



**United Utilities** 

# Draft Water Resources Management Plan 2019: Water Framework Directive Assessment





#### Report for

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#### **Document revisions**

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2	Second draft for UU review	27/11/2017
3	Final report	30/11/2017
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# Introduction

This report presents the Water Framework Directive (WFD) assessment for resource management options that have been considered for inclusion in United Utilities Water Limited (UU's) Water Resources Management Plan (WRMP) 2019. The aim of the report is to demonstrate the potential level of WFD impact associated with each WRMP feasible 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.

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 changes to current abstractions to avoid the risk of deterioration under the WFD should be included in a WRMP scenario. 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 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. However, the Salters Brook could potentially have a medium impact on it due to the Mouldsworth abstraction. 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

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 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 arising from construction.

## WFD Assessment Process

The WFD assessment has been undertaken on 81 confirmed feasible 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.

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.

### Table 1 Impact Classification Categories

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.

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.

### Table 2 Confidence Level Categories

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 Feasible Options

The Level 1 screening identified 328 WFD water bodies that may be impacted by the 81 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.

### 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 'Preferred Plan' Options

The Level 1 screening identified 155 WFD water bodies that may be impacted by the eight resource management options that are included in the WRMP19 Preferred Plan plus the enabling works. Some of these water bodies could be impacted by more than one option, resulting in a total number of 202 optionwater body combinations.

The Level 1 screening exercise was undertaken for each option and its related water bodies. This identified eight options that may have a medium 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 4 and presented in full in Appendix D. The individual Level 2 assessment spreadsheets are presented in Appendix C.

#### 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	202	155	9
High level of impact	0	0	0
Medium level of impact	9	9	3
Minor level of impact	58	49	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.

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
WR099b: Worsthorne borehole (Hurstwood IR)	Minor level of impact	Minor level of impact	Minor level of impact	Minor level of impact	Medium
WR101: Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	Medium level of impact	Medium level of impact	n/a	Medium level of impact	Low
WR102e Bold Heath boreholes to Prescot WTW	Minor level of impact	Minor level of impact	n/a	Minor level of impact	High
WR113: Tytherington boreholes	Minor level of impact	Minor level of impact	n/a	Minor level of impact	Medium
WR114: Python Mill borehole	Medium level of impact	Medium level of impact	Minor level of impact	Medium level of impact	Low



	Result of Individual assessment	Result of cumulative assessment	Result of Protected Area assessment	Overall result	Confidence level
WR159: Group 1 - Improved reservoir compensation release control	Minor level of impact	Minor level of impact	Minor level of impact	Minor level of impact	Medium
WR160: Group 2 - Improved reservoir compensation release control	Minor level of impact	Minor level of impact	Minor level of impact	Minor level of impact	Medium
WR821: Shropshire Union Canal	Minor level of impact	Minor level of impact	No or minimal impact	Minor level of impact.	Low
B2: Enabling Works	No or minimal impact	Minor level of impact	n/a	Minor level of impact	High

Three of the nine Preferred Plan options have been assigned a medium level of potential impact on account of increased quantity of groundwater abstraction. 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, these options are 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 or medium 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 groundwater abstractions 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 detailed WFD assessment should be undertaken on the three preferred options that have been assigned a medium or high level of impact in either the individual, cumulative or protected area assessments. Further assessment should include consideration of more detailed design information, investigation of the water environment associated with each 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 the 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 three of the options could have a medium level of impact against WFD objectives. 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, these options are 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 the 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) is currently preparing its Water Resources Management Plan (WRMP19) that will set 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 is currently consulting on a draft Water Resources Management Plan (WRMP) in order that regulators, stakeholders and the public can comment on UU's proposed strategy and further contribute to the development of the plan.
- In developing the draft WRMP, UU has undertaken 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. As part of this plan preparation process, Amec Foster Wheeler Environment and Infrastructure UK Ltd (Amec Foster Wheeler, now Wood) has been commissioned by UU to undertake a Water Framework Directive (WFD) assessment of resource management options for the Draft WRMP.

# 1.2 Purpose of this Report

- 1.2.1 This report has been produced for the purpose of presenting the WFD assessment for resource management 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, an early 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 United Utilities' Draft Water Resources Management Plan 2019

In preparing the WRMP, UU has forecast the future demand for water and available supply (the supply-demand balance) for the 25 year period to 2045. The baseline demand forecast has been calculated using the latest data, tools and methods including the current population and local authority growth forecasts, and accounts for the potential impacts of climate change. Taking into account this baseline demand forecast, alongside water availability, dry weather demand and target headroom, UU has determined that there will be a surplus in all four<sup>1</sup> of the company's water resource zones (WRZs) in a dry year over the planning horizon of WRMP19.

<sup>&</sup>lt;sup>1</sup> On completion of the Thirlmere transfer scheme that connects the Integrated Resource Zone to the West Cumbria resource Zone in 2022 a new zone will be formed called the Strategic Resource Zone. The Barepot resource zone, a non-potable supply to industrial customers, is also new for WRMP19 keeping the total number of zones at four.

- As there is forecast to be enough water to meet demand over the period of WRMP19, UU does not need to take any further action. However, following the Water Resources Planning Guidelines<sup>2</sup>, consideration has been given to using the forecast surplus, with possible new source or demand management investment, to explore strategic choices for the WRMP.
- 1.3.3 UU's Preferred Plan for WRMP19 incorporates four strategic choices, as follows:
  - Enhanced 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, through the Manchester and Pennine Resilience solution; and
  - Commitment to continue to explore National water trading.
- 1.3.4 The Preferred Plan comprises a combination of resource management and demand management options designed to achieve these four strategic choices and maintain and enhance the supply-demand balance.
- 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 represent 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 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 were identified.
- 1.3.6 This WFD assessment considers all the feasible resource management options. Assessment of 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).
- 1.3.7 The options identification and appraisal process is described further in the draft WRMP and supporting documentation<sup>3,4.</sup>
- 1.3.8 It should be noted that, at this stage, UU's preferred Manchester and Pennine Resilience solution, which seeks to address non-drought risks associated with points of potential failure on the regional aqueduct system which supplies water from the Lake District to the Manchester and Pennine areas, has not been determined. This work is ongoing and will be informed by consultation responses to the draft WRMP together with further assessment and appraisal of options.

# 1.4 The Legislative Context – Water Framework Directive

1.4.1 The WFD<sup>5</sup> 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

<sup>&</sup>lt;sup>2</sup> Environment Agency and Natural Resources Wales (2017) *Water Resources Planning Guideline: Interim Update* [available at: <u>https://naturalresources.wales/media/681612/interim-wrpg-update-final-april-2017.pdf</u> (accessed October 2017)].

<sup>&</sup>lt;sup>3</sup> United Utilities (2017) Draft Water Resources Management Plan 2019: Technical Report – Options Identification.

<sup>&</sup>lt;sup>4</sup> United Utilities (2017) *Draft Water Resources Management Plan 2019: Technical Report – Options Appraisal.* 

<sup>&</sup>lt;sup>5</sup> 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).



been set by so-called 'daughter' directives to the WFD, in the form of the EQS Directive<sup>6</sup> and subsequent amendments (EQSD)<sup>7</sup> and the Groundwater Directive (GWD)<sup>8</sup>. 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 objective are set out for each water body in the relevant River Basin Management Plans (RBMPs), prepared by the EA every six years.
- 1.4.3 The WRMP options assessed in this report are primarily located within the RBMP for the North West River Basin District, but some options do 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.
- 1.4.4 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.

# 1.5 Surