m and has a total length d 51.8 km. Temporary shafts every 8 km. The ALS states that the surface water body has water available across all flow regime.	Low	Presence and operation of new tunnel. Medium level of impact. Part of new 2.6 m diameter conduit and 2.85 m diameter tunnel between Mealbank South Well and Woodgate Hill, including associated permanent	Low
WFDek	fromorpho	River continuity	Not provided			Dewatering of the tunnel and shafts may affect groundwater levels and flows, which could in turn impact on baseflows to nearby water course. This could result in a reduction in ecological or chemical status. However impacts are likely to be temporary and localised and the availability of water in the water body indicates some temporary reduction in baseflow could be tolerated.		shafts. Tunnel depth is up to 120 m and has a total length of 51.8 km. Disruption of groundwater flows and levels may occur (see tab 37-42- GB41202G102100). This may result in long term or widespread changes to baseflow to	
	Hy	Morphological conditions	Supports good			Accidental leakages or spills from construction machinery at the surface may affect the chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to sm		watercourses. The ALS states that there is water available across all flows, but the potential magnitude of impacts are at present poorly understood. If reductions in baseflow are of a large magnitude there could be a deterioration in the hydrological regime of the surface water body.	
	chemical	General physico-chemical	All high			contaminated. However, construction best gractice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body. The cotion includes two conduit bridges on the Crake Hall Gill and Mill Rioz Gill. In channel works may reduce			
	Physico-	Specific pollutants:	Not provided			the chemical status due to determine water quality due to disturbance of coils and sediments prefixately for contaminates, or due to accelerate jurisquery of the contaminates, or due to accelerate julging or leakage of fuels, oils, and other chemicals associated with construction machinery. The ecological status may reduce due to amothering of habitats or reduction in light due to release of sediments, or changes to in hydrological regime, five continuity or morphological conditions.			
	WFD elements for Rivers: Chemical	Priority hazardous substances	Does not require assessment			due to impoundments or changes to the structure of the channel. However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.			
	•	Priority substances	Does not require assessment						
	Status\ ntial	Ecological	Moderate	Good by 2027	MA				
	all Sta otentia	Chemical	Good	Good by 2015	MA				

Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

2- Pepa lines will cross were courses with assert courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a tench and cover technique within a dry working area. New pipe line crossings of estuaries or costal waters would be installed via a tench and cover technique within a dry working area. New pipe line crossings of estuaries or costal waters would be installed via a tench and cover technique within a dry working area. New pipe line crossings of estuaries or costal waters would be installed via a tench and cover technique within a dry working area. New pipe line crossings of estuaries or costal waters would be installed via a tench and cover technique within a dry working area. New pipe line crossings within the context of any William of the context of any will be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any containment and any militagion that may be required.

6- Extensions, montifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Devastering of exavations would not require a permit from the Environment Agency/Natural Resources Weldes. Devastering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Devastering would be of uncontaminated water, and water would be discharged within the same water body.

EVIGENCE
Engoners F. \(\pmax.PS1.\) global amec. com\shared\(\pmax.PS1.\) global amec. com\shared\(\pmax.PS1

Good by 2027

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Catchment http://environment.data.gov.uk/catchment-planning/

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	Water body ID:		GB112071065500	Scheme:	Alternative Supp	ly: Raw water transfer a	nd WTW at Martholme BSP	
	Water body Name:		Ribble - conf Calder to tida	Reference		(Option- 215	
	RBMP: Operational catchment: Designation (and uses): Relevant upstream water bodies:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Big Ribble	Impact potential	Direct		Direct	
	Designation (and uses):		Heavily modified					
		Calder - Pendle Water to co	onf Ribble, Duddel Brook, Ribble D	S Stock Beck and Showley Brook				
			Ribble					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	lacrophytes Not lacrophytes and hytobenthos Goo	Not provided						
ology		Moderate	Good by 2027		-		Use of new transfer pipe line, pumping station, and water treatment works No or minimal impact.	
ğ	Benthic invertebrates	Good	Good by 2015		Transfer pipe line on land. No or minimal impact.		New surface water abstraction quantity.	
	Fish	Not provided			Transfer pipe line with water course crossings.		Medium level of impact. New surface water abstraction from the River Ribble near Old Langho of a maximum of 41 Ml/d. Likely to be operational for six	
ogy	Hydrological regime	Supports good			Minor level of impact. New surface water intake. Minor level of impact. New pumping station. No or minimal impact.		monthly periods, every two years during repair work, then every five years for maintenance. In the ALS water is identified as available at all flows (Q30, Q50, Q70 and Q95) however the abstraction is relatively large in size and could have a widespread	
하 e	River continuity	Not provided				High		Medium
₹ œ	Morphological conditions	Not provided						
Hydron pholog	General physico-chemical	All high except: Phosphate- poor	Phosphate good by 2027				impact on the hydrological regime of the River Ribble. The six month limit on the operation period may limit the degree of impact, particulally if asbtraction is	
Phys	Specific pollutants:	All high	High by 2015		New water treatment works.		limited to times of high flow, but not enough is known about the operation patterns to lower the predicted impact to minor at this stage.	
ical	Priority hazardous	All good	Good by 2015		No or minimal impact.		A new abstraction licence would be required to be issued by the Environment Agency.	
Chemical	Priority substances	All good	Good by 2015					
le	Ecological Model	Moderate	Good by 2027	N\A				
oteni	Chemical	Good	Good by 2015	N\A				
Potenti	Overall	Moderate	Good by 2027	N\A				

Assumptions

Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed. 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

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		Water body ID:		GB41202G103000	Scheme:	Alternative Sup	ply: Raw water tran	sfer and WTW at Martholme BSP	
		•		Ribble Carboniferous	Reference		Option	- 215	
		Water body Name:		Aquifers					
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Ribble Carboniferous Aq	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water	bodies:	N\A					
		Downstream water bodies	s:	N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ō		Quantitative Dependent	Good						
ents for vater: ative	ative	Quantitative GWDTEs test	Good						
WFD elements f Groundwater: Quantitative	uantit tus El	Quantitative Saline Intrusion	Good			Transfer pipe line on land. No or minimal impact.		Use of new transfer pipe line, pumping station and water treatment works. No or minimal impact.	
WFD	Q Sta	Balance	Good			Transfer pipe line with water course crossings.		New surface water abstraction quantity.	
		A	Good			No or minimal impact.		Minor level of impact. New surface water abstraction from the River Ribble near	
ndwate	tatus	Chemical Drinking Water Protected Area	Good			New surface water intake.	High	Clitheroe of a maximum of 41 Ml/d. Likely to be operational for six monthly periods, every two years during repair work, then every five years for maintenance. The ALS	Medium
l ä	cal St ement		Poor			No or minimal impact.	9	does not define a groundwater management unit for this water body, but there is no restricted or non availability of surface water in the overlying water body.	mount
nts for Gre Chemical	hemi	Chemical Saline Intrusion	Good			New pumping station. No or minimal impact.		Due to the relatively large size of the proposed abstraction there may be reductions in	
Che			Poor			New water treatment works.		leakage from the river to the aquifer, however these would be localised, and the secondary aquifer is unlikely to be highly dependent on leakage from surface water	
) elem	tin Che	Prevent and Limit Objective	Not provided			No or minimal impact.		courses to maintain its quantitative water balance.	
WFD	η,	Trend Assessment	No trend						
Overall		Trend Assessment No.	Good	Good by 2015	N\A				
Overal	5	Chemical (GW)	Poor	Good by 2015	N\A				
0	,								

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

Good by 2015

- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforms: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300484/LIT7919v3_1881c4.pdf

Abstraction Licence Strategy (Ribble, Douglas and Crossens): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300484/LIT7919v3_1881c4.pdf

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	Water body ID:		GB112069064641	Scheme:	Alternative Supply: Ra	aw water abstraction an	d WTW at Townsend Fold BSP	
	Water body Name:		Irwell (Cowpe Bk to Rossendale STW)	Reference		o	Option - 216	
	RBMP: Operational catchment: Designation (and uses):		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Croal Irwell	Impact potential	Direct Direct			
	Designation (and uses):		Heavily modified					
	Relevant upstream water bodies: Downstream water bodies: WFD Element (Receptor) Phytobenthos Macrophytes Not provided Macrophytes and Macrophytes and Macrophytes and	Irwell (Source to Whitewell	Brook), Limy Water and Whitewe	ell Brook				
	Downstream water bodies:		Irwell (Rossendale STW to					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Macrophytes Not p Macrophytes and phytobenthos Mode Benthic invertebrates Good	Not provided						
dromor Biology hology Hi	Macrophytes and phytobenthos	Moderate	Good by 2027					
	Benthic invertebrates	Good	Good by 2015		Transfer pipe line on land. No or minimal impact.			
	Fish	Not provided			Transfer pipe line with water course crossings.		Use of new transfer pipe line, pumping station and water treatment works. No or minimal impact.	
	Hydrological regime	Supports good	Supports good by 2015		Minor level of impact.		New surface water abstraction quantity.	
	River continuity	Not provided			New surface water intake.		Minor level of impact. New surface water abstraction quantity. Minor level of impact. New surface water abstraction from the River Invell at	
ξē	Morphological conditions	Not provided			Minor level of impact.	High	Townsend Fold BSP of a maximum of 5.1 Ml/d. In the ALS water is identified as available at all flows (Q30, Q50, Q70 and Q95). As the size of the abstraction is	Medium
sic nic	General physico-chemical	All high except: Phosphate- moderate and pH- moderate	Phosphate and pH good by 2027		New pumping station. Minor level of impact.		relatively small and there is water available, any impact on the hydrological regime of the River Irwell would be localised. A new abstraction licence would be	
Phy	Specific pollutants:	Not provided			New water treatment works. No or minimal impact.		required to be issued by the Environment Agency.	
iical	Priority hazardous substances	Does not require assessment			No of Hillianian antipact.			
Chemical	Priority substances	Does not require assessment						
<u></u>	Ecological	Moderate	Good by 2027	N\A				
Potential	Chemical	Good	Good by 2015	N\A				
ĭ	Overall	Moderate	Good by 2027	N\A				

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works. 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer: http://environment.data.gov.uk/catchment.planning/
Engineers Proforma: WMRPS.upports Design/Resilience Options/WRMP/C17 Full Dupp Engineers Proforma: http://environment/uploads/system/uploads/attachment.data/fie/300488/L1
EA Abstraction Lecenos Strategy (Northern Manchester): https://www.nov.uk/government/uploads/system/uploads/attachment.data/fie/300488/L1

The strategy of the strategy (Northern Manchester): https://www.nov.uk/government/uploads/system/uploads/attachment.data/fie/300488/L1

The strategy of the strategy (Northern Manchester): https://www.nov.uk/government/uploads/system/uploads/attachment.data/fie/300488/L1

The strategy of the strategy (Northern Manchester): https://www.nov.uk/government/uploads/system/uploads/attachment.data/fie/300488/L1

The strategy of the strategy (Northern Manchester): <a href="https://www.nov.uk/government/uploads/system/uploads/sys

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	Water body ID:		GB41202G101800	Scheme:	Alternative Supply:	Raw water abstract	tion and WTW at Townsend Fold BSP	
	Water body Name:		Northern Manchester Carboniferous Aquifers	Reference		Option	- 216	
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Manchester Northern Carboniferous Aq	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water	bodies:	N\A					
	Downstream water bodie	s:	N\A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Quantitative Dependent	Good	Good by 2015					
ative	Quantitative GWDTEs test	Good	Good by 2015					
uantit uantit	Quantitative Saline Intrusion	Good	Good by 2015					
Quantitative Status Element	Quantitative Water Balance	Good	Good by 2015		Transfer pipe line on land. No or minimal impact.		Use of new transfer pipe line, pumping station and water treatment works.	
nent	Chemical Dependent Surface Water Body Status	Poor	Good by 2027		Transfer pipe line with water course crossings. No or minimal impact.		No or minimal impact. New surface water abstraction quantity.	
ıs Eleı	Chemical Drinking Water Protected Area	Good	Good by 2015		New surface water intake. No or minimal impact.	High	Minor level of impact. New surface water abstraction from the River Irwell near Haslingden of a maximum of 5.1 Ml/d. The ALS does not define a groundwater	Medium
Statu	Chemical GWDTEs test	Good	Good by 2015		New pumping station.		management unit for this water body, but there is no restricted or non availability of surface water in the overlying water body. Due to the relatively small size of the	
nemical	Chemical Saline Intrusion	Good	Good by 2015		No or minimal impact.		proposed abstraction any reductions in leakage from the river to the aquifer would be localised, and the secondary aquifer is unlikely to be highly dependent on leakage from surface water courses to maintain its quantitative water balance.	·
ธ์	General Chemical Test	Good	Good by 2015		New water treatment works. No or minimal impact.			
ortin	Prevent and Limit Objective	Not provided						
ddns	Trend Assessment	Upward trend						
ential	Quantitative	Good	Good by 2015	N\A	-			•
us/Potential	Chemical (GW)	Poor	Good by 2027	N\A				
Statu	Overall	Poor	Good by 2027	N\A				

- Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4 New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Catchment Data Explorer; https://environment.data.gov.uk/catchment-planning/
Engineers Proformas; https://www.gov.uk/government/uploads/system/uploads/system/uploads/attachment_data/file/300488/LIT_7849_1a7980.pdf

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	Water body ID:		GB112069064641	Scheme:	T05 ta	argeted repair 2025		
	Water body Name:		Irwell (Cowpe Bk to Rossendale STW)	Reference		Option	- 296	
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment: Designation (and uses):		Croal Irwell	Impact potential	Direct		Direct	
	Designation (and uses):		Heavily modified					
	Relevant upstream water bodies: Downstream water bodies: WFD Element (Receptor) Phytobenthos Not provided Macrophytes Not provided	odies:	Irwell (Source to Whitewell	Brook), Limy Water and Whitew	ell Brook			
			Irwell (Rossendale STW to	Roch)				
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Not provided						
ogical	Macrophytes and phytobenthos	Moderate			New Tunnel Lining to Haweswater Aqueduct. Minor level of impact. Installation of 100 m of steel tunnel liner within the existing			
Ecolo	Benthic invertebrates	Good			peduct, including two new access shafts. The ALS states that the surface water body has water available across all flow regime.			
vers:	Fish	Not provided			Temporary dewatering of shafts may have an impact on groundwater levels and flows,		New Tunnel Lining to Haweswater Aqueduct.	
or Rj	Hydrological regime	Supports good			which could in turn impact on baseflows to nearby water courses. This would be localised and temporary, and the availability of water in the surface water body indicates that some reduction in baseflow could be tolerated. It is assumed that no water courses		Minor level of impact. Presence of 100 m of new tunnel liner. Presence of two new access shafts.	
ts f	River continuity	Not provided						
F F	Morphological conditions	Not provided			would be crossed or diverted.	Low	The presence of a new concrete lined shaft may disrupt groundwater levels and flows, which could in turn impact on baseflows to nearby water courses, but this	Low
WFD eler	General physico-chemical	Ammonia and Dissolved oxygen- high, pH and Phosphate- poor	pH and Phosphate good by 2027		Accidental leakages or spills from construction machinery may affect the chemical status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the		would be localised. (see tab 296-GB41202G101800).	
, ly	Specific pollutants:	Not provided			chemical status of the surface water body, particularly if contaminated. However, construction best practice and pollution prevention measures would help			
WFD ements r Rivers:	Priority hazardous substances	Does not require assessment			prevent and/or mitigate against a prolonged or widespread impact on the surface water body.			
WF eleme for Riv Chem	Priority substances	Does not require assessment						
= \si	Ecological	Moderate	Good by 2027	N\A				
Overall Status\ Potential	Chemical	Good	Good by 2015	N\A				
0 % 2	Overall	Moderate	Good by 2027	N\A				

Assumptions

- 1- Application of standard best practice construction and pollution prevention methods.
- 2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

 3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.
- 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6 Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer, http://environment.data.gov.uk/catchment-planning/
Engineers Proforma:\text{\text{\text{WAR-FSt_global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design\text{\text{Resilience Options\text{\text{\text{Received 13.12.1725}}}} Coal Authority Interactive Map:\text{\tex{

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		Water body ID:		GB41202G101800	Scheme:	T05 targ	eted repair 2025		
					Reference				'
				Northern Manchester			Option - 296		
		Water body Name: RBMP:		Carboniferous Aquifers		O		0	
		RBMP:			Scheme Phase Impact potential	Construction		Operational	
		Operational catchment:		Carboniferous Ag	impact potentiai	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water	bodies:	N\A					
		Downstream water bodies	s:	N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
'n		циапппатіче ререпцепт	Good						
ints for ater: itive	rtive	Quantitative GWDTEs test	Good			New Tunnel Lining to Haweswater Aqueduct.			
eme odw tita	it it	Quantitative Saline	Good			Medium level of impact. Installation of 100 m of steel tunnel liner within the existing aqueduct,			
an on an	uar	Intrusion	G000			including two new access shafts. Solid geology is Carboniferous Millstone Grit, a secondary A		New Tunnel Lining to Haweswater Aqueduct.	
WFD	Star	Quantitative Water Balance Chemical Dependent	Good			- 1		Minor level of impact. Presence of 100 m of new tunnel liner. Presence of two new	
=			Poor	Good by 2027		Quantitative Status: Dewatering of the shafts may affect groundwater levels and flows and the quantitative water balance of the groundwater body. Impacts would be temporary, limited to the		access shafts.	
emics	Status	Chemical Drinking Water Protected Area	Good			quarinative water balance or the groundwater body. Impacts would be temporary, infined to the construction phase, and localised as only two shafts are included in the option. Shaft T05-08 is within approximately 50 m of the River Invell and dewatering could impact upon river flows.		Quantitative Status: No dewatering of the shafts would take place post construction. Groundwater ingress to the tunnel would be reduced due to the improved liner.	
ຣັ	cal St		Good			Chemical status: Interception of shallow contaminated land may result in vertical or lateral migration	Low	Disturbance of the strata surrounding the shafts may result in altered or preferential groundwater flow pathways. Changes in shallow groundwater levels and flow may	Low
dwate	hemi	Chemical Saline Intrusion	Good			of contaminated groundwater or mine waters into previously unaffected parts of the groundwater body. Information from The Coal Authority shows mine entries and shallow mine workings in the	LOW	affect surface water bodies and groundwater dependent terrestrial ecosystems (i.e. reductions in baseflow), however impacts would be localised, and it is assumed the	2011
iom	0	General Chemical Test	Good			vicinity of the proposed shafts.		shafts would not be located within close proximity to GWDTE.	
for G	_ 1	Prevent and Limit Objective	Not provided			Leakages or spillages from construction machinery could affect the chemical status of the groundwater body. While construction best practice and pollution prevention measures would limit		Chemical Status: Any existing leakages from the tunnel to the groundwater body would be reduced due to the improved liner. Impacts would be no or minimal, or	
WFD elements	Supporting	Trend Assessment	Upward trend			the occurrence of spillages and help mitigate their impact, any uncontrolled leak could rapidly transmit to the saturated zone. Although the construction phase is temporary, the effects of a deterioration in groundwater quality could be prolonged. Impacts would be localised, but could occur in several locations.		positive.	
_ isi		Quantitative	Good	Good by 2015	N\A				
Overall	5	Chemical (GW)	Poor	Good by 2027	N\A				
1		Overall	Poor	Good by 2027	N\A				

- Assumptions
 1- Application of standard best practice construction and pollution prevention methods.
- 2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
- 3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
- 4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed. 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.
- 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
- 7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharged within the same water body.

BGS Geology Viewer: http://mapapps.bgs.ac.uk/geologyofbritain/home.html

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	Water body ID:		GB112069064620	Scheme:		T06 targeted repair 2	2025		
	Water body Name:		Irwell (Rossendale STW to Roch)	Reference		O	ption - 297		
	RBMP:		North West	Scheme Phase	Construction Operational				
	Operational catchment:		Croal Irwell	Impact potential	Direct		Direct		
	Designation (and uses):		Heavily modified						
	Relevant upstream water bodie Downstream water bodies: WFD Element (Receptor) Phytobenthos	odies:	Irwell (Cowpe Bk to Rossen	dale STW), Kirklees Brook and	Ogden				
			Irwell (Roch to Croal)						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
		Not provided							
-		Not provided			N				
logic	Macrophytes and phytobenthos	Moderate			New Tunnel/Conduit Lining to Haweswater Aqueduct. Minor level of impact. Installation of 200 m of steel tunnel liner within the existing aqueduct, including two new access shafts. The ALS states that the				
: Ecol	Benthic invertebrates	Good			existing aqueduct, including two new access sharts. The ALS states that the surface water body has water available across all flow regime.				
ivers	Fish	Not provided			Temporary dewatering of shafts may have an impact on groundwater levels and flows, which could in turn impact on baseflows to nearby water courses.		New Tunnel/Conduit Lining to Haweswater Aqueduct. Minor level of impact. Presence of 200 m of new tunnel liner, Presence of two		
for R	Hydrological regime	Supports good			This would be localised and temporary and the availability of water indicates that some reduction in baseflow could be tolerated. It is assumed that no		new access shafts.		
st st	River continuity	Not provided			water courses would be crossed or diverted.	Low	The presence of a new concrete lined shaft may disrupt groundwater levels and flows, which could in turn impact on baseflows to nearby water courses, but this	Low	
eme Fy	Morphological conditions	Not provided						LOW	
WFD el	General physico-chemical	All high/good except: Phosphate- poor	Phosphate poor by 2015		Accidental leakages or spills from construction machinery may affect the chemical status of the surface water body. Release of sediments from		would be localised. (see tab 297 - GB41202G101800).		
W Phys	Specific pollutants:	Not provided			construction work may affect the ecological status due to smothering of habitats or reduction in light, or the chemical status of the surface water body, particularly if contaminated.				
D ents vers: iical	Priority hazardous substances	Does not require assessment			However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.				
WFD elemen for Rive Chemic	Priority substances	Does not require assessment			impact on the surface water body.				
= # I	Ecological	Moderate	Moderate by 2015	N\A					
Overall Status\ Potential	Chemical	Good	Good by 2015	N\A					
0 % 2	Overall	Moderate	Moderate by 2015	N\A					

1- Application of standard best practice construction and pollution prevention methods.

2- Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

2- Pipe lines will cross water courses with existing coadways writer possible to limit the amount of new waterbourse crossings.

1 - Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4- New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated leaf and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proformas: \(\text{WAR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Resilience Options/Received 13.12.17297 Lining T06 targeted repair 2025.xixx

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Water body ID:		GB112069064600	Scheme:	T06 ta	argeted repair 2025			
	Water body Name:		Roch (Spodden to Irwell)	Reference		Option	- 297	
	RBMP: Operational catchment: Designation (and uses): Relevant upstream water bodies:		North West	Scheme Phase	Construction Operational			
			Roch Irk Medlock	Impact potential	Direct		Direct	
	Designation (and uses):		Heavily modified					
	Downstream water bodies: WFD Element (Receptor) Status Phytobenthos Not provided Macrophytes Not provided	odies:	Naden Brook, Roch (Source to Spodden), Spodden and W		uittle Brook (Irwell)			
	Downstream water bodies:		Irwell (Roch to Croal)					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Not provided						
logy	Macrophytes and phytobenthos	Moderate			New Tunnel/Conduit Lining to Haweswater Aqueduct. Minor level of impact. Installation of 200 m of concrete conduit liner within the existing			
Biolog	Benthic invertebrates	Not provided			aqueduct, including two new access chambers. The ALS states that the surface water body has water available across all flow regime.			
	Fish	Not provided			Temporary dewatering of access chambers may have an impact on shallow		New Tunnel/Conduit Lining to Haweswater Aqueduct. Minor level of impact. Presence of 200 m of new concrete conduit liner.	
mor	Hydrological regime	Not provided			groundwater levels and flows, which could in turn impact on baseflows to nearby water courses. This would be localised and temporary and the availability of water indicates that some reduction in baseflow could be tolerated. It is assumed that no water courses would be crossed or diverted, and that the Gypsy Brook conduit bridge does not need to be rebuilt.		Presence of two new access chambers. The presence of a new concrete lined access chambers may disrupt shallow	
무	River continuity	Not provided				Low		Low
ξā	Morphological conditions	Not provided					groundwater levels and flows, which could in turn impact on baseflows to nearby	LOW
- ico	General physico-chemical	All high/good except: Phosphate- poor	Phosphate poor by 2015		Accidental leakages or spills from construction machinery may affect the chemical		water courses, but this would be localised. (see tab 297-GB41202G101800).	
Phys	Specific pollutants:	High			status of the surface water body. Release of sediments from construction work may affect the ecological status due to smothering of habitats or reduction in light, or the chemical status of the surface water body, particularly if contaminated.			
vers:	Priority hazardous substances	Does not require assessment			However, construction best practice and pollution prevention measures would help prevent and/or mitigate against a prolonged or widespread impact on the surface water body.			
for Rivers: Chemical	Priority substances	Good			body.			
iai	Ecological	Moderate	Moderate by 2015	N\A				
Potential	Chemical	Good	Good by 2015	N\A				
, <u>c</u>	Ecological N Chemical G	Moderate	Moderate by 2015	N\A				

Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.

3- Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.

4 New pipe line water course will account to invite unit on note unity or use, and any in trade a significant in the account i

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proformas: \(\text{WAR-PS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Resilience Options/Received 13.12.17/297 Lining T06 targeted repair 2025.sts.

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		Water body ID:		GB41202G101800	Scheme:	T06 tar	geted repair 2025		
		Water body Name:		Northern Manchester Carboniferous Aquifers	Reference	100 tan	Option - 297		
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Manchester Northern Carboniferous Aq	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water		N\A					
		Downstream water bodie	S:	N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ts for er: ve	status	Quantitative Dependent Surface Water Body Status	Good						
ement ndwat ntitati	ative S	Quantitative GWDTEs test	Good			New Tunnel/Conduit Lining to Haweswater Aqueduct. Medium level of impact. Installation of 200 m of steel liner in tunnel section, including two new access shafts, and 200 m of concrete lining in conduit section with to new conduit access			
WFD el Grou Qua	uantit	Quantitative Saline Intrusion	Good			access snarts, and 200 m of concrete lining in conduit section with to new conduit access chambers. Solid geology is Carboniferous Millstone Grit and Pennine Lower Coal Measures, a secondary A aquifer.		New Tunnel/Conduit Lining to Haweswater Aqueduct.	
>	ð	Quantitative Water Balance	Good			Quantitative Status: Dewatering of the shafts and new access chambers may affect groundwater		Minor level of impact. Presence of new tunnel linings, access shafts, and conduit access chambers.	
ical	ement	Ctatus	Poor	Good by 2027		levels and flows and the quantitative water balance of the groundwater body. Impacts would be temporary, limited to the construction phase, and localised to the four shalf/chamber locations. Shaft 106-05 is within approximately 50 m of a minor watercourse and dewatering could impact		Quantitative Status: No dewatering of the shafts/access chambers would take place post construction. Groundwater ingress to the tunnel/conduit would be reduced due to	
Chem	tus El	Chemical Drinking Water Protected Area	Good			upon river flows.	Low	the improved liner. Disturbance of the strata surrounding the shafts may result in altered or preferential groundwater flow pathways. Changes in shallow groundwater levels and flow may	Low
ater:	al Star		Good			Chemical status: Interception of shallow contaminated land may result in vertical or lateral migration of contaminated groundwater or mine waters into previously unaffected parts of the		affect surface water bodies and groundwater dependent terrestrial ecosystems (i.e. reductions in baseflow), however impacts would be localised, and it is assumed the	
wpun	emica	Chemical Saline Intrusion	Good			groundwater body. Information from The Coal Authority shows mine entries and shallow mine workings in the vicinity of the proposed shafts.		shafts would not be located within close proximity to GWDTE.	
or Gro	ర్	General Chemical Test	Good			Leakages or spillages from construction machinery could affect the chemical status of the		Chemical Status: Any existing leakages from the tunnel to the groundwater body would be reduced due to the improved liner. Impacts would be no or minimal, or	
elements fo	upporting lements	Prevent and Limit Objective	Not provided			groundwater body. While construction best practice and pollution prevention measures would limit the occurrence of spillages and help mitigate their impact, any uncontrolled leak could rapidly transmit to the saturated zone. Although the construction phase is temporary, the effects of a deterioration in groundwater quality could be prolonged. Impacts would be localised, but could occur in several locations.		positive.	
WFD	Sup Ele	Trend Assessment	Upward trend						
_	ential	Quantitative	Good	Good by 2015	N\A				
Overall	ıs/Pot	Chemical (GW)	Poor	Good by 2027	N\A				
	Statu	Overall	Poor	Good by 2027	N\A				

Assumptions

1- Application of standard best practice construction and pollution prevention methods.

2. Pipe lines will cross water courses with existing roadways where possible to limit the amount of new watercourse crossings.
3. Laying of the pipeline across water courses will take no more than 30 days, and any in channel works will be undertaken at a time which won't have a significant impact on fish communities.
4. New pipe line water course crossings would be installed via a tench and cover technique within a dry working area. New pipe line water course crossings would be installed via a technique that does not involve disturbance of the bed.

5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may be required.

6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

7- Dewatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering would be of uncontaminated water, and water would be discharged within the same water body.

Evidence

Catchment Data Explorer, http://environment.data.gov.uk/catchment-planning/ Engineers Proformas: https://environment.data.gov.uk/catchment-planning/ Engineers Statement-planning/">https://environment.data.gov.uk/catchment-planning/ Engineers Statement-planning/https://environment.data.gov.uk/catchment-planning/ Engineers Statement-planning/https://environment.data.gov.uk/catchment-planning/https://environment.data.gov.uk/catchment-planning/<a href="https://environme

Appendix F Results of the WFD Assessment of Supply-demand Preferred Plan Options at the Draft WRMP Stage

Overview

UU's Preferred Plan for the Draft WRMP incorporated four strategic choices:

- ▶ Enhance leakage reduction by a total of 80 MI/d over the planning period;
- Improve levels of service for drought permits and orders from 1 in 20 years to 1 in 40 years (moving from 5% to 2.5% annual risk);
- Increase resilience to other hazards, through the Manchester and Pennine Resilience solution;
 and
- Continue to explore national water trading.

The Draft WRMP Preferred Plan comprised a combination of preferred resource management and demand management measures designed to achieve the four strategic choices outlined above. The preferred supply-demand resource management options were considered as part of this WFD assessment which informed the Draft WRMP and are included here for completeness.

Table F.1 lists the supply-demand resource management options that comprised the Draft WRMP Preferred Plan together with their respective design capacity.

Table F.1 Summary of Draft WRMP Preferred Plan Options

Ref	Preferred Option	Description	Design Capacity	Implem entation (AMP)
WR099b	Worsthorne Borehole (Hurstwood IR)	This option comprises the recommissioning and refurbishment of Worsthorne borehole in order to abstract a maximum capacity of 4 Ml/d. Refurbishments would include a new pump, new/improved headworks and mechanical / electrical together with the construction of a new 1.1km main to transfer water to Hurstwood IR.	4	AMP8
WR101	Franklaw Z Site Plus Increased Franklaw WTW Treatment Capacity	This option would involve the reinstatement and refurbishment of two existing boreholes at the Franklaw Z site in order to abstract and transfer a maximum of 18 Ml/d of raw ground water to the existing Franklaw WTW via an existing raw water pipeline. Additionally, new borehole pumps would be installed at 10 other existing/utilised Franklaw/Broughton boreholes in order to abstract an additional 12 Ml/d and the capacity of Franklaw WTW would be increased.	30	AMP8
WR102e	Bold Heath boreholes to Prescot WTW	This option comprises the recommissioning of Bold Heath boreholes. Refurbishment would include new headworks, mechanical / electrical, new pumps, new kiosks at both boreholes, and the construction of a new 9km raw water main to Prescot WTW to provide up to 9 Ml/d.	9	AMP8
WR113	Tytherington boreholes	This option would involve the replacement of an existing treated water main between Tytherington WTW and treated water storage to permit an additional 3Ml/d treated water transfer to existing storage. It would also comprise the replacement of existing borehole pumps at Tytherington and modifications to the WTW. The option would have a capacity of 3 Ml/d.	3	AMP8
WR114	Python Mill Borehole	This option comprises the reinstatement and refurbishment of Python Mill borehole and the transfer of raw water to Rochdale Canal, offsetting compensation from the Chelburn system. It would require a new borehole pump, rising main, headworks modifications and M&E equipment in addition to 3km of new transfer pipeline along a road from Python Mill to Rochdale Canal. A new discharge scour into the canal and new sewer connection at Python Mill would also be required. The option would have a capacity of 3 Ml/d.	3	AMP8

Ref	Preferred Option	Description	Design Capacity	Implem entation (AMP)
WR159	Group 1 - Improved reservoir compensation release control from 76 individual reservoirs	This option would involve the construction of new automated penstock arrangements at 76 reservoirs (Group 1) in order to provide compensation control in line with licence requirements. The proposed development scope would also include a new kiosk at each targeted reservoir. It is estimated that operation of the scheme would result in a cumulative design capacity of up to 13.2 Ml/d.	13.2	AMP8
WR160	Group 2 - Improved reservoir compensation release control from Vyrnwy, Rivington, Thirlmere and Haweswater reservoirs	This option would involve the construction of new automated penstock arrangements at 4 reservoirs (Group 2: Lake Vyrnwy, Rivington, Thirlmere and Haweswater) in order to provide compensation control in line with licence requirements. The proposed development scope would also include a new kiosk at each targeted reservoir. It is estimated that operation of the scheme would result in a cumulative design capacity of up to 8.8 Ml/d.	8.8	AMP8
WR821	Shropshire Union Canal	This option would involve increased abstraction from the Shropshire Union Canal for treatment to potable standards at Hurleston WTW and transfer to the Mid-Cheshire Main located near Nanney's Bridge. It would require additional abstraction infrastructure, a new/expanded WTW at Hurleston and a 6.9km treated water main.	30	AMP8
B2	Enabling works to support Thames Water Trading Option	In order to maintain supplies to UU's own customers when exporting water to Thames Water, Dee Aqueduct water would be diverted into Norton Water Tower on the Vyrnwy Aqueduct using existing aqueduct connections and would then be pumped up Line 3 of the Vyrnwy Aqueduct for additional treatment at Oswestry WTW which would be modified accordingly. Several existing bulk supply points would be switched to receive the Dee Aqueduct water, although this element of the scheme would not require any additional infrastructure. The option would require four new booster stations. A total of 26 km of pipeline on Line 3 of the Vyrnwy Aqueduct would be replaced, with slip lining along a further 21.5km of this line also required. Hydraulic controls would also be improved along Lines 1 and 2. Detailed design is required to confirm these proposals.		AMP8

Level 1 Screening of Draft WRMP Preferred Plan Options

The Level 1 screening of the preferred options that comprised UU's Draft WRMP Preferred Plan identified 155 WFD water bodies that may be impacted by the eight Preferred Plan resource management options, and the enabling works (Option B2). Some of these water bodies could be impacted by more than one option, resulting in a total number of 202 option-water body combinations. The screening exercise was undertaken for each option and its related water bodies. The results of the screening exercise are summarised in **Table F.2** and presented in full in **Appendix G**.

Table F.2 Summary of Level 1 Screening Exercise for Preferred Plan Options

	No of option– water body combinations	No of water bodies	No of options
Total	202	155	9
High level of impact	0	0	0
Medium level of impact	6	54	8

	No of option– water body combinations	No of water bodies	No of options
Minor level of impact	3	3	2
No or minimal impact	135	101	5

Note that a water body may have varying levels of impact from different options, and an option may have differing levels of impact on different water bodies. This means that some water bodies and options are counted more than once in the values in this table.

Level 2 Assessment of Draft WRMP Preferred Plan Options

The Level 1 screening identified that none of the Preferred Plan options would have a high level of impact, but eight may have a medium level of impact. The water bodies related to these options that may be subject to a medium level of impact were subject to a Level 2 detailed assessment. This involved further consideration of the activities proposed within those water bodies and further review of baseline data. Following the Level 2 detailed assessment, the level of impact could reduce or increase depending on the judgement of the likely impact.

The results of the Level 2 detailed assessment were combined with the results of the Level 1 assessment to produce a combined assessment result which is summarised in **Table F.3** and **Table F.4**, and presented in full in **Appendix G**. The individual assessment spreadsheets are presented in **Appendix C**. In general terms, the Level 2 assessments resulted in a lowering of the level of impacts, a reflection on the conservative approach adopted in the Level 1 screening.

Table F.3 Summary of Combined Assessment Results for Preferred Plan Options

	No of option– water body combinations	No of water bodies	No of options
Total	202	155	9
High level of impact	0	0	0
Medium level of impact	8	8	2
Minor level of impact	59	50	8
No or minimal impact	135	101	5

Note that a water body may have varying levels of impact from different options, and an option may have differing levels of impact on different water bodies. This means that some water bodies and options are counted more than once in the values in this table.

Table F.4 Summary of Combined Assessment Results by Preferred Plan Option

Option Int	No of water bodies								
Ref	Ref Name		High	Medium	Minor	No or Minimal	Overall impact level	Confidence level	Option activities likely to cause a high or medium impact
WR099b	Worsthorne Borehole (Hurstwood IR)	2	0	0	2	0	Minor level of impact	Medium	n/a

Option In	formation	No	o of w	ater b	odies	i			
Ref	Name	Total	High	Medium	Minor	No or Minimal	Overall impact level	Confidence level	Option activities likely to cause a high or medium impact
WR101	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	7	0	6	1	0	Medium level of impact	Low	Increase in abstraction quantities above recent actual rates, within existing licence.
WR102e	Bold Heath Boreholes to Prescot WTW	7	0	0	4	3	Minor level of impact	High	n/a
WR113	Tytherington Boreholes	2	0	0	2	0	Minor level of impact	Low	n/a
WR114	Python Mill Borehole	3	0	2	1	0	Medium level of impact	Low	Reinstatement of groundwater abstraction, new abstraction licence.
WR159	Group 1 - Improved reservoir compensation release control	116	0	0	35	81	Minor level of impact	Medium	n/a
WR160	Group 2 - Improved reservoir compensation release control	12	0	0	4	8	Minor level of impact	Medium	n/a
WR821	Shropshire Union Canal	4	0	0	3	1	Minor level of impact	Low	n/a
B2	Enabling Works	11	0	0	0	11	No or minimal impact	High	n/a

Cumulative Assessment

Water Body Cumulative Assessment

Where two or more preferred options are located in the same water body, a high level assessment was undertaken to determine the potential cumulative effects on WFD objectives, should all the options be implemented. The same impact classification system was used for the cumulative assessments as for the Level 1 and Level 2 assessments (**Table 3.1**). The results are summarised in **Table F.5** and presented in full in **Appendix H**.

Eight water bodies were identified as being impacted by two or more Preferred Plan options; however, for all of these the cumulative impact of those options would not exceed the maximum impact of the individual options. This is because:

- The activities from the options do not interact to produce a significant cumulative effect (e.g. pipe line construction from one option and a reduction in compensation release from a second option); or
- The individual reductions in flow from individual options are relatively small, so than even when combined, they are unlikely to result in a widespread or prolonged effect.

Table F.5 Summary of Water Body Cumulative Assessment Results

WFD Water Body In	formation		Option		Assessment Result		
ID	Туре	Name	Ref	Option Name	Individual Option	Individual Confidence	Cumulative
GB109054049880	River	Vyrnwy - Lake Vyrnwy to conf	WR160	Group 2 - Improved reservoir compensation release control	Minor level of impact	Medium	Minor level of impact
		Afon Cownwy	B2	Enabling Works	No or minimal impact	High	·
			WR113	Tytherington Boreholes	Minor level of impact	Low	
GB112069061320 River	River	Bollin (Source to Dean)	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium	Minor level of impact
		Roch (Source to Spodden)	WR114	Python Mill Borehole	Medium level of impact	Low	
GB112069064720	River		WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	High	Medium level of impact
			WR099b	Worsthorne Borehole (Hurstwood IR)	Minor level of impact	Medium	
GB112071065090	River	Brun - headwaters to conf Don	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium	Minor level of impact
		Edon and Edul	WR159	Group 1 - Improved reservoir compensation release control	No or minimal impact	High	
GB40202G102300	Groundwater	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	WR160	Group 2 - Improved reservoir compensation release control	No or minimal impact	High	No or minimal impact

WFD Water Body In	formation		Option		Assessment Result			
ID	Туре	Name	Ref	Option Name	Individual Option	Individual Confidence	Cumulative	
GB40902G205300	Groundwater	Severn Uplands - Lower Palaeozoic	WR160	Group 2 - Improved reservoir compensation release control	No or minimal impact	H <mark>i</mark> gh	No or minimal impact	
		r alaeuzulu	B2	Enabling Works	No or minimal impact	High		
		Douglas, Darwen and Calder Carboniferous Aquifers	WR099b	Worsthorne Borehole (Hurstwood IR)	Minor level of impact	Medium		
GB41202G100300	Groundwater		WR159	Group 1 - Improved reservoir compensation release control	No or minimal impact	High	Minor level of impact	
			WR160	Group 2 - Improved reservoir compensation release control	No or minimal impact	High		
GB41202G101800	Croundwater	Northern Manchester Carboniferous Aquifers	WR114	Python Mill Borehole	Medium level of impact	Low	Modium lovel of impact	
GB41202G101800	Groundwater		WR159	Group 1 - Improved reservoir compensation release control	No or minimal impact	High	Medium level of impact	

Operational Catchment Cumulative Assessment

Where two or more Preferred Plan options, or different elements of a single Preferred Plan option, are located in multiple water bodies within one operational catchment, a high level assessment was undertaken to determine the potential cumulative effects on WFD objectives, should all the options be implemented. The same impact classification system was used for the cumulative assessments as for the Level 1 and Level 2 assessments. The results are summarised in **Table F.6** and presented in full in **Appendix I**.

A total of 17 operational catchments (including river catchments and regional aquifers) were identified as being impacted by two or more preferred options, or different elements of a single preferred option. For all of these, the cumulative impact on a catchment scale would not exceed the maximum impact on an individual water body. This is because:

- ▶ The individual option assessments often assumed a worst case scenario, particularly for Option WR159 where the reduction in compensation flow from a group of reservoirs was assigned to a single water body (due to no detailed information on the reduction in flows from each reservoir within the group). When a number of reservoirs in the same catchment are considered together, the reduction in flow is no greater than that assessed for an individual option;
- The activities from the options do not interact to produce a significant cumulative effect (e.g. pipe line construction from one option and a reduction in compensation release from a second option);
- For groundwater bodies affected by multiple reductions in reservoir compensation flows, the relatively small reductions in compensation flows are unlikely to reduce the wetted area of the reservoirs or downstream watercourses (assuming that low flow compensation released are maintained), therefore any impact on groundwater surface water interaction on this secondary aquifer would be minimal.

Table F.6 Summary of Operational Catchment Cumulative Assessment

Catchment	WFD Water Body Ir	nformation		Option		As	ssessment Resu	lt
Operational Catchment	ID	Туре	WB Name	Ref	Option Name	Individual Option Assessment Result	Individual Options Assessment Confidence	Cumulative Assessment Result
Colne Water	GB112071065130	River	Walverden Water	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium	
	GB112071065210	River	Colne Water (Laneshaw)	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	High	Minor level of impact.
	GB112071065230	River	Pendle Water - headwaters to Colne Water	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	High	
Sankey	170*	River	Non reportable water body to north of River Mersey	WR102e	Bold Heath Boreholes to Prescot WTW	Minor level of impact	High	
	GB112069060990	River	Whittle Brook (Mersey Estuary)	WR102e	Bold Heath Boreholes to Prescot WTW	No or minimal impact	High	Minor level
	GB112069061170	River	Sutton Brook	WR102e	Bold Heath Boreholes to Prescot WTW	Minor level of impact	High	of impact
	GB112069061210	River	Hardshaw (Windle) Brook	WR102e	Bold Heath Boreholes to Prescot WTW	No or minimal impact	High	
Aire and Calder Carb Limestone - Millstone Grit Coal - Measures	GB40402G700400	Groundwater	Aire and Calder Carb Limestone / Millstone Grit / Coal Measures.	WR159	Group 1 - Improved reservoir compensation release control - reductions in compensation flows from multiple reservoirs	No or minimal impact	High	No or minimal impact
Bollin Dean Mersey Upper	GB112069060650	River	Dean (Lamaload to Bollington)	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium	Minor level of impact

Catchment	WFD Water Body I	nformation		Option		As	Assessment Result		
Operational Catchment	ID	Туре	WB Name	Ref	Option Name	Individual Option Assessment Result	Individual Options Assessment Confidence	Cumulative Assessment Result	
	GB112069060920	River	Micker (Norbury) Brook	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium		
	GB112069061060	River	Platt Brook (Source to Fallowfield Bk)	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium		
	GB112069061320	River	Bollin (Source to Dean)	WR113	Tytherington Boreholes	Minor level of impact	Low		
	GB112069061320	River	Bollin (Source to Dean)	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium		
Brock and Trib	GB112072065760	River	Woodplumpton Brook	WR101	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	Medium level of impact	Low		
	GB112072065790	River	New Draught Brook	WR101	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	Medium level of impact	Low	Medium level	
	GB112072065800	River	Barton (Westfield) Brook	WR101	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	Medium level of impact	Low	of impact	
	GB112072065810	River	Brock	WR101	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	Minor level of impact	Medium		
Calder	GB112071065040	River	Hyndburn	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium	Minor level	
	GB112071065090	River	Brun- headwaters to conf Don	WR099b	Worsthorne Borehole (Hurstwood IR)	Minor level of impact	Medium	of impact	

Catchment	WFD Water Body I	nformation		Option		ı	Assessment Resu	ılt
Operational Catchment	ID	Туре	WB Name	Ref	Option Name	Individual Option Assessment Result	Individual Options Assessment Confidence	Cumulative Assessment Result
	GB112071065090	River	Brun - headwaters to conf Don	WR159	Group 1 - Improved reservoir compensation release control - reductions in compensation flows from multiple reservoirs	Minor level of impact	Medium	
	GB112071065140	River	Sabden Brook	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium	
Croal Irwell	GB112069064570	River	Eagley Brook	WR159	Group 1 - Improved reservoir compensation release control - reductions in compensation flows from multiple reservoirs	Minor level of impact	Medium	
	GB112069064580	River	Bradshaw Brook	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium	
	GB112069064620	River	Irwell (Rossendale STW to Roch)	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium	Minor level of impact
	GB112069064650	River	Ogden	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium	. ,
	GB112069064660	River	Irwell (Source to Whitewell Brook)	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium	
	GB112069064670	River	Whitewell Brook	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium	

Catchment	WFD Water Body II	nformation		Option		Assessment Result			
Operational Catchment	ID	Туре	WB Name	Ref	Option Name	Individual Option Assessment Result	Individual Options Assessment Confidence	Cumulative Assessment Result	
	GB112069064680	River	Limy Water	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium		
Cumbria South Lower Palaeozoic and Carboniferous Aq	GB41202G102100	Groundwater	South Cumbria Lower Palaeozoic and Carboniferous Aquifers	WR159	Group 1 - Improved reservoir compensation release control - reductions in compensation flows from multiple reservoirs	No or minimal impact	High	No or minimal impact	
Eamont	GB102076070690	River	Lowther (Upper)	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	High	Minor level	
	GB102076070720	River	Haweswater Beck	WR160	Group 2 - Improved reservoir compensation release control	Minor level of impact	High	of impact	
Goyt Etherow Tame	GB112069060780	River	Etherow (Woodhead Res. to Glossop Bk.)	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	High		
	GB112069060850	River	Goyt (Source to Randall Carr Brook)	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium	Minor level	
	GB112069060970	River	Sett	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	High	of impact	
	GB112069061111	River	Tame (Chew Brook to Swineshaw Brook)	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium		

Catchment	WFD Water Body In	nformation		Option		A	ssessment Resu	ilt
Operational Catchment	ID	Туре	WB Name	Ref	Option Name	Individual Option Assessment Result	Individual Options Assessment Confidence	Cumulative Assessment Result
	GB112069061112	River	Tame (Swineshaw Brook to Mersey)	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium	
	GB112069061300	River	Chew Brook	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	High	
	GB112069064741	River	Tame (Source to Chew Brook)	WR159	Group 1 - Improved reservoir compensation release control - reductions in compensation flows from multiple reservoirs	Minor level of impact	Medium	
Manchester and Cheshire East Carboniferous Aq	GB41202G102900	Groundwater	Manchester and East Cheshire Carboniferous Aquifers	WR159	Group 1 - Improved reservoir compensation release control - reductions in compensation flows from multiple reservoirs	No or minimal impact	High	No or minimal impact
Morda and Severn North Shropshire	GB109054055070	River	Morda - source to conf unnamed trib	B2	Enabling Works	No or minimal impact	High	No or
Siliopsilile	GB109054050010	River	Oswestry Bk	B2	Enabling Works	No or minimal impact	High	minimal impact
Ribble Carboniferous Aq	GB41202G103000	Groundwater	Ribble Carboniferous Aquifers	WR159	Group 1 - Improved reservoir compensation release control - reductions in compensation flows from multiple reservoirs	No or minimal impact	High	No or minimal impact
Roch Irk Medlock	GB112069064690	River	Beal	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	High	Medium level of impact

Catchment	WFD Water Body I	nformation		Option		As	sessment Resu	ilt
Operational Catchment	ID Type WB Name		WB Name	Ref	Option Name	Individual Option Assessment Result	Individual Options Assessment Confidence	Cumulative Assessment Result
	GB112069064710	River	Naden Brook	WR159	Group 1 - Improved reservoir compensation release control - reductions in compensation flows from multiple reservoirs	Minor level of impact	Medium	
	GB112069064720	River	Roch (Source to Spodden)	WR114	Python Mill Borehole	Medium level of impact	Low	
	GB112069064720	River	Roch (Source to Spodden)	WR159	Group 1 - Improved reservoir compensation release control - reductions in compensation flows from multiple reservoirs	Minor level of impact	High	
	GB112069064730	River	Spodden	WR159	Group 1 - Improved reservoir compensation release control	Minor level of impact	Medium	
Tanat	GB109054049920	River	Hirnant - source to conf Afon Tanat	B2	Enabling Works	No or minimal impact	High	
	GB109054049960	River	Afon Tanat - conf Hirnant to conf Afon Rhaeadr	B2	Enabling Works	No or minimal impact	High	
	GB109054055040	River	Afon Rhaeadr - source to conf Afon Tanat	B2	Enabling Works	No or minimal impact	High	No or
	GB109054055050	River	Afon lwrch - source to conf Afon Tanat	B2	Enabling Works	No or minimal impact	High	minimal impact
	GB109054050050	River	Afon Tanat - conf Afon Rhaeadr to conf Afon Vyrnwy	B2	Enabling Works	No or minimal impact	High	
	GB109054055060	River	Afon Cynllaith - source to conf Afon Tanat	B2	Enabling Works	No or minimal impact	High	

Catchment	WFD Water Body In	nformation		Option		As	ssessment Resu	lt
Operational Catchment	ID	Туре	WB Name	Ref	Option Name	Individual Option Assessment Result	Individual Options Assessment Confidence	Cumulative Assessment Result
Weaver Upper	GB112068055340	River	Rookery Brook, Burland and Brindley Bk. To Weaver	WR821	Shropshire Union Canal	Minor level of impact	Medium	Minor level
	GB112068060460	River	Weaver (Marbury Brook to Dane)	WR821	Shropshire Union Canal	No or minimal impact	High	of impact
Wyre and Calder	GB112072065822	River	Wyre DS Grizedale Brook confl	WR101	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	Medium level of impact	Low	Medium level
	GB112072066220	River	Calder (Wyre)	WR101	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	Medium level of impact	Low	of impact

Notes

* Non-reportable water bodies do not have a WFD water body ID number. 170 is used in lieu of the water body ID number for the purposes of the WFD assessment.

Protected Area Assessment

An assessment was undertaken for all habitat and species protected areas that are linked to a water body that contained a Draft WRMP Preferred Plan option. The list of protected areas requiring assessment was established by comparing the list of protected areas and the water bodies they are linked to²⁹, to the list of water bodies affected by the preferred options (**Appendix G**).

Protected area assessments were undertaken for nine protected areas. The results are presented in **Table F.7**. For four protected areas, no hydrological pathway between the protected area and the options have been identified, so there is no potential for the options to impact on the protected area. The remaining five protected areas may be subject to a no or minimal, or minor level of impact.

Table F.7 Results of the Protected Area Assessment

Protected area	Designation	Preferred options	Summary of protected area assessment	Assessment Results
South Pennine Moors	SAC	WR099b: Worsthorne Borehole (Hurstwood IR) WR159: Group 1 - Improved reservoir compensation release control: (Hurstwood, Cant Clough, Swinden 1 and 2, Coldwell Upper and Lower, Laneshaw, Warland, and Whiteholme)	Option WR099b and most of the reservoirs affected by Option WR159 are downstream of the upland SAC which is not designated for migratory fish. Warland and Whiteholme reservoirs are within the SAC and reduction in flows could impact the SAC. The Level 2 detailed assessment of these options is minor (both in water body GB104027062600, Walsden Water from Source to R Calder)	Minor level of impact
Rochdale Canal	SAC	WR114: Python Mill Borehole WR159: Group 1 - Improved reservoir compensation release control: (Watergrove and Blackstone Edge)	WR114 has been assessed as having a minor level of impact on the Rochdale Canal (water body GB71210517). The reduction in compensation releases will not add to the impact as the reservoirs and downstream watercourses are not hydraulically connected to the canal.	Minor level of impact
Bowland Fells	SPA	WR101: Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	Option WR101 is downstream of the SPA which is not designated for migratory fish. No hydrological pathway between the option and the designated features of the SPA.	n/a
Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses	SAC	WR821 Shropshire Union Canal	Option WR821 involves a new abstraction from the canal, located approximately 21 km from the SAC. Option WR821 and the SAC are connected by the groundwater body (GB41202G991700, Weaver and Dane Quaternary Sand and Gravel Aquifer). The Level 2 detailed assessment of Option WR821 is no or minimal level of impact which also applies to the SAC.	No or minimal impact
River Derwent and Bassenthwaite Lake	SAC	WR160: Group 2 - Improved reservoir compensation release control: (Thirlmere)	Thirlmere reservoir is located on St John's Beck which is part of the SAC. The SAC is designated for several types of	Minor level of impact.

²⁹ Downloaded from the EA's Catchment Data Explorer website October 2017: http://environment.data.gov.uk/catchment-planning/RiverBasinDistrict/12

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Protected area	Designation	Preferred options	Summary of protected area assessment	Assessment Results
			migratory fish, which may be affected by reductions in river flows. The Level 2 detailed assessment for St John's Beck (GB112075070430) indicated a minor level of impact, which also applies to the SAC.	
Lake District High Fells	SAC	WR159: Group 1 - Improved reservoir compensation release control: (Wet Sleddale) WR160: Group 2 - Improved reservoir compensation release control: (Thirlmere)	Both Wet Sleddale and Thirlmere are downstream of the upland SAC which is not designated for migratory fish. No hydrological pathway between the options and the designated features of the SAC.	n/a
River Eden	SAC	WR159: Group 1 - Improved reservoir compensation release control: (Wet Sleddale) WR160: Group 2 - Improved reservoir compensation release control: (Haweswater)	Wet Sleddale and Haweswater are located on the River Lowther and the Haweswater Beck respectively, both headwaters of the River Eden. The SAC is designated for a range of migratory fish, aquatic mammals and crustaceans which may be affected by reductions in river flows. The Level 2 detailed assessments of both options indicated a minor level of impact for the Upper Lowther (GB102076070690) and the Haweswater Beck (GB102076070720), which also applies to the SAC.	Minor level of impact.
Asby Complex	SAC	WR159: Group 1 - Improved reservoir compensation release control: (Wet Sleddale)	Wet Sleddale is downstream of the SAC which is not designated for migratory fish. No hydrological pathway between the options and the designated features of the SAC.	n/a
Berwyn and South Clwyd Mountains	SAC and SPA	WR160: Group 2 - Improved reservoir compensation release control: (Vyrnwy) B2 Enabling Works	Wet Sleddale is downstream of the SAC which is not designated for migratory fish. No hydrological pathway between the options and the designated features of the SAC.	n/a

Appendix G Summary of Level 1 Screening and Level 2 Detailed Assessment Results for Preferred Plan Options at Draft WRMP Stage

Option		WFD Water Body Inf	formation												Option Det	ail									npacts				
															bi	gs d surface n? intake	station d water ks	river/ al/	ter via squeduct d	antity isiting rface	inwell ishment inwell irface	d	ervoir	/ aising					
								Sectorial Con-							line on lar	e crossing / modifie r (e.g. rive	pumping: / modifie ment wor	outfall to voir / can duct	fer of war / canal / a / increase ce water	action qui tion of ex arge to su	abstractic ng / refurt abstractic works / su	/ increase ndwater action qu	gedtores	reservoir, ankment r		Level 2			
Ref	Option Name	ID	Туре	Hydro - morphological Designation	WB Name	Operational Catchment	Ecological Statu	Ecological Qua s Objective Stat	ntitative Quar us Obje		emical Chemi tus Object		verall Status	Overall Objective	Pipe	New,	New , treat	New cesen	frans river , New , surfa	abstra Cessa disch water	New a	New , groun abstra	Chang	r mpa		Screening Required?	Level 2 Screening Results	Level 2 Screening Confidence	Combined Screening Result
	Worsthorne Borehole (Hurstwood IR) Worsthorne Borehole (Hurstwood IR)	GB112071065090 GB41202G100300	River	Heavily modified No designation	Brun- headwaters to conf Don Douglas, Darwen and Calder Carboniferous Aquifers	Calder	Moderate n/a	Good by 2027 n/a	n/a	Good thy 2015 Poor		by 2015 Me	loderate	Good by 2027 Good by 2027	Y	N N	N N	N Y	N	N N	Y Y		N N	N D	Medium level of impact	Y	Minor level of impact		Minor level of impact
WR101	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	GB41202G100300 GB112072065760	River	No designation	Woodplumpton Brook	Douglas Darwen and Calder Carboniferous Aq Brock and Trib	Moderate	n/a Good Good by 2027 n/a	n/a	Go:		.,	oor loderate	Good by 2027	N	N N	N N	N N	N N	N N	Y Y		N N	N P	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
WR101	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity Franklaw Z Site plus Increased Franklaw WTW Treatment	GB112072065790	River	No designation	New Draught Brook	Brock and Trib	Poor	Good by 2027 n/a	n/a	Goo	od Good	by 2015 Po	oor	Good by 2027	N	N N	N N	N N	N	N N	Y Y	Y	N	N P	Medium level of impact	Υ	Medium level of impact	Low	Medium level of impact
WR101	Capacity Franklaw Z Site plus Increased Franklaw WTW Treatment Franklaw Z Site plus Increased Franklaw WTW Treatment	GB112072065800	River	No designation	Barton (Westfield) Brook	Brock and Trib	Poor	Good by 2027 n/a	n/a	God	od Good	by 2015 Po	oor	Good by 2027	N	N N	N N	N N	N	N N	Y Y	Y	N	N P	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
	Capacity Franklaw Z Site plus Increased Franklaw WTW Treatment	GB112072065810	River	No designation	Brock	Brock and Trib	Good	Good by 2015 n/a	n/a	God		by 2015 Go		Good by 2015	N	N N	N Y	N N	N	N N	Y Y		N	N P	Medium level of impact	Υ	Minor level of impact	Medium	Minor level of impact
	Capacity Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	GB112072065822 GB112072066220	River	No designation Heavily modified	Wyre DS Grizedale Brook confl Calder (Wyre)	Wyre and Calder Wyre and Calder	Good	Good by 2027 n/a Good by 2027 n/a	n/a	God		by 2027 Go by 2015 Me	ood loderate	Good by 2027 Good by 2027	N N	N N	N N	N N	N N	N N	Y Y		N N	N D	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact Medium level of impact
	Franklaw Z Site plus Increased Franklaw WTW Treatment	GB41201G100500	Groundwater	No designation	Fylde Permo-Triassic Sandstone Aquifers	Fylde Permo-Triassic Sandstone Aq	n/a	n/a Goo	d Good	d by 2015 God		by 2015 Go		Good by 2015	N	N N	N Y	N N	N	N N	Y Y		N N	N P	Medium level of impact	Υ	Medium level of impact	Low	Medium level of impact
WR102e	Bold Heath Boreholes to Prescot WTW	170	River	No designation	Non reportable water body to north of River Mersey	Sankey	n/a	n/a n/a	n/a	n/a	n/a	n/a	/a	n/a	Y	Y N	N N	N N	N	N N	Y Y	Y	N	N 9	Medium level of impact	Υ	Minor level of impact	High	Minor level of impact
WR102e	Bold Heath Boreholes to Prescot WTW	GB112069060710	River	No designation	Prescot Brook (Logwood Mill Brook)	Ditton	moderate	Moderate by 2027 n/a	n/a	Goo	od Good	by 2027 mo	oderate	Moderate by 2027	Y	N N	N Y	N N	N	N N	N N	N	N	N P	lo or minimal impact	N			No or minimal impact
	Bold Heath Boreholes to Prescot WTW Bold Heath Boreholes to Prescot WTW	GB112069060990 GB112069061170	River	Heavily modified	Whittle Brook (Mersey Estuary) Sutton Brook	Sankey	Moderate	Good by 2027 n/a Good by 2027 n/a	n/a	God		.,	loderate loderate	Good by 2027 Good by 2027	Y	N N	N N	N N	N	N N	N N	N	N N	N P	dinor level of impact	N 			No or minimal impact Minor level of impact
	Bold Heath Boreholes to Prescot WTW	GB112069061170	River	Heavily modified	Hardshaw (Windle) Brook	Sankey	Moderate	Good by 2027 n/a	n/a n/a	God			loderate loderate	Good by 2027 Good by 2027	Y	N N	N N	N N	N N	N N	N N	N N	N N	N P	to or minimal impact	N N			No or minimal impact
WR102e	Bold Heath Boreholes to Prescot WTW	GB41201G101700	Groundwater	No designation	Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	Mersey Basin Lower and Merseyside North Permo-Trias Sandstone Aq	sic n/a	n/a Poor	Good	d by 2027 Poo	or Good	by 2027 Po	oor	Good by 2027	Y	Y N	N N	N N	N	N N	Y	Y	N	N .	Medium level of impact	Y	Minor level of impact	High	Minor level of impact
WR102e	Bold Heath Boreholes to Prescot WTW	GB41202G100100	Groundwater	No designation	Sankey and Glaze Carboniferous aquifers	Sankey and Glaze Carboniferous Aq	n/a	n/a Goo	d Good	d by 2015 Poo	or Poort	by 2015 Po	oor	Poor by 2015	Y	Y N	N Y	N N	N	N N	N N	N	N	N P	Minor level of impact	N			Minor level of impact
	Tytherington Boreholes	GB112069061320	River	Heavily modified	Bollin (Source to Dean)	Bollin Dean Mersey Upper Manchester and Cheshire East Permo-Triassic Sandston	Moderate	Moderate by 2027 n/a	n/a	God		-,	loderate	Moderate by 2027	Y	N N	N Y	N N	N	N N	Y Y		N	N P	Medium level of impact	Υ	Minor level of impact	Low	Minor level of impact
	Tytherington Boreholes Python Mill Borehole	GB41201G101100 GB112069064720	Groundwater	No designation Heavily modified	Manchester and East Cheshire Permo-Triassic Sandstone Aquife	rs Aq Roch Irk Medlock	n/a Moderate	n/a Poor Good by 2027 n/a	Good	d by 2027 Poo		by 2027 Po by 2027 Mr	oor loderate	Good by 2027 Good by 2027	Y	N N	N Y	N N	N N	N N	Y Y		N N	N D	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact Medium level of impact
	Python Mill Borehole Python Mill Borehole	GB112069064720 GB41202G101800	River	No designation	Roch (Source to Spodden) Northern Manchester Carboniferous Aquifers	Roch Irk Medlock Manchester Northern Carboniferous Aq	Moderate n/a	Good by 2027 n/a n/a Goo	n/a d Good	Goo d by 2027 Poo		by 2027 Mi		Good by 2027 Good by 2027	Y	N N	N N	N Y	Y	N N	Y Y		N N	N B	Medium level of impact	Y Y	Medium level of impact	Low	Medium level of impact Medium level of impact
WR114	Python Mill Borehole	GB71210517	AWB - Canal	Artificial	Rochdale Canal, western section	Roch Irk Medlock Canals and SWT	Moderate	Good by 2027 n/a	n/a	God		by 2027 Go		Good by 2027	Y	N N	N N	N Y	Y	N N	N N	N	N	N ,	Minor level of impact	N	-		Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - WET SLEDDALE Group 1 - Improved reservoir compensation release contro	GB102076070690	River	Heavily modified	Lowther (Upper)	Eamont	Moderate	Good by 2021 n/a	n/a	God	od Good	by 2015 Me	loderate	Good by 2021	N	N N	N N	N N	N	N N	N N	N	Y	N P	Medium level of impact	Υ	Minor level of impact	High	Minor level of impact
WR159	- WARLAND Group 1 - Improved reservoir compensation release contro		River	Heavily modified	Walsden Water from Source to River Calder	Calder Upper	Moderate	Good by 2027 n/a	n/a	God			loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N P	Medium level of impact	Y	Minor level of impact		Minor level of impact
WR159	LIGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE Group 1 - Improved reservoir compensation release contro LAMALOAD	GB104027062600	River	Heavily modified Heavily modified	Walsden Water from Source to River Calder	Calder Upper	Moderate	Good by 2027 n/a	n/a	God		-,	loderate	Good by 2027	N 	N N	N N	N N	N a:	N N	N N	N N	Y	N D	Medium level of impact	Y	Minor level of impact		Minor level of impact
	 LAMALOAD Group 1 - Improved reservoir compensation release contro LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, 	N .	River	Heavily modified Heavily modified	Dean (Lamaload to Bollington) Etherow (Woodhead Res. to Glossop Bk.)	Bollin Dean Mersey Upper Goyt Etherow Tame	Moderate Moderate	Good by 2027 n/a Good by 2027 n/a	n/a	Goo			loderate loderate	Good by 2027 Good by 2027	N N	N N	n N N N	n N N N	N N	n N	N N	N N	Y	N B	Medium level of impact Medium level of impact	Y	Minor level of impact		Minor level of impact Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - ERREOOD & FERNILEE	GB112069060850	River	Heavily modified	Goyt (Source to Randall Carr Brook)	Goyt Etherow Tame	Moderate	Good by 2027 n/a	n/a	God			loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N P	Medium level of impact	Y	Minor level of impact		Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - BOLLINHURST & HORSE COPPICE	GB112069060920	River	Heavily modified	Micker (Norbury) Brook	Bollin Dean Mersey Upper	Moderate	Good by 2027 n/a	n/a	God	od Good	by 2015 M	loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N P	Medium level of impact	Υ	Minor level of impact	High	Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro – Kinder Group 1 - Improved reservoir compensation release contro	GB112069060970	River	No designation	Sett	Goyt Etherow Tame	Moderate	Good by 2027 n/a	n/a	Goo			loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N B	Medium level of impact	Υ	Minor level of impact		Minor level of impact
	 LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, Group 1 - Improved reservoir compensation release contro 		River	Heavily modified	Platt Brook (Source to Fallowfield Bk)	Bollin Dean Mersey Upper	Moderate	Good by 2027 n/a Moderate by 2015 n/a	n/a	God		-,	loderate	Good by 2027 Moderate by 2015	N	N N	N N	N N	N	N N	N N	N	Υ	N D	Medium level of impact	Υ	Minor level of impact		Minor level of impact
	 BRUSHES, WALKERWOOD & SWINESHAW HIGHER & Group 1 - Improved reservoir compensation release contro LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD. 	N .	River	Heavily modified	Tame (Chew Brook to Swineshaw Brook) Tame (Swineshaw Brook to Mersey)	Goyt Etherow Tame Goyt Etherow Tame	Moderate Moderate	Moderate by 2015 n/a Moderate by 2015 n/a	n/a n/a	Goo		-,	loderate loderate	Moderate by 2015 Moderate by 2015	N N	N N	N N	N N	N N	N N	N N	N N	Y	N P	Medium level of impact	Y	Minor level of impact Minor level of impact		Minor level of impact Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - GREENFIELD VALLEY-GREENFIELD, YEOMAN HEY,	GB112069061300	River	Heavily modified	Chew Brook	Goyt Etherow Tame	Moderate	Good by 2027 n/a	n/a	God			loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N B	Medium level of impact	Y	Minor level of impact		Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - RIDGEGATE & TRENTABANK Group 1 - Improved reservoir compensation release contro	GB112069061320	River	Heavily modified	Bollin (Source to Dean)	Bollin Dean Mersey Upper	Moderate	Moderate by 2015 n/a	n/a	God	od Good	by 2015 M	loderate	Moderate by 2015	N	N N	N N	N N	N	N N	N N	N	Υ	N B	Medium level of impact	Υ	Minor level of impact	Medium	Minor level of impact
WR159	- DELPH Group 1 - Improved reservoir compensation release contro	GB112069064570	River	Heavily modified	Eagley Brook	Croal Irwell	Moderate	Good by 2027 n/a	n/a	Goo			loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N P	Medium level of impact	Υ	Minor level of impact		Minor level of impact
	- SPRINGS DINGLE Group 1 - Improved reservoir compensation release contro	GB112069064570	River	Heavily modified	Eagley Brook	Croal Irwell	Moderate	Good by 2027 n/a Good by 2027 n/a	n/a	God			loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Υ	N D	Medium level of impact	Υ	Minor level of impact		Minor level of impact
	WAYOH, ENTWISTLE & JUMBLES Group 1 - Improved reservoir compensation release contro SCOUT MOOR	GB112069064580 GB112069064620	River	Heavily modified Heavily modified	Bradshaw Brook Irwell (Rossendale STW to Roch)	Croal Irwell Croal Irwell	Moderate Moderate	Good by 2027 n/a Moderate by 2015 n/a	n/a n/a	Goo			loderate loderate	Good by 2027 Moderate by 2015	N N	N N	N N	N N	N N	N N	N N	N N	Y	N P	Medium level of impact	Y	Minor level of impact Minor level of impact		Minor level of impact Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - CALF HEY, OGDEN (GRANE) & HOLDENWOOD	GB112069064650	River	Heavily modified	Ogden	Croal Irwell	Moderate	Good by 2027 n/a	n/a	God			loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N B	Medium level of impact	Y	Minor level of impact		Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - COWPE & CRAGG HOLES Group 1 - Improved reservoir compensation release contro	GB112069064660	River	Heavily modified	Irwell (Source to Whitewell Brook)	Croal Irwell	Moderate	Good by 2027 n/a	n/a	God	od Good	by 2015 M	loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Υ	N B	Medium level of impact	Υ	Minor level of impact	Medium	Minor level of impact
WR159	CLOUGH BOTTOM Group 1 - Improved reservoir compensation release control	GB112069064670	River	Heavily modified	Whitewell Brook	Croal Irwell	Moderate	Good by 2027 n/a	n/a	Goo	od Good	by 2015 Mr	loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N B	Medium level of impact	Υ	Minor level of impact	Medium	Minor level of impact
	CLOWBRIDGE Group 1 - Improved reservoir compensation release contro PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW		River	Heavily modified	Limy Water	Croal Irwell Roch Irk Mediock	Moderate	Good by 2027 n/a Good by 2027 n/a	n/a	God			loderate loderate	Good by 2027 Good by 2027	N	N N	N N	N N	N	N N	N N	N N	Y	N D	Medium level of impact	Y	Minor level of impact		Minor level of impact
	Group 1 - Improved reservoir compensation release contro - ASHWORTH MOOR		River	Heavily modified	Naden Brook	Roch Irk Mediock	Moderate	Moderate by 2015 n/a	n/a	God			loderate loderate	Moderate by 2015	N N	N N	N N	N N	N N	N N	N N	N N	Y	N P	Medium level of impact		Minor level of impact		Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro – GREENBOOTH & 2 NADENS	GB112069064710	River	Heavily modified	Naden Brook	Roch Irk Medlock	Moderate	Moderate by 2015 n/a	n/a	God	od Good	by 2015 Me	loderate	Moderate by 2015	N	N N	N N	N N	N	N N	N N	N	Y	N P	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - SPRING MILL, WATERGROVE & COWM Group 1 - Improved reservoir compensation release contro	GB112069064720	River	Heavily modified	Roch (Source to Spodden)	Roch Irk Medlock	Moderate	Good by 2027 n/a	n/a	God	od Good	by 2015 M	loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N B	Medium level of impact	Y	Minor level of impact	High	Minor level of impact
	- LIGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE Group 1 - Improved reservoir compensation release contro	GB112069064720	River	Heavily modified	Roch (Source to Spodden)	Roch Irk Medlock	Moderate	Good by 2027 n/a	n/a	God			loderate	Good by 2027	N	N N	N N	N N	N	N N	N N		Y	N B	Medium level of impact	Y	Minor level of impact		Minor level of impact
	- SPRING MILL, WATERGROVE & COWM Group 1 - Improved reservoir compensation release contro - CASTI FSHAW LIPPER & LOWER	GB112069064730 GB112069064741	River	Heavily modified Heavily modified	Spodden Tame (Source to Chew Brook)	Roch Irk Mediock Goyt Etherow Tame	Moderate Moderate	Good by 2027 n/a Good by 2027 n/a	n/a n/a	Goo			loderate loderate	Good by 2027 Good by 2027	N	N N	N N	N N	N	N N	N N	N N	Y	N P	Medium level of impact	Y	Minor level of impact		Minor level of impact Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - READYCON DEAN, CROOKGATE, DOWRY & NEW YEARS	GB112069064741	River	Heavily modified	Tame (Source to Chew Brook)	Goyt Etherow Tame	Moderate	Good by 2027 n/a	n/a	God			loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N P	Medium level of impact	Υ	Minor level of impact		Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - MITCHELLS HOUSE 1 & 2	GB112071065040	River	Heavily modified	Hyndburn	Calder	Moderate	Good by 2027 n/a	n/a	God	od Good	by 2015 Mr	loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N B	Medium level of impact	Υ	Minor level of impact	Medium	Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - HURSTWOOD Group 1 - Improved reservoir compensation release contro	GB112071065090	River	Heavily modified	Brun - headwaters to conf Don	Calder	Moderate	Good by 2027 n/a	n/a	Goo			loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N P	Medium level of impact	Υ	Minor level of impact		Minor level of impact
	– CANT CLOUGH Group 1 - Improved reservoir compensation release contro – SWINDEN 1 & 2		River	Heavily modified	Brun - headwaters to conf Don Brun - headwaters to conf Don	Calder	Moderate	Good by 2027 n/a	n/a	God			loderate	Good by 2027	N 	N N	N N	N N	N a:	N N	N N	N	Y	N D	Medium level of impact	Y	Minor level of impact		Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - COLDWELL UPPER & LOWER	GB112071065090 GB112071065130	River	Heavily modified Heavily modified	Brun - headwaters to conf Don Walverden Water	Calder Coine Water	Moderate Moderate	Good by 2027 n/a Good by 2027 n/a	n/a n/a	Goo			loderate loderate	Good by 2027 Good by 2027	N N	N N	n N N N	n N N N	N N	n N	N N	N N	Y	N B	Medium level of impact	Y	Minor level of impact Minor level of impact		Minor level of impact Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - CHURN CLOUGH	GB112071065140	River	No designation	Sabden Brook	Calder	Good	Good by 2015 n/a	n/a	God		by 2015 Go	ood	Good by 2015	N	N N	N N	N N	N	N N	N N	N	Y	N P	Medium level of impact	Υ	Minor level of impact		Minor level of impact
	Group 1 - Improved reservoir compensation release contro - LANESHAW Group 1 - Improved reservoir compensation release contro	GB112071065210	River	Heavily modified	Colne Water (Laneshaw)	Colne Water	Moderate	Good by 2027 n/a	n/a	Goo	od Good	by 2015 Mr	loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N B	Medium level of impact	Υ	Minor level of impact	High	Minor level of impact
	- OGDEN UPPER & LOWER Group 1 - Improved reservoir compensation release contro	GB112071065230	River	No designation	Pendle Water - headwaters to Colne Water	Coine Water	Good	Good by 2015 n/a	n/a	God		by 2015 Go	ood	Good by 2015	N	N N	N N	N N	N	N N	N N	N	Y	N P	Medium level of impact	Υ	Minor level of impact	High	Minor level of impact
	FISHMOOR TOTAL Group 1 - Improved reservoir compensation release contro STOCKS	GB112071065270 GB112071065390	River	Heavily modified Heavily modified	Darwen - conf Davy Field Bk to conf Blakewater Hodder - Stocks Reservoir to conf Croasdale Bk	Darwen Hodder and Loud	Moderate Moderate	Good by 2027 n/a Good by 2021 n/a	n/a	Goo			loderate loderate	Good by 2027 Good by 2021	N N	N N	N N	N N	N N	N N	N N	N N	Y	N B	Medium level of impact	Y	Minor level of impact		Minor level of impact Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - POAKA BECK, PENNINGTON & HARLOCK	GB112073071160	River	No designation	Hodder - Stocks Reservoir to conf Croasdale Bk Dragley Beck	Hodder and Loud Leven	Moderate Moderate	Good by 2021 n/a Good by 2027 n/a	n/a n/a	God			loderate loderate	Good by 2021 Good by 2027	N N	N N	N N	N N	N N	N N	N N	N N	Y	N B	Medium level of impact	Y Y	Minor level of impact		Minor level of impact Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - LEVERS WATER Group 1 - Improved reservoir compensation release contro	GB112073071210	River	No designation	Yewdale/Church Beck	Crake	Moderate	Good by 2027 n/a	n/a	Goo			loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N D	Medium level of impact	Υ	Minor level of impact		Minor level of impact
WR159	- POAKA BECK, PENNINGTON & HARLOCK Group 1 - Improved reservoir compensation release contro	GB112074069790	River	Heavily modified	Mill Beck (Poaka Beck)	Duddon	Moderate	Good by 2027 n/a	n/a	God	od Good	by 2015 M	loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N 9	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
WR159	WARLAND Group 1 - Improved reservoir compensation release contro	GB30431070	Lake	Heavily modified	Warland Reservoir	Calder Upper	Moderate	Good by 2027 n/a	n/a	God			loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N P	lo or minimal impact	N			No or minimal impact
	LIGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE Group 1 - Improved reservoir compensation release contro LEVERS WATER	GB30431104 GB31229285	Lake Lake	Heavily modified Heavily modified	White Holme Reservoir Levers Water	Calder Upper Crake	Good Moderate	Good by 2015 n/a Good by 2027 n/a	n/a	God		by 2015 Go by 2015 Me	ood loderate	Good by 2015	N N	N N	N N	N N	N N	N N	N N	N	Y	N P	to or minimal impact	N N			No or minimal impact No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - POAKA BECK, PENNINGTON & HARLOCK	GB31229599	Lake	Heavily modified Artificial	Levers Water Harlock Reservoir	Crake Duddon	Moderate Moderate	Good by 2027 n/a Good by 2027 n/a	n/a n/a	God			loderate loderate	Good by 2027 Good by 2027	N N	N N	N N	N N	N N	N N	N N	N N	Y	N P	to or minimal impact	N N			No or minimal impact No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - POAKA BECK, PENNINGTON & HARLOCK	GB31229607	Lake	Heavily modified	Pennington Reservoir	Leven	Moderate	Good by 2027 n/a	n/a	God			loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N P	lo or minimal impact	N			No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - POAKA BECK, PENNINGTON & HARLOCK Group 1 - Improved reservoir compensation release contro	GB31229615	Lake	Artificial	Poaka Beck Reservoir	Duddon	Poor	Good by 2027 n/a	n/a	God	od Good	by 2015 Po	oor	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N P	to or minimal impact	N			No or minimal impact
WR159	- STOCKS Group 1 - Improved reservoir compensation release contro	GB31230030	Lake	Heavily modified	Stocks Reservoir	Hodder and Loud	Moderate	Good by 2027 n/a	n/a	Goo			loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N P	lo or minimal impact	N			No or minimal impact
	LANESHAW Group 1 - Improved reservoir compensation release contro OGDEN UPPER & LOWER		Lake	Heavily modified	Laneshaw Reservoir	Colne Water	Moderate	Good by 2027 n/a	n/a	God			loderate	Good by 2027	N	N N	N N	N N	N a:	N N	N N	N	Y	N P	to or minimal impact	N			No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - OGDEN UPPER & LOWER	GB31230431	Lake	Heavily modified Heavily modified	Ogden Lower Reservoir Ogden Upper Reservoir	Coine Water Coine Water	Moderate Moderate	Good by 2027 n/a Good by 2027 n/a	n/a n/a	Goo			loderate loderate	Good by 2027 Good by 2027	N N	N N	n N N N	n N N N	N N	n N	N N	N N	Y	N P	to or minimal impact	N N			No or minimal impact No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro – CHURN CLOUGH	GB31230459	Lake	Heavily modified	Churn Clough Reservoir	Calder	Moderate	Good by 2021 n/a	n/a	God			loderate	Good by 2021	N	N N	N N	N N	N.	N N	N N	N N	Y	N P	to or minimal impact	N.			No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - COLDWELL UPPER & LOWER Group 1 - Improved reservoir compensation release contro	GB31230523	Lake	Heavily modified	Coldwell Lower Reservoir	Colne Water	Moderate	Good by 2027 n/a	n/a	God	od Good	by 2015 M	loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N P	to or minimal impact	N			No or minimal impact
WR159	- COLDWELL UPPER & LOWER Group 1 - Improved reservoir compensation release contro	GB31230533	Lake	Heavily modified	Coldwell Upper Reservoir	Coine Water	Moderate	Good by 2027 n/a	n/a	Goo			loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N P	lo or minimal impact	N			No or minimal impact
	- SWINDEN 1 & 2	GB31230590	Lake	Artificial	Swinden Lower Reservoir	Calder	Moderate	Good by 2027 n/a	n/a	Goo	od Good	by 2015 Me	loderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Υ	N P	lo or minimal impact	N			No or minimal impact

Option		WFD Water Body Info	ormation												Option Deta	ail									Impacts			
															id water	ps d surface rr) intake	station d water ks	servoir river/ al/	ter via squeduct d	antity isiting rface	nwell sishment snwell	d antity	ervoir release	/ aising				
															ine on lan	e crossing 'modified' (e.g. rive	oumping s modified	torage re outfall to roir / can.	fer of wat canal / a	ce water action qua tion of ex arge to su	sbrractio g/refurb sbrractio	ures increase dwater action qui	gedtores ensation	eservoir,		Level 2		
Ref	Option Name Group 1 - Improved reservoir compensation release contro	ID	Туре	Hydro - morphological Designation	WB Name	Operational Catchment	Ecological Status	Ecological Objective				Chemical Objective	Overall Status	Overall Objective	Pipe II	rourse New / water	New p New / treatm	New o reserv	fransf river / New /	surfac abstra Cessat discha	New a drilling New a	structs New / ground abstra	Chang	New re	Level 1 Screening Results	Screening Required? Level 2 Scre	Level 2 Screening ening Results Confidence	Combined Screening Result
	- SWINDEN 1 & 2 Group 1 - Improved reservoir compensation release contro		Lake	Heavily modified	Swinden Higher Reservoir	Calder	Moderate		n/a n/				Moderate	Good by 2027	N			N N	N	N h		N N	Y	N	No or minimal impact	N		No or minimal impact
	HURSTWOOD Group 1 - Improved reservoir compensation release contro CANT CLOUGH	GB31230625 GB31230663	Lake	Heavily modified Heavily modified	Hurstwood Reservoir Cant Clough Reservoir	Calder Calder	Moderate Moderate		n/a n/ n/a n/	-			Moderate Moderate	Good by 2027 Good by 2027	N N	N N	N N	N N	N N	N h	N	N N	Y	N N	No or minimal impact	N N		No or minimal impact No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - CLOWBRIDGE	GB31230769	Lake	Heavily modified	Clowbridge Reservoir	Croal Irwell	Moderate		n/a n/				Moderate	Good by 2027	N	N N	N N	N N	N N	N N	N N	N N	Y	N N	No or minimal impact	N N		No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - MITCHELLS HOUSE 1 & 2 Group 1 - Improved reservoir compensation release contro	GB31230812	Lake	Heavily modified	Mitchells House Reservoir No 1	Calder	Moderate	Good by 2027	n/a n/	a G	bod	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	- MITCHELLS HOUSE 1 & 2 Group 1 - Improved reservoir compensation release contro	GB31230833	Lake	Artificial	Mitchells House Reservoir No 2	Calder	Moderate	Good by 2027	n/a n/	a Gi			Moderate	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
	CLOUGH BOTTOM Group 1 - Improved reservoir compensation release contro FISHMOOR TOTAL	GB31230858 GB31230883	Lake	Heavily modified Artificial	Clough Bottom Reservoir Fishmoor Reservoir	Croal Irwell Danwen	Moderate Moderate	Moderate by 2015 Good by 2027	n/a n/ n/a n/				Moderate Moderate	Moderate by 2015 Good by 2027	N	N N	N N	N N	N	N h	N	N N	Y	N N	No or minimal impact	N N		No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - CALF HEY, OGDEN (GRANE) & HOLDENWOOD	GB31231013	Lake	Heavily modified	Ogden Reservoir Lancashire	Croal Irwell	Moderate	Moderate by 2015					Moderate	Moderate by 2015	N	N N	N N	N N	N N	N N	N N	N N	Y	N N	No or minimal impact	N N		No or minimal impact
	Group 1 - Improved reservoir compensation release contro - CALF HEY, OGDEN (GRANE) & HOLDENWOOD Group 1 - Improved reservoir compensation release contro	GB31231025	Lake	Heavily modified	Calf Hey Reservoir	Croal Irwell	Moderate	Moderate by 2015	n/a n/	a Gi	bood	Good by 2015	Moderate	Moderate by 2015	N	N N	N N	N N	N	N h	N	N N	Y	N	No or minimal impact	N		No or minimal impact
	CALF HEY, OGDEN (GRANE) & HOLDENWOOD Group 1 - Improved reservoir compensation release control Group 1 - Improved reservoir compensation release control	GB31231027	Lake	Heavily modified	Holden Wood Reservoir	Croal Irwell	Moderate	Moderate by 2015	n/a n/	a G	bood	Good by 2015	Moderate	Moderate by 2015	N	N N	N N	N N	N	N h	N	N N	Y	N	No or minimal impact	N		No or minimal impact
	COWPE & CRAGG HOLES Group 1 - Improved reservoir compensation release contro SCOUT MOOR	GB31231115 GB31231130	Lake	Heavily modified	Cowpe Reservoir Scout Moor Reservoir	Croal Irwell Croal Irwell	Moderate		n/a n/ n/a n/	-			Moderate Moderate	Good by 2027 Good by 2027	N	N N	N N	N N	N	N h	N	N N	Y V	N	No or minimal impact No or minimal impact	N N		No or minimal impact
-	Group 1 - Improved reservoir compensation release contro SPRING MILL, WATERGROVE & COWM		Lake	Heavily modified	Cowm Reservoir	Roch Irk Medlock	Moderate	Moderate by 2015		-			Moderate	Moderate by 2015	N	N N	N N	N N	N N	N N	N N	N N	Y	N N	No or minimal impact	N N		No or minimal impact No or minimal impact
	Group 1 - Improved reservoir compensation release contro - SPRING MILL, WATERGROVE & COWM	GB31231164	Lake	Heavily modified	Watergrove Reservoir	Roch Irk Medlock	Moderate	Good by 2027	n/a n/	a G	ood	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - LIGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE Group 1 - Improved reservoir compensation release contro	GB31231168	Lake	Heavily modified	Blackstone Edge Reservoir	Roch Irk Medlock	Moderate	Moderate by 2015	n/a n/	a G	ood	Good by 2015	Moderate	Moderate by 2015	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	WAYOH, ENTWISTLE & JUMBLES Group 1 - Improved reservoir compensation release control	GB31231200	Lake	Heavily modified	Wayoh Reservoir	Croal Irwell	Moderate	Good by 2027		-			Moderate	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N N		No or minimal impact
	 WAYOH, ENTWISTLE & JUMBLES Group 1 - Improved reservoir compensation release control SPRING MILL, WATERGROVE & COWM 	GB31231202 GB31231212	Lake Lake	Heavily modified Heavily modified	Turton and Entwistle Reservoir Spring Mill Reservoir	Croal Irwell Roch Irk Medlock	Moderate Moderate	Moderate by 2015 Good by 2027		-			Moderate Moderate	Moderate by 2015 Good by 2027	N N	N N	N N	N N	N N	N h	N N	N N	Y	N N	No or minimal impact No or minimal impact	N N		No or minimal impact No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - GREENBOOTH & 2 NADENS	GB31231229	Lake	Heavily modified	Middle Naden Reservoir	Roch Irk Medlock	Moderate	Moderate by 2015		-			Moderate	Moderate by 2015	N	N N	N N	N N	N.	N N	N N	N N	Y	N	No or minimal impact	N N		No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - GREENBOOTH & 2 NADENS Group 1 - Improved reservoir compensation release contro	GB31231250	Lake	Heavily modified	Lower Naden Reservoir	Roch Irk Medlock	Moderate	Good by 2027	n/a n/	a G	ood	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	- GREENBOOTH & 2 NADENS Group 1 - Improved reservoir compensation release contro	GB31231260	Lake	Heavily modified	Greenbooth Reservoir	Roch Irk Medlock	Moderate	Moderate by 2015					Moderate	Moderate by 2015		N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	DELPH Group 1 - Improved reservoir compensation release contro ASHWORTH MOOR	GB31231264	Lake	Heavily modified Heavily modified	Delph Reservoir Ashworth Moor Reservoir	Croal Irwell Roch Irk Mediock	Moderate Moderate	Moderate by 2015 Good by 2027	n/a n/ n/a n/				Moderate Moderate	Moderate by 2015 Good by 2027	N N	N N	N N	N N	N N	N N	N N	N N	Y	N Al	No or minimal impact	N N		No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - WAYOH, ENTWISTLE & JUMBLES	GB31231306	Lake	Heavily modified Heavily modified	Ashworth Moor Reservoir Jumbles Reservoir	Roch Irk Medlock Croal Irwell	Moderate Moderate		n/a n/ n/a n/				Moderate Moderate	Good by 2027 Good by 2027	N N	N N	N N	N N	N N	N N	N N	N N	Y	N N	No or minimal impact No or minimal impact	N N		No or minimal impact No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - SPRINGS DINGLE	GB31231312	Lake	Heavily modified	Springs Reservoir	Croal Irwell	Moderate	Good by 2027	n/a n/	a G			Moderate	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - SPRINGS DINGLE Group 1 - Improved reservoir compensation release contro	GB31231314	Lake	Artificial	Dingle Reservoir	Croal Irwell	Moderate	Good by 2027	n/a n/	a G			Moderate	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
	PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROV Group 1 - Improved reservoir compensation release contro PIETHORNE. NORMAN HILL KITCLIFFE. OGDEN MILNROV	, GB31231367	Lake	Heavily modified	Norman Hill Reservoir Piethorne Reservoir	Roch Irk Medlock Roch Irk Medlock	Moderate	Good by 2027 Moderate by 2015	n/a n/	-			Moderate	Good by 2027 Moderate by 2015	N N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N N		No or minimal impact
	 PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROV Group 1 - Improved reservoir compensation release contro PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROV 	í	Lake	Heavily modified Heavily modified	Piethorne Reservoir Ogden Reservoir Rochdale	Roch Irk Medlock Roch Irk Medlock	Moderate	Moderate by 2015 Moderate by 2015		-			Moderate Moderate	Moderate by 2015 Moderate by 2015		N N	N N	N N	N N	N N	N N	N N	Y	N	No or minimal impact	N N		No or minimal impact No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROV	((, GB31231399	Lake	Heavily modified	Kitcliffe Reservoir	Roch Irk Mediock	Moderate		n/a n/	a G			Moderate	Good by 2027	N	N N	N N	N N	N.	N h	N	N N	Y	N	No or minimal impact	N N		No or minimal impact
	Group 1 - Improved reservoir compensation release contro - READYCON DEAN, CROOKGATE, DOWRY & NEW YEARS Group 1 - Improved reservoir compensation release contro	GB31231404	Lake	Heavily modified	Readycon Dean Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a n/	a G	ood	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	N	N h	N	N N	Y	N	No or minimal impact	N		No or minimal impact
	- PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROV Group 1 - Improved reservoir compensation release contro	/, GB31231405	Lake	Heavily modified	Hanging Lees Reservoir	Roch Irk Medlock	Moderate		n/a n/	-			Moderate	Good by 2027	N	N N	N N	N N	N	N h	N	N N	Y	N	No or minimal impact	N		No or minimal impact
	 PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROV Group 1 - Improved reservoir compensation release contro READYCON DEAN, CROOKGATE, DOWRY & NEW YEARS 	í	Lake	Heavily modified Heavily modified	Rooden Reservoir Crook Gate Reservoir	Goyt Etherow Tame Goyt Etherow Tame	Moderate		n/a n/ n/a n/	-			Moderate Moderate	Good by 2027 Good by 2027	N	N N	N N	N N	N	N h	N	N N	Y	N N	No or minimal impact No or minimal impact	N N		No or minimal impact No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - READYCON DEAN, CROOKGATE, DOWRY & NEW YEARS	GB31231482	Lake	Heavily modified	Dowry Reservoir	Goyt Etherow Tame	Moderate		n/a n/	-			Moderate	Good by 2027	N	N N	N N	N N	N N	N N	N N	N N	Y	N N	No or minimal impact	N N		No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - READYCON DEAN, CROOKGATE, DOWRY & NEW YEARS	GB31231508	Lake	Heavily modified	New Years Bridge Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a n/	a Gi	bood	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	N	N h	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - CASTLESHAW UPPER & LOWER Group 1 - Improved reservoir compensation release contro	GB31231531	Lake	Heavily modified	Upper and Lower Castleshaw Reservoirs	Goyt Etherow Tame	Moderate	Good by 2027	n/a n/	a Gi	bood	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	N	N P	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	 GREENFIELD VALLEY-GREENFIELD, YEOMAN HEY, Group 1 - Improved reservoir compensation release control 	GB31231778	Lake	Heavily modified	Greenfield Reservoir	Goyt Etherow Tame	Moderate		n/a n/				Moderate	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
	 GREENFIELD VALLEY-GREENFIELD, YEOMAN HEY, Group 1 - Improved reservoir compensation release control GREENFIELD VALLEY-GREENFIELD, YEOMAN HEY. 	GB31231791 GB31231829	Lake Lake	Heavily modified Heavily modified	Yeoman Hey Reservoir Dovestone Reservoir	Goyt Etherow Tame Goyt Etherow Tame	Moderate Moderate		n/a n/ n/a n/				Moderate Moderate	Good by 2027 Good by 2027	N N	N N	N N	N N	N N	N N	N N	N N	Y	N N	No or minimal impact No or minimal impact	N N		No or minimal impact No or minimal impact
	Group 1 - Improved reservoir compensation release contro - GREENFIELD VALLEY-GREENFIELD, YEOMAN HEY,	GB31231942	Lake	Heavily modified	Chew Reservoir	Goyt Etherow Tame	Moderate		n/a n/				Moderate	Good by 2027	N	N N	N N	N N	N.	N h	N	N N	Y	N		N N		No or minimal impact
	Group 1 - Improved reservoir compensation release contro - LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, Group 1 - Improved reservoir compensation release contro	GB31232065	Lake	Heavily modified	Woodhead Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a n/	a Go	bood	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	 BRUSHES, WALKERWOOD & SWINESHAW HIGHER & Group 1 - Improved reservoir compensation release control 	GB31232066	Lake	Heavily modified	Higher Swineshaw Reservoir	Goyt Etherow Tame	Moderate		n/a n/				Moderate	Good by 2027	N	N N	N N	N N	N	N h	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	 BRUSHES, WALKERWOOD & SWINESHAW HIGHER & Group 1 - Improved reservoir compensation release control BRUSHES, WALKERWOOD & SWINESHAW HIGHER & 	GB31232094 GB31232108	Lake Lake	Heavily modified Heavily modified	Lower Swineshaw Reservoir Brushes Reservoir	Goyt Etherow Tame Goyt Etherow Tame	Moderate Moderate		n/a n/ n/a n/				Moderate Moderate	Good by 2027 Good by 2027	N	N N	N N	N N	N	N h	N	N N	Y	N	No or minimal impact	N N		No or minimal impact No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD,	GB31232111	Lake	Heavily modified	Torside Reservoir	Goyt Etherow Tame	Moderate		n/a n/				Moderate	Good by 2027	N	N N	N N	N N	N N	N N	N N	N N	Y	N N	No or minimal impact	N N		No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - BRUSHES, WALKERWOOD & SWINESHAW HIGHER &	GB31232112	Lake	Heavily modified	Walkerwood Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a n/	a Gi	bood	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	N	N h	N	N N	Y	N	No or minimal impact	N		No or minimal impact
	Group 1 - Improved reservoir compensation release contro - LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, Group 1 - Improved reservoir compensation release contro	GB31232136	Lake	Heavily modified	Rhodeswood Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a n/	a G	bood	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	 LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, Group 1 - Improved reservoir compensation release control 	GB31232150	Lake	Heavily modified	Valehouse Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a n/	a Gi			Moderate	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Υ	N	No or minimal impact	N .		No or minimal impact
	 LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, Group 1 - Improved reservoir compensation release control LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, 	GB31232166 GB31232183	Lake Lake	Heavily modified Heavily modified	Arnfield Reservoir Audenshaw Reservoirs	Goyt Etherow Tame Bollin Dean Mersey Upper	Moderate Moderate	Good by 2027 Moderate by 2015	n/a n/ n/a n/	a Gi	ood		Moderate Moderate	Good by 2027 Moderate by 2015	N N	N N	N N	N N	N N	N N	N N	N N	Y	N N	No or minimal impact No or minimal impact	N N		No or minimal impact No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - Kinder	GB31232499	Lake	Heavily modified	Kinder Reservoir	Goyt Etherow Tame	Moderate		n/a n/	a Gi	ood		Moderate	Good by 2027	N	N N	N N	N N	N.	N N	N.	N N	Y	N	No or minimal impact	N N		No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - ERREOOD & FERNILEE Group 1 - Improved reservoir compensation release contro	GB31232950	Lake	Heavily modified	Fernilee Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a n/	a G	bood	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Υ	N	No or minimal impact	N		No or minimal impact
WR159	- ERREOOD & FERNILEE Group 1 - Improved reservoir compensation release contro	GB31233043	Lake	Heavily modified	Errwood Reservoir	Goyt Etherow Tame	Moderate		n/a n/	a G	bood		Moderate	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
	LAMALOAD Group 1 - Improved reservoir compensation release contro RIDGEGATE & TRENTABANK	GB31233063 GB31233247	Lake	Heavily modified Heavily modified	Lamaload Reservoir Trentabank Reservoir	Bollin Dean Mersey Upper Bollin Dean Mersey Upper	Moderate Moderate	Good by 2027 Good by 2027	n/a n/	a G	bod		Moderate Moderate	Good by 2027 Good by 2027	N N	N N	N N	N N	N N	N N	N N	N N	Y	N N	No or minimal impact No or minimal impact	N N		No or minimal impact No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - RIDGEGATE & TRENTABANK		Lake	Heavily modified	Ridgegate Reservoir	Bollin Dean Mersey Upper	Moderate	Good by 2027	n/a n/	a Gi			Moderate	Good by 2027	N	N N	N N	N N	N N	N N	N N	N N	Y	N	No or minimal impact	N N		No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - BOLLINHURST & HORSE COPPICE Group 1 - Improved reservoir compensation release contro	GB31247004	Lake	Heavily modified	Bollinhurst Reservoir	Bollin Dean Mersey Upper	Moderate	Good by 2027	n/a n/	a G	ood	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	BOLLINHURST & HORSE COPPICE Group 1 - Improved reservoir compensation release control	GB31247005	Lake	Heavily modified	Horse Coppice Reservoir	Bollin Dean Mersey Upper	Moderate		n/a n/				Moderate	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
	WET SLEDDALE Group 1 - Improved reservoir compensation release contro WARLAND	GB40202G102300		-	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers Aira & Caldar Carb Limestona / Millstona Grift / Coal Massuras	Eden and Esk Lower Palaeozoic and Carboniferous Aq	n/a	n/a		ood by 2015 Go	ood		Good	Good by 2015	N	N N	N N	N N	N	N N	N	N N	Y	N 	No or minimal impact	N N		No or minimal impact
***************************************	Group 1 - Improved reservoir compensation release contro - LIGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE	GB40402G700400		-	Aire & Calder Carb Limestone / Millstone Grit / Coal Measures. Aire & Calder Carb Limestone / Millstone Grit / Coal Measures.	Aire and Calder Carb Limestone - Millstone Grit Coal - Millstone G		n/a		ood by 2015 Po	oor oor		Poor	Poor by 2015 Poor by 2015	N	N N	N N	N N	N N	N N	N N	N N	Y	N N	No or minimal impact No or minimal impact	N N		No or minimal impact No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro – MITCHELLS HOUSE 1 & 2 Group 1 - Improved reservoir compensation release contro	GB41202G100300			Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a	n/a		ood by 2015 Po			Poor	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	- FISHMOOR TOTAL Group 1 - Improved reservoir compensation release contro	GB41202G100300	Groundwater	No designation	Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a	n/a	Good Go	ood by 2015 Po	oor	Good by 2027	Poor	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	- HURSTWOOD Group 1 - Improved reservoir compensation release contro	GB41202G100300	Groundwater	-	Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a	n/a		ood by 2015 Po			Poor	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
	– CANT CLOUGH Group 1 - Improved reservoir compensation release contro – SWINDEN 1 & 2	GB41202G100300 GB41202G100300	Groundwater Groundwater	-	Douglas, Darwen and Calder Carboniferous Aquifers Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq Douglas Darwen and Calder Carboniferous Aq	n/a n/a	n/a n/a		ood by 2015 Po	or	Good by 2027	Poor	Good by 2027 Good by 2027	N N	N N	N N	N N	N N	N N	N N	N N	Y	N	No or minimal impact No or minimal impact	N N		No or minimal impact No or minimal impact
	Group 1 - Improved reservoir compensation release contro - LANESHAW	GB41202G100300 GB41202G100300			Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a n/a	n/a n/a			or	Good by 2027	Poor	Good by 2027	N	N N	N N	N N	N N	N N	N.	N N	Y	N	No or minimal impact	N N		No or minimal impact
	Group 1 - Improved reservoir compensation release contro - COLDWELL UPPER & LOWER Group 1 - Improved reservoir compensation release contro	GB41202G100300	Groundwater		Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a	n/a		ood by 2015 Po	oor	Good by 2027	Poor	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	- OGDEN UPPER & LOWER Group 1 - Improved reservoir compensation release contro			-	Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a	n/a			oor	Good by 2027	Poor	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
	WAYOH, ENTWISTLE & JUMBLES Group 1 - Improved reservoir compensation release contro DELPH	GB41202G101800 GB41202G101800		-	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a n/a	n/a n/a		ood by 2015 Po	or	Good by 2027 Good by 2027	Poor	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact No or minimal impact	N N		No or minimal impact No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - SPRINGS DINGLE	GB41202G101800 GB41202G101800		-	Northern Manchester Carboniferous Aquifers Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq Manchester Northern Carboniferous Aq	n/a n/a	n/a n/a		ood by 2015 Po		Good by 2027	Poor	Good by 2027 Good by 2027	N N	N N	N N	N N	N N	N N	N N	. N	Y	N N	No or minimal impact No or minimal impact	N N		No or minimal impact No or minimal impact
	Group 1 - Improved reservoir compensation release contro – ASHWORTH MOOR Group 1 - Improved reservoir compensation release contro	GB41202G101800			Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a				Good by 2027	Poor	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	- GREENBOOTH & 2 NADENS Group 1 - Improved reservoir compensation release contro	GB41202G101800		-	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good Go	ood by 2015 Po	oor	Good by 2027	Poor	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Y	N	No or minimal impact	N		No or minimal impact
WR159	- SPRING MILL, WATERGROVE & COWM	GB41202G101800	Groundwater	No designation	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good Go	ood by 2015 Po	oor	Good by 2027	Poor	Good by 2027	N	N N	N N	N N	N	N N	N	N N	Υ	N	No or minimal impact	N		No or minimal impact

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Option		WFD Water Body Int	ormation												Option Detail	face	g 8	- is	a		y. =	t = a		- 8	no im	pacts				
															and water	ed surf	s static ed wat	reserw or iver	atervi	nantir Lantir	auface unface ion we	rbishm ion we surface	rantity Lantity	servol r relea	raisin					
															ne on l	modifi [e.g. r)	umpin, modifi ent we	orage utfall t	er of w	increa: wate ction q	ion of a rge to: rge to: bstract	/ refu bstract orks/ ires	increa: Iwater ction q	nsatio	kment	Lev	rel 2			
Ref	Option Name	ID	Type	Hydro - morphological Designation	WR Name	Operational Catchment	Ecological Sta	Ecological stus Objective	Quantitative Status	Quantitative	Chemical Status	Chemical Objective	Overall Status	Overall Objective	ipe lir ipe lir ourse	vater (few p	dew or	ransfe iver/	urface urface ibstrae	Sessati Ischar vater veren	Irilling dew al neadw tructu	round round ibstrac	Change compe	mp In	Scr vel 1 Screening Results Re-	reening quired? Level 2 Sc	Leve creening Results Conf	d 2 Screening lidence Combined Screening	ing Result
W/P150	Group 1 - Improved reservoir compensation release control - PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW,	GR41202G101900	Groundwater		Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N N	N N	N N	. <u></u>	N N	N N	N N	N.	v	N No	or minimal impact	N		No or minimal impac	
W/0150	Group 1 - Improved reservoir compensation release control - IIGHT HAZZIES WHITEHOLME & BLACKSTONE FDGE	GB41202G101800	Groundwater		Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027			N N	N N	A.I	N		N N	Al	·	No.	or minimal impact	N N		No or minimal impac	
WALIS	Group 1 - Improved reservoir compensation release control - CALF HEY, OGDEN (GRANE) & HOLDENWOOD	GB41202G101800		No designation	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027										,	N NO	or minimal impact			No or minimal impac	
WK159	Group 1 - Improved reservoir compensation release control - COWPE & CRAGG HOLES	GB41202G101800	Groundwater		Northern Manchester Carboniferous Aquifers Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq Manchester Northern Carboniferous Aq	nya	•	Good		Poor		Poor		N N	N	N N	N N	N	N .	N	N N	N		N NO	or minimal impact	N		No or minimal impac	
WR159	Group 1 - Improved reservoir compensation release control		Groundwater	No designation		,	n/a	n/a		Good by 2015	1001	Good by 2027		Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	et
WR159	 SCOUT MOOR Group 1 - Improved reservoir compensation release control 	GB41202G101800	Groundwater	No designation	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	
WR159	CLOUGH BOTTOM Group 1 - Improved reservoir compensation release control	GB41202G101800	Groundwater	No designation	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	
WR159	 CLOWBRIDGE Group 1 - Improved reservoir compensation release control 	GB41202G101800	Groundwater	No designation	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	ict
WR159	- POAKA BECK, PENNINGTON & HARLOCK Group 1 - Improved reservoir compensation release control	GB41202G102100	Groundwater	No designation	South Cumbria Lower Palaeozoic and Carboniferous Aquifers	Cumbria South Lower Palaeozoic and Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	ect
WR159	- LEVERS WATER Group 1 - Improved reservoir compensation release control	GB41202G102100	Groundwater	No designation	South Cumbria Lower Palaeozoic and Carboniferous Aquifers	Cumbria South Lower Palaeozoic and Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	ect
WR159	RIDGEGATE & TRENTABANK Group 1 - Improved reservoir compensation release control	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	act
WR159	LAMALOAD Group 1 - Improved reservoir compensation release control	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	act
WR159	CASTLESHAW UPPER & LOWER Group 1 - Improved reservoir compensation release control Group 1 - Improved reservoir compensation release control	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	act
WR159	- READYCON DEAN, CROOKGATE, DOWRY & NEW YEARS	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	act
WR159	Group 1 - Improved reservoir compensation release control - GREENFIELD VALLEY-GREENFIELD, YEOMAN HEY,	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	act
WR159	Group 1 - Improved reservoir compensation release control – BRUSHES, WALKERWOOD & SWINESHAW HIGHER &	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	act
WR159	Group 1 - Improved reservoir compensation release control - Kinder	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	act
WR159	Group 1 - Improved reservoir compensation release control - ERREOOD & FERNILEE	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impa	act
WR159	Group 1 - Improved reservoir compensation release control - BOLLINHURST & HORSE COPPICE	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	act
WR159	Group 1 - Improved reservoir compensation release control - LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD,	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	act
WR159	Group 1 - Improved reservoir compensation release control - CHURN CLOUGH	GB41202G103000	Groundwater	-	Ribble Carboniferous Aquifers	Ribble Carboniferous Ag	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	
W/P150	Group 1 - Improved reservoir compensation release control - STOCKS	GB41202G103000	Groundwater	No designation	Ribble Carboniferous Aquifers	Ribble Carboniferous Aq	0/9	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	N N	N.	N N	N N	N	N	N	N N	N		N No	or minimal impact	 N		No or minimal impo	200
W0160	Group 2 - Improved reservoir compensation release control - HAWESWATER	GB102076070720	River	Heavily modified	Haweswater Beck	Eamont	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027			N N	N N	A.I	N N		N N	Al	·	N Me	edium level of impact	V Minaria	el of impact High	Minor level of impac	
WANTOO	Group 2 - Improved reservoir compensation release control	GB102076070720 GB109054049880	nive:	Heavily modified		Severn Uplands		Good by 2021	-4-	11/a	6000			Good by 2021										,		edium level of impact	Million lev	el of impact Med		
WKIDU	VYRNWY Group 2 - Improved reservoir compensation release control RIVINGTON	GB109054049880 GB112070064850	River	Heavily modified	Vrynwy - Lake Vrynwy to conf Afon Cownwy Douglas - Linner		Moderate	Good by 2021	n/a	nya	Good	Good by 2015	Moderate	Good by 2021 Good by 2027	N N	N	N N	N N	N	N .	N	N N	N		N Me	edium level of impact	Y Minor lev	el of impact Med		
WR160	Group 2 - Improved reservoir compensation release control		River	,	0	Douglas OC			n/a	n/a	Good				N N	N	N N	N N	N	N	N	N N	N	Y	N Me	edium level of impact	Y Minor lev	of impact Med	ım Minor level of impac	.ct
WR160	 Thirlmere Group 2 - Improved reservoir compensation release control 	GB112075070430	River	Heavily modified	St John's Beck	Derwent	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N Me	edium level of impact	Y Minor lev	of impact High	Minor level of impac	ict
WR160	 HAWESWATER Group 2 - Improved reservoir compensation release control 	GB30229073	Lake	Heavily modified	Haweswater Reservoir	Eamont	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	ict
WR160	 VYRNWY Group 2 - Improved reservoir compensation release control 	GB30935568	Lake	Heavily modified	Llyn Efyrnwy	Severn Uplands	Moderate	Good by 2021	n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	
WR160	Thirlmere Group 2 - Improved reservoir compensation release control	GB31229021	Lake	Heavily modified	Thirlmere	Derwent	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	ect
WR160	RIVINGTON Group 2 - Improved reservoir compensation release control	GB31231288	Lake	Heavily modified	Rivington Reservoirs	Douglas OC	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	act
WR160	HAWESWATER Group 2 - Improved reservoir compensation release control	GB40202G102300	Groundwater	No designation	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Eden and Esk Lower Palaeozoic and Carboniferous Aq	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impar	act
WR160	VYRNWY Group 2 - Improved reservoir compensation release control	GB40902G205300	Groundwater	No designation	Severn Uplands- Lower Palaeozoic	Severn	n/a	n/a	Good	Good by 2015	Poor	Poor by 2015	Poor	Poor by 2015	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	act
WR160	RIVINGTON Group 2 - Improved reservoir compensation release control Group 2 - Improved reservoir compensation release control	GB41202G100300	Groundwater	No designation	Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	act
WR160	Thirlmere	GB41202G103700	Groundwater	No designation	Derwent and West Cumbria Lower Palaeozoic and Carboniferou	s Ar Derwent and Cumbria West Lower Palaeozoic and Carbo	nifi n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	N	N N	N N	N	N	N	N N	N	Y	N No	or minimal impact	N		No or minimal impac	act
WR821	Shropshire Union Canal	GB112068055340	River	No designation	Rookery Brook, Burland and Brindley Bk. To Weaver	Weaver Upper	Moderate	Good by 2021	n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	Y	Υ	N Y	N N	N	Υ	N	N N	N	N	N Me	edium level of impact	Y Minor les	el of impact Med	lium Minor level of impac	act
WR821	Shropshire Union Canal	GB112068060460	River	No designation	Weaver (Marbury Brook to Dane)	Weaver Upper	Poor	Good by 2027	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Y N	N	N N	N N	N	N	N	N N	N	N	N No	or minimal impact	N		No or minimal impac	act
WR821	Shropshire Union Canal	GB41202G991700	Groundwater	No designation	Weaver and Dane Quaternary Sand and Gravel Aquifers	Weaver and Dane Quaternary Sand and Gravel Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y N	Y	N Y	N N	Y	Y	N	N N	N	N	N Me	edium level of impact	Y Minor le	el of impact Low	Minor level of impac	act
WR821	Shropshire Union Canal	GB71210133	AWB - Canal	Artificial	Shropshire Union Canal, Market Drayton to Ellesmere Port	Weaver Upper Canals	Moderate	Good by 2021	n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	N N	Y	N N	N N	Y	Y	N	N N	N	N	N Me	edium level of impact	Y Minor le	el of impact Low	Minor level of impac	act
82	Enabling Works	GB109054049880	River	Heavily modified	Vrynwy - Lake Vrynwy to conf Afon Cownwy	Vrynwy	Moderate	Good by 2021	n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	Y N	N	N N	N N	N	N	N	N N	N	N	N No	or minimal impact	N		No or minimal impac	act
82	Enabling Works	GB109054049920	River	No designation	Hirnant - source to conf Afon Tanat	Tanat	Poor	Good by 2021	n/a	n/a	Fail	Good by 2021	Poor	Good by 2021	Y N	N	N N	N N	N	N	N	N N	N	N	N No	or minimal impact	N		No or minimal impac	
B2	Enabling Works	GB109054049960	River	No designation	Afon Tanat - conf Hirnant to conf Afon Rhaeadr	Tanat	Moderate	Good by 2021	n/a	n/a	Fail	Good by 2021	Moderate	Good by 2021	Y N	N	N N	N N	N	N	N	N N	N	N	N No	or minimal impact	N		No or minimal impac	act
p2	Enabling Works	GB109054050010	River	No designation	Oswestry Rk	Morda and Severn North Shronshire	Moderate	Good by 2021	n/a	n/a	Good	Good by 2021	Moderate	Good by 2027	v .	N.	N V	N N	N.	N	N	N N	N.	N.	N Sta	or minimal impact	N		No or minimal impac	
P2	Enabling Works Enabling Works	GB109054050010 GB109054050050	Piner	No designation	Afon Tanat - conf Afon Rhaeadr to conf Afon Vyrnwy	Tanat	Moderate	Good by 2021 Good by 2021	n/a n/a	n/a	Fail	Good by 2015 Good by 2021	Moderate	Good by 2027 Good by 2021	v	N AL	N N	N	Al	, re	N.	N N	Al	N.	N NO	or minimal impact	 N		No or minimal impac	
92	Enabling Works	GB109054050050	River	No designation	Afon Rhaeadr - source to conf Afon Tanat	Tanat	Moderate	Good by 2021	-/-		Good	Good by 2021	Moderate	Good by 2021 Good by 2021	v	N	14 M	at N		N N		N N	N AI		No	or minimal impact	 N		No or minimal impac	
82			River						nya	n/a					, N	N	N N	rs N	N	N	TV	N N	N	TV.	No.		N			
82	Enabling Works	GB109054055050	River	No designation	Afon lwrch - source to conf Afon Tanat	Tanat	Moderate	Good by 2021	n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	Y N	N	N N	N N	N	N	N	n N	N	N	N No	or minimal impact	N		No or minimal impac	
B2	Enabling Works	GB109054055060	Nivei	No designation	Afon Cynllaith - source to conf Afon Tanat	Tanat	Moderate	Good by 2021	n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	Y	N	N N	N N	N	N	N	N N	N	N	N No	or minimal impact	N		No or minimal impac	
B2	Enabling Works	GB109054055070	River	No designation	Morda - source to conf unnamed trib	Morda and Severn North Shropshire	Moderate	Good by 2021	n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	Y	N	N N	N N	N	N	N	N N	N	N		or minimal impact	N		No or minimal impac	
82	Enabling Works	GB40902G205300	Groundwater	No designation	Severn Uplands - Lower Palaeozoic	Severn Uplands - Lower Palaeozoic	n/a	n/a	Good	Good by 2015	Poor	Poor by 2015	Poor	Poor by 2015	Y N	N	N N	N N	N	N	N	N N	N	N	N No	or minimal impact	N		No or minimal impac	
B2	Enabling Works	GB40902G205400	Groundwater	No designation	Severn Uplands - Carboniferous Oswestry	Severn Uplands - Carboniferous Oswestry	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	Y	N	N Y	N N	N	N	N	N N	N	N	N No	or minimal impact	N		No or minimal impac	ict

Appendix H Water Body Cumulative Assessment for Preferred Plan Options at Draft WRMP Stage

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WFD Water Body Info	rmation			Option	Option Detai	ail												Impacts						
		Hydro - morphological			pe line on land	pe line with water course ossings	ew / modified surface water .g. river) intake	ew pumping station ew / modified water eatment works	ew storage reservoir	ew outfall to river / reservoir canal / aqueduct 	ew / increased surface water ostraction quantity	essation of exisiting discharge surface water	ew abstraction well drilling / :furbishment	ew abstraction well aadworks / surface structures	ew / increased groundwater ostraction quantity	ompensation release	lising		Level 2 Screening		Level 2 Screening	Combined Screening		Cumulative Screening
ID	Туре	Designation	WB Name	Ret Option Name		Z 5	2 3 2	z z 5	z	Z	2 76	3 2	2 2	zē ;	2 70 0	5 8 Z	: 2	Level 1 Screening Results	Required?	Level 2 Screening Results	Confidence	Result	Cumulative Assessment	Results
			Vrynwy - Lake Vrynwy to	WR160 Group 2 - Improved reservoir compensation release control VYRNWY	I- N	N	N	N N	N	N N	N	N	N	N	N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	Reduction of compensation flow from Vyrnwy reservoir from 48.4 MI/d to 45.0 MI/d, a reduction of 3.4 MI/d. Pipe line construction.	
GB109054049880	River	Heavily modified	conf Afon Cownwy	B2 Enabling Works	Y	N	N	N N	N	N N	N	N	N	N	N	N	N	No or minimal impact	N			No or minimal impact	The cumulative effect of the two options will not ncrease the level of impact on the water body, as the activities in each option freduction in compensation flow and pipe line construction) will not interact to produce a cumulative effect.	Minor level of impact
				WR113 Tytherington Boreholes	Y	N	N	N Y	N	N N	N	N	Y	Y	Y	N	N I	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact	Increased peak abstraction quantity of 3 M/d at refurbished Tytherington Boreholes (within current licence quantities), and reduction of compensation flow from Ridgegate and Trentabank reservoirs from 2.1 Ml/d to 1.8 Ml/d, a reduction of 0.3 Ml/d (consented compensation flows maintained). The ALS shows that the part of the surface water body which contains the reservoirs and their upstream	
GB112069061320	River	Heavily modified	Bollin (Source to Dean)	WR159 Group 1 - Improved reservoir compensation release control RIDGEGATE & TRENTABANK	I- N	N	N	N N	N	N N	N	N	N	N	N	Y	N	Medium level of impact	Υ	Minor level of impact	Medium	Minor level of impact	act memts has no water available at any flows. Downstream of the reservoirs, the water body has water available at all flows. The cumulative effect of the two options will not increase the level of impact on the water body, due to the availability of water, the small reduction in compensation flows, and that the increase in peak abstraction is within current licensed quantities with no increase in annual average abstraction.	Minor level of impact
				WR114 Python Mill Borehole	Y	N	N	N N	N	N N	N	N	Y	Y	Y	N	N I	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact	Increased peak abstraction quantity of 3 MI/d at refurbished Python Mill Boreholes, and reduction of compensation flow from Watergrove reservoir from 18.9 MI/d to 18.0 MI/d, plus a reduction of compensation flow from Blackstone Edge Reservoir from 16.8 MI/d to 15.7 MI/d, a combined reduction of 2 MI/d. (Note: Total reduction for the reservoir Aquator groups assumed to take place in this water body.)	
GB112069064720	River	Heavily modified	Roch (Source to Spodden)	Group 1 - Improved reservoir compensation release control WR159 SPRING MILL, WATERGROVE & COWM	I- N	N	N	N N	N	N N	N	N	N	N	N	Y	N I	Medium level of impact	Y	Minor level of impact	High	Minor level of impact	The ALS shows that the surface water body has no water available at any flow. No groundwater management unit is defined for this area. The cumulative effect of the two options will not increase the level of impact on the water body, as the total potential reduction in water in the water body (5 Ml/d) remains moderate. Total flows are unlikely to reduce by 5 Ml/d as the full reduction from the Aquator group has been assumed to take place in this water body, and not all	Medium level of impact
				Group 1 · Improved reservoir compensation release control UGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE	I- N	N	N	N N	N	N N	N	N	N	N	N	Y	N I	Medium level of impact	Y	Minor level of impact	High	Minor level of impact	of the groundwater abstraction is likely to be translated to a reduction in surface water flows. Increased peak abstraction quantity of 4 MI/d at refurbished Worsthorne Boreholes (within current licence quantities), and reduction of compensation flow from Hurstwood, Cant Clough, and Swinden reservoirs from 9.1 MI/d to 8.1 MI/d, a reduction of 1.0 MI/d. (Note: Total reduction for the reservoir Aputor group assumed to take	
GB112071065090	River	Heavily modified	Brun - headwaters to conf	WR099b Worsthorne Borehole (Hurstwood IR) Group 1 - Improved reservoir compensation release control HURSTWOOD	I- N	N N	N	N N	N N	Y N	N	N	Y	Y	Y	N	N I	Medium level of impact Medium level of impact		Minor level of impact Minor level of impact	Medium	Minor level of impact Minor level of impact	The ALS shows that part of the surface water body. The ALS shows that part of the surface water body that contains the Swinden reservoirs and their upstream catchment has no water available at any flows. The part of the surface water body that contains the Hurstwood and Cant Clough reservoirs and their upstream catchments has water available at low flows (DSS and QZI), but no water available at higher flows (QSS) and QZI). The reservoirs are the reservoirs and their upstream catchments has water available at low flows (DSS and QZI). The reservoirs water available at higher flows (QSS) and QZI). The remaining part of the catchment, downstream of the reservoirs	
			Don	Group 1 - Improved reservoir compensation release control CANT CLOUGH	I- N	N	N	N N	N	N N	N	N	N	N	N	Y	N I	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	and where the abstraction is located has water available at low flows (Q35), limited water available at medium flows (Q70), and no water available at higher flows (Q50 and Q30). It is likely that compensation flows from the reservoirs are supporting the low flow water availability. The cumulative effect of the two options will not increase the level of impact on the water body, due to the availability of water at low flows, that there are unlikely to be strong dependencies between the secondary aquifer	
				Group 1 - Improved reservoir compensation release control SWINDEN 1 & 2	I- N	N	N	N N	N	N N	N	N	N	N	N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	and the surface watercourses, the small reduction in compensation flows, and that the increase in peak abstraction is within current licensed quantities. Reduction of compensation flow from Wet Sieddale and Haweswater reservoirs from 7.8 MI/d to 7.4 MI/d and 24.0	
GB40202G102300	Groundwater	No designation	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Group 1 - Improved reservoir compensation release control WET SLEDDALE	I - N	N	N	N N	N	N N	N	N	N	N	N	Y	N	No or minimal impact	N			No or minimal impact	MI/d to 21.8 MI/d respectively, a total reduction of 2.6 MI/d. The cumulative effect of the two options will not increase the level of impact on the groundwater body. The small reductions in compensation flows are unlikely to reduce the wetted area of the reservoirs or downstream water courses (assuming that low flow compensation released are maintained), therefor any impact on groundwater surface water interaction on this secondary aquifer would be minimal.	No or minimal impact
				Group 2 - Improved reservoir compensation release control HAWESWATER Group 2 - Improved reservoir compensation release control	N	N	N	N N	N	N N	N	N	N	N	N	Y	N	No or minimal impact	N			No or minimal impact	Reduction of compensation flow from Vyrmwy reservoir from 48.4 MI/d to 45.0 MI/d, a reduction of 3.4 MI/d. Pipe	
GB40902G205300	Groundwater	No designation	Severn Uplands - Lower Palaeozoic	WR160 VYRNWY	N	N	N	N N	N	N N	N	N	N	N	N	Y	N	No or minimal impact	N			No or minimal impact	line construction. The cumulative effect of the two options will not increase the level of impact on the water body, as the activities in each option (reduction in compensation flow and pipe line construction) will not interact to produce a cumulative effect.	No or minimal impact
				B2 Enabling Works WR099b Worsthorne Borehole (Hurstwood IR) Group 1 - Improved reservoir compensation release control MITCHELIS HOUSE 1 & 2	Y I - N	N N	N N	N N	N N	Y N	N N	N	Y	Y N	Y	N Y	N I	No or minimal impact Medium level of impact No or minimal impact	Y N	Minor level of impact	Medium	Minor level of impact No or minimal impact	Increased peak abstraction quantity of 4 MI/d at refurbished Worsthorne Boreholes (within current licence	
			Douglas, Darwen and	Group 1 - Improved reservoir compensation release control FISHMOOR TOTAL Group 1 - Improved reservoir compensation release control HURSTWOOD Group 1 - Improved reservoir compensation release control Group 1 - Improved reservoir compensation release control	N I- N	N N	N N	N N	N N	N N	N N	N N	N N	N N	N N	Y	N N	No or minimal impact	N N			No or minimal impact No or minimal impact	quantities), and reduction of compensation flow from: - Mitchells House 1.8 2 from 0.4 MI/d to 0.3 MI/d, - Fishmoor from 2.0 MI/d to 1.7 MI/d, - Furstwood, Cant Clough, Swinden 1.8. 2, Laneshaw, Coldwell (upper & lower), Ogden (upper & lower) from 9.1 MI/d to 8.1 MI/d, and - Rivington 26.6 MI/d to 24.7 MI/d.	
GB41202G100300	Groundwater	No designation	Calder Carboniferous Aquifers	WR159 CANT CLOUGH Group 1 - Improved reservoir compensation release control WR159 SWINDEN 1 & 2 Group 1 - Improved reservoir compensation release control LANESHAW	N	N N	N N	N N	N N	N N N	N N	N N	N N	N N	N N	Y	N N	No or minimal impact No or minimal impact No or minimal impact	N N N			No or minimal impact No or minimal impact No or minimal impact	This is a total compensation flow reduction of 3.3 MI/d. Note: Total reduction for the reservoir Aquator group assumed to take place in this groundwater body. The cumulative effect of the three options will not increase the level of impact on the groundwater body beyond the minor level of impact assigned to WR099b. The relatively small reductions in compensation flows from options WR159 and WR150 (which are spread across a number of surface water bodies overlying the groundwater body)	Minor level of impact
				Group 1 - Improved reservoir compensation release control COLDWELL UPPER & LOWER Group 1 - Improved reservoir compensation release control OGDEN UPPER & LOWER Group 2 - Improved reservoir compensation release control Compensation release release release release release release	N I- N	N N	N N	N N	N N	N N	N	N	N N	N N	N	Y	N N	No or minimal impact No or minimal impact	N N			No or minimal impact	are unlikely to reduce the wetted area of the reservoirs or downstream water courses (assuming that low flow compensation released are maintained), therefor any impact on groundwater surface water interaction on this secondary aquifer would be minimal.	
				WR160 RIVINGTON WR114 Python Mill Borehole Group 1 - Improved reservoir compensation release control	N Y	N N	N	N N	N	Y Y	N	N	Y	Y	Y	N	N N	No or minimal impact Medium level of impact	N Y	Medium level of impact	Low	No or minimal impact Medium level of impact		
				WR159 WAYOH, ENTWISTLE & JUMBLES Group 1 - Improved reservoir compensation release control WR159 DELPH	N	N	N N	N N	N N	N N	N N	N	N	N N	N N	Y	N N	No or minimal impact	N N			No or minimal impact		

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WFD Water Body In	ormation			Option		Option De	etail														Impacts						
<u>ID</u>	Туре	Hydro - morphological Designation	WB Name	Ref	Option Name	Pipe line on land	Pipe line with water course crossings	New / modified surface water (e.g. river) intake	New pumping station	New / modified water treatment works New storage reservoir	Nous outfall to sing / rossonsis	New outfail to fiver / reservoir / canal / aqueduct Transfer of water via river /	canal / aqueduct	abstraction quantity Cessation of exisiting discharge	to surface water New abstraction well drilling /	refurbishment New abstraction well	headworks / surface structures	abstraction quantity Changed to reservoir	compensation release	New reservoir / embankment raising	Level 1 Screening Results	Level 2 Screening Required?	Level 2 Screening Result	Level 2 Screening s Confidence	Combined Screening Result	Cumulative Assessment	Cumulative Screening Results
				WR159	Group 1 - Improved reservoir compensation release control – SPRINGS DINGLE	N	N	N	N	N	N	N	N	N	N	N	N	N	Υ	N	No or minimal impact	N			No or minimal impact		
				WR159	Group 1 - Improved reservoir compensation release control – ASHWORTH MOOR	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	No or minimal impact	N				Increased peak abstraction quantity of 3 MI/d at refurbished Python Mill Boreholes, and reduction of compensation flow from: - Wayoh, Entwistle, Jumbles, Delph, Springs Dingle (Bolton IR's) from 24.3 MI/d to 23.6 MI/d,	
				WR159	Group 1 - Improved reservoir compensation release control – GREENBOOTH & 2 NADENS	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	No or minimal impact	N			No or minimal impact	 - Ashworth Moor, Greenbooth, 2 Nadens, Spring Mill, Watergrove, Cowm (Rochdale) from 18.9 MI/d to 18.0 MI/d, - Piethorne, Norman Hill, Kitcliffe, Ogden Milnrow, Hanging Lees, Rooden, Light Hazzles, Whiteholme, Blackstone - Edge (Oldham) from 16.8 MI/d to 15.7 MI/d, and 	
GB41202G101800	Groundwater	No designation	Northern Manchester	WR159	Group 1 - Improved reservoir compensation release control – SPRING MILL, WATERGROVE & COWM	N	N	N	N	N	N	N	N	N	N	N	N	N	Υ	N	No or minimal impact	N			No or minimal impact	- Calf Hey, Ogden (Grane), Holdenwood, Cowpe, Cragg Holes, Scout Moor, Clough Bottom and Clowbridge (Rossendale) from 11.3 MI/d to 9.8 MI/d.	Medium level of impact
			Carboniferous Aquifers	WR159	Group 1 - Improved reservoir compensation release control – PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW, HANGING LEES & ROODEN	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	No or minimal impact	N			No or minimal impact	This is a total reduction in compensation flows of 4.2 Ml/d. (Note: Total reduction for each reservoir Aquator group assumed to take place in within this groundwater body).	
				WR159	Group 1 - Improved reservoir compensation release control – LIGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE	N	N	N	N	N	N	N	N	N	N	N	N	N	Υ	N	No or minimal impact	N			No or minimal impact	The cumulative effect of the two options will not increase the level of impact on the groundwater body beyond the medium level of impact assigned to WR114. The relatively small reductions in compensation flows from option WR159 (which are spread across a number of surface water bodies overlying the groundwater body) are unlikely to reduce the wetted area of the reservoirs or downstream water courses (assuming that low flow compensation	
				WR159	Group 1 - Improved reservoir compensation release control – CALF HEY, OGDEN (GRANE) & HOLDENWOOD	N	N	N	N	N	N	N	N	N	N	N	N	N	Υ	N	No or minimal impact	N			No or minimal impact	released are maintained), therefor any impact on groundwater surface water interaction on this secondary aquifer would be minimal.	
				WR159	Group 1 - Improved reservoir compensation release control – COWPE & CRAGG HOLES	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	No or minimal impact	N			No or minimal impact		
				WR159	Group 1 - Improved reservoir compensation release control – SCOUT MOOR	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	No or minimal impact	N			No or minimal impact		
				WR159	Group 1 - Improved reservoir compensation release control – CLOUGH BOTTOM	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	No or minimal impact	N			No or minimal impact		
				WR159	Group 1 - Improved reservoir compensation release control – CLOWBRIDGE	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	No or minimal impact	N			No or minimal impact		

Appendix I Operational Catchment Cumulative Assessment for Preferred Plan Options at Draft WRMP Stage

06/08/2018

Catchment	WFD Water Body Infor	rmation		Option	Op	Option Detail	l					• -				Impacts						
						Silico	ace water	c	يز ة	/reservoir ariver/	face water	g discharg	structure undwater		ankment							
					pug g	n land ith water	alfied surf	aing statio	dified wat works ge reservo	Il to river, queduct fwater via seduct	eased sur	of exisiting water action well	action we s / surface eased gro	r quantity reservoii tion releas	voir / emb							
Operational Catchment	ID.	Type	Hydro - morphologica Designation	Il WB Name Ref	Ontion Name	o e line o	rossings rossings lew/moc	dew pump	lew / moc reatment lew stora	Jew outfal canal / ac ransfer of anal / aqu	lew / incr bstractior	essation of surface lew abstraefurbishm	lew abstra leadworks	bstraction hanged to ompensal	Jew reserv aising	Level 1 Screening Results	Level 2 Screening Required?	Level 2 Screening Results	Level 2 Screening Confidence	Combined Screening Result	Cumulative Assessment	Cumulative Screening Results
Catchinent	GB112071065130	River	Heavily modified	Walverden Water WR15	Group 1 - Improved reservoir compensation release	ı N	N N	N	N N	N N	N N	N N	N N	y Y	N N	Medium level of impact	Y	Minor level of impact	Medium	Combined Screening Result Minor level of impact		Cumulative Screening results
					control – COLDWELL UPPER & LOWER																Reduction of compensation flow from Coldwell Upper and Lower, Laneshaw, and Ogden Upper and Lower reservoirs from 9.1 Ml/d to 8.1 Ml/d, a reduction of 1.0 Ml/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this catchment.)	
Colne Water	GB112071065210	River	Heavily modified	Colne Water (Laneshaw) WR15	Group 1 - Improved reservoir compensation release control – LANESHAW	l N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	High	Minor level of impact	The cumulative effect of the reduction of compensation flows from multiple reservoirs located in three water bodies in this operational catchment will not increase the level of impact in the operational catchment as a whole. This is because the individual water body assessments assumed a worst case compensation flow reduction for each water body. As the reservoirs are all in the	Minor level of impact
	GB112071065230	River	No designation	Pendle Water - headwaters to Colne Water WR15	Group 1 - Improved reservoir compensation release control – OGDEN UPPER & LOWER	l N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	High	Minor level of impact	same Aquator group the worst case reduction applies to the operational catchment as a whole.	
	170	River	No designation	Non reportable water body to north of River Mersey WR10	e Bold Heath Boreholes to Prescot WTW Y	Y Y	N	N	N N	N N	N	N Y	Y Y	N	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact		
Sankev	GB112069060990	River	Heavily modified	Whittle Brook (Mersey Estuary) WR10.	e Bold Heath Boreholes to Prescot WTW Y	N	N	N	N N	N N	N	N N	N N	N	N	No or minimal impact	N			No or minimal impact	New groundwater abstraction of 6.5 to 9 MI/d peak capacity from the Bold Heath boreholes, plus pipe line construction activities. The cumulative effect of the activities within the four water bodies within this operational catchment will not increase the level of	Minor level of impact
	GB112069061170	River	Heavily modified	Sutton Brook WR10.	e Bold Heath Boreholes to Prescot WTW Y	, <mark>Y</mark>	N	N	N N	N N	N	N N	N N	N	N	Minor level of impact	N			Minor level of impact	impact on the operational catchment as a whole. This is because an increase in abstraction quantity only occurs in one water body, and pipe line construction in several water bodies will not have a prolonged or widespread impact.	, , , , , , , , , , , , , , , , , , , ,
	GB112069061210	River	Heavily modified	Hardshaw (Windle) Brook WR10.	e Bold Heath Boreholes to Prescot WTW Y	N	N	N	N N	N N	N	N N	N N	N	N	No or minimal impact	N			No or minimal impact		
	GB40402G700400	Groundwater	No designation	Aire & Calder Carb Limestone / Millstone Grit / Coal Measures.	Group 1 - Improved reservoir compensation release control – WARLAND	l N	N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N			No or minimal impact	Reduction of compensation flow from Warland, White Holme, Blackstone Edge and Light Hazzles reservoirs from 16.8 MI/d to 15.7	
Aire and Calder Carb Limestone -																					MI/d, a reduction of 1.1 MI/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this operational catchment.)	No or minimal impact
Millstone Grit Coa - Measures																					The cumulative effect of the two options will not increase the level of impact on the groundwater operational catchment. The small reductions in compensation flows are unlikely to reduce the wetted are of the reservoirs or downstream water course; fassuming that low flow compensation released are maintained), therefore any impact on groundwater surface water interaction on this secondary augiter would be minimal.	
	GB40402G700400	Groundwater	No designation	Aire & Calder Carb Limestone / Millstone Grit / Coal Measures.	Group 1 - Improved reservoir compensation release control – LIGHT HAZZLES, WHITEHOLME & BLACKSTONE N	I N	N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N			No or minimal impact	securidary aquirer would be minimal.	
	GB112069060650	River	Heavily modified	Dean (Lamaload to Bollington) WR15	Group 1 - Improved reservoir compensation release control – LAMALOAD	ı N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	Increased peak abstraction quantity of 3 MI/d at refurbished Tytherington Boreholes (no overall increase in licence quantity), plus	
	GB112069060920	River	Heavily modified	Micker (Norbury) Brook WR15	Group 1 - Improved reservoir compensation release control – BOLLINHURST & HORSE COPPICE	ı N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Υ	Minor level of impact	Medium	Minor level of impact	_eduction of compensation flow from: - Ridgegate, Trentabank, and Lamaload reservoirs from 2.1 MJ/d to 1.8 MJ/d, - Bollinhurst and Horse Coppice reservoirs from 16.9 MJ/d to 15.5 MJ/d, and	
Bollin Dean					Group 1 - Improved reservoir compensation release														-		- Audenshaw 1, 2 and 3 reservoirs from 48.6 MI/d to 45.4 MI/d. This would be a total reduction in compensation flow of 4.9 MI/d. Note: Total reduction for each reservoir Aquator group assumed to	
Mersey Upper	GB112069061060	River	Heavily modified	Platt Brook (Source to Fallowfield Bk) WR15:	RHODESWOOD, VALEHOUSE, BOTTOMS & ARNFIELD) & AUDENSHAW 1, 2 & 3	I N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	take place in this operational catchment. The cumulative effect of the reduction of compensation flows from multiple reservoirs located in multiple water bodies in this	Minor level of impact
	GB112069061320	River	Heavily modified	Bollin (Source to Dean) WR11	Tytherington Boreholes Y	N	N	N	Y N	N N	N	N Y	Y Y	N	N	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact	operational catchment, plus the potential reduction in baseflow due to increased groundwater abstraction at Tytherington is not anticipated to increase the level of the same than the same that th	
	GB112069061320	River	Heavily modified	Bollin (Source to Dean) WR15	Group 1 - Improved reservoir compensation release control – RIDGEGATE & TRENTABANK	l N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	and the As a investigation into nearby morouned water bodies (minws). Assolute assessments for with a precaduonary (total reduction for each reservoir Aquator group assumed to take place in this operational catchment).	
	GB112072065760	River	No designation	Woodplumpton Brook WR10	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	ı N	N	N	N N	N N	N	N Y	Y Y	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact		
Brock and Trib	GB112072065790	River	No designation	New Draught Brook WR10	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	l N	N	N	N N	N N	N	N Y	Y Y	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact	Increased abstraction of 30 MI/d [from approximately 98 MI/d recent use, to approx. 128 MI/d], split across several Franklaw and troughton borehoel sites. The increased abstraction quantity is within the current licence quantity for the borehole group (maximum aggregated daily peak of 190 MI/d).	Medium level of impact
Brock and Trib	GB112072065800	River	No designation	Barton (Westfield) Brook WR10	Franklaw Z Site plus Increased Franklaw WTW Treatment	ı N	N	N	N N	N N	N	N Y	Y Y	N	N	Medium level of impact	Υ	Medium level of impact	Low	Medium level of impact	The cumulative effect of the increased abstraction in several water bodies will not increase the level of impact in the operational catchment as a whole. This is because due to a lack of information about at which borehole sites the increase in abstraction would occur, a worst case abstraction increase was assumed for each individual water body.	Medium level of impact
					Capacity																OCCUI, a WUIST Case abstraction increase was assumed for each michigual water doby.	
	GB112072065810	River	No designation	Brock WR10	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	I N	N	N	Y N	N N	N	N Y	Y Y	N	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact		
	GB112071065040	River	Heavily modified	Hyndburn WR15	Group 1 - Improved reservoir compensation release control – MITCHELLS HOUSE 1 & 2	l N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact		
	GB112071065090	River	Heavily modified	Brun- headwaters to conf Don WR09	b Worsthorne Borehole (Hurstwood IR)	N	N	N	N N	Y N	N	N Y	Y Y	N	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	Increased peak abstraction quantity of 4 MI/d at refurbished Worsthorne Boreholes (within current licence quantities), and reduction of compensation flow from:	
	GB112071065090	River	Heavily modified	Brun - headwaters to conf Don WR15	Group 1 - Improved reservoir compensation release	ı N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	- Mitchels House reservoirs from 0.4 Mild to 0.3 Mild, and - Hurstwood, Cant Clough, Swinden 1.8.2 and Churn Clough reservoirs from 9.1 Mild to 8.1 Mild. This would be a total reduction in compensation flow of 1.2 Mild. Note: Total reduction for each reservoir Aquator group assumed to	
Calder	GB112071065090	River	Heavily modified	Brun - headwaters to conf Don WR15	Group 1 - Improved reservoir compensation release		8.4	p.i	N a	N A	p.i	N N	N .	v	p.i	Medium level of impact	v	Minor level of impact	Medium	Minor level of impact	The cumulative effect of the two options in the three water bodies in this operational catchment will not increase the level of impact	Minor level of impact
					control – CANT CLOUGH	. IN	114		T IN	N	14		To Do		-	•		•			on the operational catchment as a whole. This is due to the availability of water at low flows, that there are unlikely to be strong dependencies between the secondary aquifer and the surface watercourses, the relatively small reduction in compensation flows, and that the increase in peak abstraction is within current licensed quantities.	
	GB112071065090	River	Heavily modified	Brun - headwaters to conf Don WR15	control – SWINDEN 1 & 2	4 N	N	N	N N	N N	N	N N	N N	Υ	N	Medium level of impact	1	Minor level of impact	Medium	Minor level of impact	-	
	GB112071065140	River	No designation	Sabden Brook WR15	control – CHURN CLOUGH	l N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact		
	GB112069064570	River	Heavily modified	Eagley Brook WR15	Group 1 - Improved reservoir compensation release control – DELPH	l N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact		
	GB112069064570	River	Heavily modified	Eagley Brook WR15	Group 1 - Improved reservoir compensation release control – SPRINGS DINGLE	l N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact		
	GB112069064580	River	Heavily modified	Bradshaw Brook WR15	Group 1 - Improved reservoir compensation release control – WAYOH, ENTWISTLE & JUMBLES	l N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	Reduction of compensation flow from the following reservoirs: - Delph, Springs Dingle, Wayoh, Entwistle and Jumbles reservoirs from 24.3 Ml/d to 23.6 Ml/d, and	
	GB112069064620	River	Heavily modified	Irwell (Rossendale STW to Roch) WR15	Group 1 - Improved reservoir compensation release control – SCOUT MOOR	l N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact		
Croal Irwell	GB112069064650	River	Heavily modified	Ogden WR15	Group 1 - Improved reservoir compensation release control – CALF HEY, OGDEN (GRANE) & HOLDENWOOD	ı N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	The cumulative effect of the reduction of compensation flows from multiple reservoirs located in seven water bodies in this catchment will not increase the level of impact in the operational catchment as a whole. This is because the reservoirs form part of two Aquator Groups only, and a worst case flow reduction was assumed for each water body. The total reduction in compensation	Minor level of impact
	GB112069064660	River	Heavily modified	Irwell (Source to Whitewell Brook) WR15	Group 1 - Improved reservoir compensation release control – COWPE & CRAGG HOLES	ı N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	flow is relatively small, and the ALS indicates that there is some water availability in most of the catchment.	
	GB112069064670	River	Heavily modified	Whitewell Brook WR15	Group 1 - Improved reservoir compensation release	ı N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Υ	Minor level of impact	Medium	Minor level of impact		
	GB112069064680	River	Heavily modified	Limy Water WR15	Group 1 - Improved reservoir compensation release	Į N	N	N	N N	N N	N	N N	N M	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	1	
		iuse.		Wr.15:	control – CLOWBRIDGE		14		110	100								or icrei of impact	incalum	or ever of impact		

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Catchment	WFD Water Body Infor	rmation		Option		Option Detail	ı									Impacts						
Operational Catchment	ID	Туре	Hydro - morphological Designation	W8 Name Ref	Option Name	Pipe line on land	ripe ine with water course crossings New / modified surface water (e.g. river) intake	New pumping station	New / modified water treatment works New storage reservoir	New outfall to river / reservoir / canal / aqueduct Transfer of water via river /	New / increased surface water abstraction quantity	Cessation of existing discharge to surface water New abstraction well drilling / refurbishment	New abstraction well head works / surface structures New / increased groundwater	Changed to reservoir compensation release	New reservoir / embankment raising	Level 1 Screening Results	Level 2 Screening Required?	Level 2 Screening Results	Level 2 Screening Confidence	Combined Screening Result	Cumulative Assessment Cumu	nulative Screening Results
	GB41202G102100	Groundwater	No designation	South Cumbria Lower Palaeozoic and Carboniferous Anuifers WR159	Group 1 - Improved reservoir compensation release control – POAKA BECK, PENNINGTON & HARLOCK	N N	N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N			No or minimal impact	Reduction of compensation flow from Poaka Beck, Pennington, Harlock and Levers Water reservoirs from 2.9 MI/d to 2.6 MI/d, a reduction of 0.3 MI/d.	
Cumbria South Lower Palaeozoic and Carboniferous Aq	GB41202G102100	Groundwater	No designation	South Cumbria Lower Palaeozoic and Carboniferous Aquifers WR159		N N	I N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N			No or minimal impact	The cumulative effect of the reduction in compensation flows will not increase the level of impact on the groundwater operational catchment. The small reductions in compensation flows are unlikely to reduce the wetted area of the reservoirs or downstream water courses (assuming that low flow compensation released are maintained), therefore any impact on groundwater surface water interaction on this secondary aquifer would be minimal.	No or minimal impact
	GB102076070690	River	Heavily modified	Lowther (Upper) WR159	Group 1 - Improved reservoir compensation release control – WET SLEDDALE	N N	I N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Υ	Minor level of impact	High	Minor level of impact	Reduction of compensation flow from Wet Sleddale and Haweswater reservoirs from 7.8 MI/d to 7.4 MI/d, and 24.0 MI/d to 21.8 MI/d respectively, a total reduction of 2.6 MI/d.	
Eamont	GB102076070720	River	Heavily modified	Haweswater Beck WR160	Group 2 - Improved reservoir compensation release control – HAWESWATER	N N	l N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	High	Minor level of impact	The cumulative effect of the reduction of compensation flows from two reservoirs located in two water bodies in this operational catchment will not increase the level of impact on the operational catchment as a whole. This is because of the relatively small decrease in compensation flows compared to the total compensation flow somewhich will be maintained (22 AM/d), and that HAW8 investigations undertaken by UU and the EA have not identified any issues with compensation releases from either reservoir.	Minor level of impact
	GB112069060780	River	Heavily modified	Etherow (Woodhead Res. to Glossop Bk.) WR159	Group 1 - Improved reservoir compensation release control – LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, VALEHOUSE, BOTTOMS & ARNFIELD) & AUDENSHAW 1, 2 & 3	N N	I N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	High	Minor level of impact		
	GB112069060850	River	Heavily modified	Goyt (Source to Randall Carr Brook) WR159	Group 1 - Improved reservoir compensation release control – ERREOOD & FERNILEE	N N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact		
	GB112069060970	River	No designation	Sett WR159	Group 1 - Improved reservoir compensation release control – Kinder	N N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	High	Minor level of impact	Reduction of compensation flow from the following reservoirs: - Woodhead, Torside, Rhodeswood, Valehouse, Bottoms & Amfield) and Audenshaw 1, 2 & 3 reservoirs from 48.6 MI/d to 45.4 MI/d, a reduction of 3.2 MI/d. - Errowod, Femile, and Kinder from 16.9 MI/d to 15.5 MI/d, a reduction of 1.4 MI/d.	
Goyt Etherow Tame	GB112069061111	River	Heavily modified	Tame (Chew Brook to Swineshaw Brook) WR159	Group 1 - Improved reservoir compensation release control - BRUSHES, WALKERWOOD & SWINESHAW HIGHER & LOWER Group 1 - Improved reservoir compensation release	N N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	- Brushes, Walkerwood, Swineshaw (higher & lower), Greenfield Valley- Greenfield, Yeoman Hey, Dovestone and Chew from 20.7 M/l/d to 19.5 M/l/d, a reduction of 1.2 M/l/d Castleshaw (upper & lower), Readycon Dean, Crookgate, Dowry and New Years Bridge from 16.8 M/l/d to 15.7 M/l/d, a reduction of 1.1 M/l/d. A total reduction of 1.1 M/l/d.	Minor level of impact
	GB112069061112	River	Heavily modified	Tame (Swineshaw Brook to Mersey) WR159	control – LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, VALEHOUSE, BOTTOMS & ARNFIELD) & AUDENSHAW 1, 2 & 3	N N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	This would be a total reduction in compensation flow of 6.9 Ml/d. Note: Total reduction for each reservoir Aquator group assumed to take place in this operational catchment. The cumulative effect of the reduction of compensation flows from multiple reservoirs located in seven water bodies in this operational catchment will not increase the level of impact on the operational catchment as a whole. This is because of the relatively small decrease in compensation flows compared to the total compensation flow which will be maintained (9.6. It/d), and that they small decrease in compensation flows compared to the total compensation flow which will be maintained (9.6. It/d), and that they	
	GB112069061300	River	Heavily modified	Chew Brook WR159	HEY, DOVESTONE & CHEW	N N	l N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	High	Minor level of impact	is some water availability in parts of the operational catchment.	
	GB112069064741	River	Heavily modified Heavily modified	Tame (Source to Chew Brook) WR159 Tame (Source to Chew Brook) WR159	Group 1 - Improved reservoir compensation release	N N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact Medium level of impact	Y	Minor level of impact Minor level of impact	Medium	Minor level of impact Minor level of impact		
	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers WR159	YEARS BRIDGE	N N	N N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N	millor reteror impace	inculaiii	No or minimal impact		
	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers WR159	Group 1 - Improved reservoir compensation release control – LAMALOAD	N N	N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N			No or minimal impact		
	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers WR159	Group 1 - Improved reservoir compensation release control – CASTLESHAW UPPER & LOWER	N N	N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N			No or minimal impact	Reduction of compensation flow from the following reservoirs:	
	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers WR159	Group 1 - Improved reservoir compensation release control – READYCON DEAN, CROOKGATE, DOWRY & NEW YEARS BRIDGE	N N	N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N			No or minimal impact	- Ridgegate, Tendanian and Lamindrie modwing test violus. - Ridgegate, Tendanian and Lamindrie of rom 2.1 Milyl to 1.8 Milyl, - Castleshaw (upper & lower), Readycon Dean, Crookgate, Dowry and New Years Bridge from 16.8 Milyl to 15.7 Milyl, - Castleshaw (upper & lower), Readycon Dean, Crookgate, Dowry and New Years Bridge from 16.8 Milyl to 15.7 Milyl - Creenfield Valley-Greenfield, Yeeman Hey, Dovestone, Chew, Brushes, Walkerwood and Swineshaw (upper & lower) from 20.7 Milyl	
	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers WR159	Group 1 - Improved reservoir compensation release	N N	N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N			No or minimal impact	to 19.5 MI/d, - Kinder, Errood, Fernilee, Bollinhurst and Horse Coppice from 16.9 MI/d to 15.5 MI/d, a reduction of 1.4 MI/d, and - Londendale (Woodhead, Torside, Rhodeswood, Valehouse, Bottoms & Amfield) and Audenshaw 1,2 and 3 from 48.6 MI/d to 45.4	
Manchester and Cheshire East Carboniferous Aq	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers WR159	Group 1 - Improved reservoir compensation release	N N	I N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N			No or minimal impact	MI/d. This would be a total reduction in compensation flow of 7.2 MI/d. Note: Total reduction for each reservoir Aquator group assumed to	No or minimal impact
	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers WR159	Group 1 - Improved reservoir compensation release control – Kinder	N N	l N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N			No or minimal impact	Take place in this operational catchment. The cumulative effect of the reduction in compensation flows will not increase the level of impact on the groundwater operational catchment. The small reductions in compensation flows are unlikely to reduce the wetted area of the reservoirs or downstream	
	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers WR159	Group 1 - Improved reservoir compensation release control – ERREOOD & FERNILEE	N N	N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N			No or minimal impact	water courses (assuming that low flow compensation released are maintained), therefore any impact on groundwater surface water interaction on this secondary aquifer would be minimal.	
	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers WR159	control – BOLLINHURST & HORSE COPPICE	N N	N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N			No or minimal impact		
	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers WR159	Group 1 - Improved reservoir compensation release control – LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, VALEHOUSE, BOTTOMS & ARNFIELD) & AUDENSHAW 1, 2 & 3	N N	I N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N			No or minimal impact		
Morda and Severn North Shropshire	GB109054055070 GB109054050010	River River	No designation No designation	Morda - source to conf unnamed trib B2 Oswestry 8k B2	Enabling Works Enabling Works	Y N	N N	N N	N N	N N	N	N N	N N	N N	N	No or minimal impact	N N			No or minimal impact	The cumulative effect of the construction of pipe lines and treatment works in two water bodies within this operational catchment will not have a significant effect on the operational catchment.	No or minimal impact
Olbhia	GB41202G103000	Groundwater	No designation	Ribble Carboniferous Aquifers WR159	Group 1 - Improved reservoir compensation release control – CHURN CLOUGH	N N	I N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N			No or minimal impact	Reduction of compensation flow from Churn Clough reservoir from 9.1 MI/d to 8.1 MI/d, and Stocks reservoir from 19.2 MI/d to 18.1 MI/d. A total reduction of 2.1 MI/d. Note: Total reduction for each reservoir Aquator group assumed to take place in this operational catchinent.	
Ribble Carboniferous Aq	GB41202G103000	Groundwater	No designation	Ribble Carboniferous Aquifers WR159	Group 1 - Improved reservoir compensation release control – STOCKS	N N	N	N	N N	N N	N	N N	N N	Y	N	No or minimal impact	N			No or minimal impact	The cumulative effect of the reduction in compensation flows will not increase the level of impact on the groundwater operational catchment. The small reductions in compensation flows are unlikely to reduce the wetted area of the reservoirs or downstream water courses (assuming that two flow compensation released are maintained), therefore any impact on groundwater surface water interaction on this secondary aquifer would be minimal.	No or minimal impact
	GB112069064690	River	Heavily modified	Beal WR159	MILNROW, HANGING LEES & ROODEN	N N	l N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	, i	Minor level of impact	New abstraction of up to 3 MI/d from refurbished borehole at Python MIII, plus reduction of compensation flow from reservoirs at: - Plethome, Norman HIII, Ktcliffe, Ogden Milnrow, Hanging Lees, Booden, Light Hazzles, Whiteholme and Blackstone Edge from 16.8	
	GB112069064710 GB112069064710	River	Heavily modified Heavily modified	Naden Brook WR159 Naden Brook WR159	control – ASHWORTH MOOR Group 1 - Improved reservoir compensation release	N N	N N	N N	N N	N N	N	N N	N N	Y	N N	Medium level of impact Medium level of impact	Y	Minor level of impact Minor level of impact	Medium Medium	Minor level of impact Minor level of impact	- Pietnome, Norman Hill, Kitclife, Ogden Milnrow, Hanging Lees, Rooden, Light Hazzles, Whiteholime and Blackstone Edge from 16.8 MM/d to 15.7 MM/d, and - Ashworth Moor, Greenbooth, 2 Nadens, Spring Mill, Watergrove and Cowm from 18.9 MI/d to 18.0 MI/d, a reduction of 0.9 MI/d.	
Roch Irk Medlock	GB112069064720	River	Heavily modified	Roch (Source to Spodden) WR114	control – GREENBOOTH & 2 NADENS Python Mill Borehole Group 1 - Improved reservoir compensation release	Y	N	N	N N	N N	N	N Y	Y	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact	This is a total compensation flow reduction of 2 MI/d. Note: Total reduction for each reservoir Aquator group assumed to take place in this operational catchment.	Medium level of impact
	GB112069064720	River	Heavily modified	Roch (Source to Spodden) WR159	control – SPRING MILL, WATERGROVE & COWM Group 1 - Improved reservoir compensation release	N N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	High	Minor level of impact	The cumulative impact of the new groundwater abstraction and multiple reductions in compensation flows from reservoirs within the operational catchment will not increase the impact on the operational catchment as a whole. This is because of the relatively small	
	GB112069064720	River	Heavily modified	Roch (Source to Spodden) WR159	CONTROL – LIGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE	N N	N	N	N N	N N	N	N N	N N	Y	N	Medium level of impact	Y	Minor level of impact	High	Minor level of impact	reduction in compensation flows, especially when compared to the total maintained compensation flow of 33.7 MI/d and that the ALS indicates there is some water availability within the catchment.	

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Catchment Operational Catchment	WFD Water Body I	nformation Type	Hydro - morphological Designation	W6 Name	Option Option Name	prion Detai	ripe ine with water course crossings New / modified surface water (e.g. river) intake	New pumping station	New / modified water treatment works New storage reservoir	New outfall to river / reservoir / canal / aqueduct	Transfer of water via river / canal / aqueduct	abstraction quantity Cess ation of existing discharge to surface water	New abstraction well drilling / refurbishment	headworks / surface structures	abstraction quantity Changed to reservoir compensation release	New reservoir / embankment raising	Impacts Level 1 Screening Results	Level 2 Screening Required?	Level 2 Screening Results	Level 2 Screening Confidence	Combined Screening Result	Cumulative Assessment	Cumulative Screening Results
	GB112069064730		Heavily modified	Spodden	WR159 Group 1 - Improved reservoir compensation release control – SPRING MILL, WATERGROVE & COWM	I N	N	N N	I N	N	N N	N	N N	N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact		
Tanat	GB109054049920 GB109054049960 GB109054055040 GB109054055050 GB109054050050	River River River	No designation No designation No designation No designation No designation No designation	Hirnart - source to conf Afon Tanat Afon Tanat - conf Hirnart to conf Afon Rhaeadr Afon Rhaeadr - source to conf Afon Tanat Afon New - source to conf Afon Tanat Afon New - source to conf Afon Tanat Afon Tanat - conf Afon Rhaeadr to conf Afon Vyrnwy Afon Cynlaith - source to conf Afon Tanat	82 Enabling Works Y 82 Enabling Works Y	N N N	N N N N	N D D D D D D D D D D D D D D D D D D D	I N I N I N I N I N I N I N I N	N N N N	N N N N N N N N N N N N N N N N N N N	N N N	N N N N N N N N N N N N N N N N N N N	N N N	N N N N	N N N N	No or minimal impact	N N N N			No or minimal impact	The cumulative effect of the construction of pipe lines in six water bodies within this operational catchment will not have a significant effect on the operational catchment.	No or minimal impact
	GB112068055340		No designation	Rookery Brook, Burland and Brindley Bk. To Weaver		. 4	Y	N Y	, и	N	N Y	N	N N	N	N	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	New surface water abstraction of up to 30 MI/d from the Shropshire Union Canal, plus construction of pipe lines, intake, and	
Weaver Upper	GB112068060460	River	No designation	Weaver (Marbury Brook to Dane)	WR821 Shropshire Union Canal Y	· N	N	N h	I N	N	N N	N	N N	N	N	N	No or minimal impact	N				Treatment works. The cumulative effect of the activities in two water bodies within this operational catchment will not increase the level of impact on the operational catchment as a whole, as the activities in each waterbody (new surface water abstraction and pipe line construction) will not interact to produce a cumulative effect.	Minor level of impact
Wyre and Calder	GB112072065822	River	No designation	Wyre DS Grizedale Brook confl	WR101 Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	I N	N	N N	I N	N	N N	N	Y	٧	N	N	Medium level of impact	Y	Medium level of impact	Low		Increased abstraction of 30 MI/d (from approximately 98 MI/d recent use, to approx. 128 MI/d), split across several Franklaw and Broughton borehole sites. The increased abstraction quantity is within the current licence quantity for the borehole group (maximum aggregated daily peak of 190 MI/d).	Medium level of impact
w, c and carder	GB112072066220	River	Heavily modified	Calder (Wyre)	WR101 Franklaw Z Site plus increased Franklaw WTW Treatment Capacity	I N	N	N h	I N	N	N N	N	Y	Y	N	N	Medium level of impact	Y	Medium level of impact	Low		The cumulative effect of the increased abstraction in several water bodies will not increase the level of impact in the operational catchment as a whole. This is because due to a lack of information about at which borehole sites the increase in abstraction would occur, a worst case abstraction increase was assumed for each individual water body.	ncom set o myse.

Appendix J Summary of Level 1 Screening and Level 2 Detailed Assessment Results for Preferred Plan Options

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Option		WFD Water Body Inf	ormation												Option Detail						Impacts				
				Hydro - morphological				Ecological	Quantitative	Quantitative	Chemical				e line and octated astructure on land e line with water	rse crossings v tunnel/tunnel	rs (inc snarts) v / modified surface er (e.g. river) intake	v pumping station	v/modified water itment works	v / increased ace water traction quantity		Level 2 Screening			
Ref Solutions	Option Description	ID	Туре	Designation	Name	Operational Catchment	Ecological Status	Objective	Status	Objective	Status	Chemical Objective	ve Overall Status	Overall Objective	ge ji ge	Ne So	8 2 8	ě	Ne	sur abs	Level 1 Screening Results	Required?	Level 2 Screening Results	Confidence	Combined Screening Result
37-42 D, E	Haweswater Aqueduct sections T01 to T06 (Mealbank South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112069064641	River	heavily modified	Irwell (Cowpe Bk to Rossendale STW)	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112069064620	River	heavily modified	Irwell (Rossendale STW to Roch)	Croal Irwell	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections 101 to 106 (Mealbank	GB112069064600	River	heavily modified	Roch (Spodden to Irwell)	Roch Irk Medlock	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB41202G101800	GroundWaterBo	ody not applicable	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112071065490	River	heavily modified	Calder - Pendle Water to conf Ribble	Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112071065040	River	heavily modified	Hyndburn	Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112069064650	River	heavily modified	Ogden	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB41202G100300	GroundWaterBo	ody not applicable	Douglas, Darwen and Calder Carboniferous Aquifers	Douglas Darwen and Calder Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112071065520	River	not designated artificial	or h Bashall Brook	Ribble Middle - Settle to Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112072066050	River	not designated artificial	or h Hindburn	Wenning	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112071065420	River	not designated artificial	or h Whitendale river	Hodder and Loud	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112071065560	River	not designated artificial	or it Hodder - conf Easington Bk to conf Ribble	Hodder and Loud	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB41202G103000	GroundWaterBo	ody not applicable	Ribble Carboniferous Aquifers	Ribble Carboniferous Aq	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112073071090	River	heavily modified	Peasey Beck	Bela	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027		N	Y	N N	N	N	Medium level of impact			Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112072071690	River	not designated artificial	or I Lune - conf Rawthey to conf Greta	Lune - Rawthey to Greta	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112073071080	River	not designated artificial	or F Lupton (Farleton) Beck	Bela	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB41202G102100	GroundWaterBo	ody not applicable	South Cumbria Lower Palaeozoic and Carboniferous Aquifers	Cumbria South Lower Palaeozoic and Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB41202G102700	GroundWaterBo	ody not applicable	Lune and Wyre Carboniferous Aquifers	Lune and Wyre Carboniferous Aq	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112073071370	River	not designated artificial	or F Mint	Kent	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill) Haweswater Aqueduct sections T01 to T06 (Mealbank	GB112073071340	River	not designated artificial	or t Flodder Beck	Kent	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y	N	Y	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
37-42 D, E	South Well to Woodgate Hill)	GB112073071100	River	not designated artificial	or F Stainton Beck	Bela	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y	N	Υ	N N	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
112 B, D	HA Outage (4 weeks) for installation of connections	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N N	N	N	No or minimal impact	N	-	High	No or minimal impact

Appendix K Operational Catchment Cumulative Assessment for Preferred Plan Options

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Catchment	WFD Water Body Info	formation			Option		Option Detail													Im	npacts						
							3		ks (inc water				servoir /	er/	scharge	/Bulli	uctures	iwater	kment		•						
							ss ociated on land water cou		innei wor d surface	ke station	d water ks	servoir	river/re	ter via riv ict ed surface	antity cisiting di	er on well dr	on well urface str	ed ground antity	release /emban								
							ne anda tructure	sau	unnelytu) modifier	inta (her)	modifier	torage re	/ aque du	/ aquedu	ction qu	face wat ibstraction	ibstractic works/su	increase	ensation ensation								
Operational Catchment	ID	Туре	Hydro - morphological Designation	WB Name	Ref	Option Name	Pipe li infrasi	crossi	shafts New/	(e.g. r	New/ treatn	News	New Canal	canal	abstra	to sur New a	New a	New/ abstra	Chang Comp	raising	vel 1 Screening Results	Level 2 Screening Required?	Level 2 Screening Results	Level 2 Screening Confidence	Combined Screening Result	Cumulative Assessment	Cumulative Screening Results
																							Medium level of impact	Low	Medium level of impact	Construction and permanent presence of new conduit and tunnel, including	
	GB112073071090	River	heavily modified	Peasey Beck	4		Y	N	Y	N I	d N	N	N	N	N	N N	N	N	N	N M	edium level of impact	Y				associated temporary and permanent shafts, penstock chamber, and conduit bridges over the Crake Hall Gill and Mill Rigg Gill.	
						Haweswater Aqueduct section																				The cumulative effect of the construction and presence of the new infrastructure will not increase the level of impact in the operational catchment above the medium	
Bela					37-42	T01 to T06 (Mealbank South We to Woodgate Hill)	41																Medium level of impact	Low	Medium level of impact	level of impact assigned to each water body. This is because due to only high-level information about the design of the tunnel, the nature of the geological strata it will pass through, and the linkages between the groundwater and surface water	Medium level of impact
	GB112073071080	River	not designated artificial or heavily modified	Lupton (Farleton) Beck	_		Y	N	Y	N I	N N	N	N	N	N	N N	N	N	N	N M	edium level of impact	Y				environment being available, the individual water body assessments assumed a worst-case impact.	
																										Although the new infrastructure will cross through the headwaters of three water bodies in this operational catchment, it is not anticipated that the combined impact	
																							Medium level of impact	Low	Medium level of impact	would rise above a medium level, particularly as it is assumed that construction best practice and pollution prevention measures will be used during construction, and the ALS states that there is water available across all flows in all three water bodies,	
	GB112073071100	River	not designated artificial or heavily modified	Stainton Beck			Y	N	Y	N I	d N	N	N	N	N	N N	N	N	N	N M	edium level of impact	Y				helping to mitigate any operational effects on baseflow.	
																							Medium level of impact	1	Madium lavel of impact		
																							iviedium level of impact	Low	iviedium level of impact	Construction and permanent presence of new conduit and tunnel, including associated temporary and permanent shafts, and penstock chamber.	
						Haweswater Aqueduct section																v				The cumulative effect of the construction and presence of the new infrastructure will not increase the level of impact in the operational catchment above the medium level of impact assigned to each water body. This is because due to only high-level	
Calder	GB112071065490	River	heavily modified	Calder - Pendle Water to conf Ribble	37-42	T01 to T06 (Mealbank South We to Woodgate Hill)	II Y	N	Y	N P	I N	N	N	N	N	N N	N	N	N	N M	edium level of impact	Y				information about the design of the tunnel, the nature of the geological strata it will pass through, and the linkages between the groundwater and surface water	Medium level of impact
																										environment being available, the individual water body assessments assumed a worst-case impact.	
																							Medium level of impact	Low	Medium level of impact	bodies in this operational catchinent, it is not anticipated that the combined impact	
																										would rise above a medium level, particularly as it is assumed that construction best practice and pollution prevention measures will be used during construction, and the ALS states that there is water available across all flows in both water bodies, helping	
	GB112071065040	River	heavily modified	Hyndburn			Y	N	Y	N P	N N	N	N	N	N	N N	N	N	N	N M	edium level of impact	Y				to mitigate any operational effects on baseflow.	
																							Medium level of impact	Low	Medium level of impact	Construction and permanent presence of new conduit and tunnel, including	
	GB112069064641	River	heavily modified	Irwell (Cowpe Bk to Rossendale STW)	-		Y	N	Y	N I	l N	N	N	N	N	N N	N	N	N	N M	edium level of impact	Y				associated temporary and permanent shafts, and penstock chamber. The cumulative effect of the construction and presence of the new infrastructure will	
Constitute					27.42	Haweswater Aqueduct section T01 to T06 (Mealbank South W																				not increase the level of impact in the operational catchment above the medium level of impact assigned to each water body. This is because due to only high-level	Medium level of impact
Croal Irwell					37-42	to Woodgate Hill)	11																Medium level of impact	Low	Medium level of impact	pass through, and the linkages between the groundwater and surface water environment being available, the individual water body assessments assumed a	wedum level of impact
	GB112069064620	River	heavily modified	Irwell (Rossendale STW to Roch)	+		Y	N	Y	N I	N N	N	N	N	N	N N	N	N	N	N M	edium level of impact	Y				worst-case impact. Although the new infrastructure will cross through the middle reaches of this	
																							Medium level of impact	Low	Medium level of impact	operational catchment, it is not anticipated that the combined impact would rise above a medium level, particularly as it is assumed that construction best practice	
																										and pollution prevention measures will be used during construction, and the ALS states that there is water available across all flows in all three water bodies, helping to mitigate any operational effects on baseflow.	
	GB112069064650	River	heavily modified	Ogden			Y	N	Y	N 1	l N	N	N	N	N	N N	N	N	N	N M	edium level of impact	Y					
																							Medium level of impact	Low	Medium level of impact	Construction and permanent presence of new conduit and tunnel, including	
																										associated temporary and permanent shafts, penstock chamber, and conduit bridges over the Bonstone Brook.	
						Haweswater Aqueduct section																				The cumulative effect of the construction and presence of the new infrastructure will not increase the level of impact in the operational catchment above the medium	
Hodder and Loud	GB112071065420	River	not designated artificial or heavily modified	Whitendale River	37-42			N	Y	N I	N N	N	N	N	N	N N	N	N	N	N M	edium level of impact	Y				level of impact assigned to each water body. This is because due to only high-level information about the design of the tunnel, the nature of the geological strata it will pass through, and the linkages between the groundwater and surface water	Medium level of impact
																										pass undugn, and the intrages between the groundwater and surface water environment being available, the individual water body assessments assumed a worst-case impact.	
																							Medium level of impact	Low	Medium level of impact	Although the new infrastructure will cross through the middle reaches of this operational catchment, it is not anticipated that the combined impact would rise	
																										above a medium level, particularly as it is assumed that construction best practice and pollution prevention measures will be used during construction, and the ALS states that there is water available across all flows in the Whitendale River water	
																										states that there is water available across all nows in the Whitehoale River water body and at high flows in the Hodder – con Easington Bk to conf Ribble water body, helping to mitigate any operational effects on baseflow.	
	GB112071065560	Kiver	not designated artificial or heavily modified	Hodder - conf Easington Bk to conf Ribble			Ψ.	N	Y	N P	v N	N	N	IN .	N	N N	N	N	N	N M	edium level of impact	Y					
																							Medium level of impact	Low	Medium level of impact	Construction and permanent presence of new conduit and tunnel, including associated temporary and permanent shafts, and penstock chamber.	
																										The cumulative effect of the construction and presence of the new infrastructure will not increase the level of impact in the operational catchment above the medium	
Kent	GB112073071370	River	not designated artificial or heavily modified	Mint	37-42	Haweswater Aqueduct section T01 to T06 (Mealbank South We to Woodgate Hill)	Y	N	Y	N P	N N	N	N	N	N	N N	N	N	N	N M	edium level of impact	Y				level of impact assigned to each water body. This is because due to only high-level information about the design of the tunnel, the nature of the geological strata it will pass through, and the linkages between the groundwater and surface water	Medium level of impact
						,																				pass unuugii, niin trie iiinages vetweeri nie grouniwater anu surise water environment being available, the individual water body assessments assumed a worst-case impact.	
																							Medium level of impact	Low	Medium level of impact	bodies in this operational exteriment, it is not unterpated that the combined impact	
																										would rise above a medium level, particularly as it is assumed that construction best practice and pollution prevention measures will be used during construction, and the ALS states that there is water available across all flows in both water bodies, helping	
	GB112073071340	River	not designated artificial or heavily modified	Flodder Beck			Υ	N	Υ	N I	ı N	N	N	N	N	N N	N	N	N	N M	edium level of impact	Y				to mitigate any operational effects on baseflow.	

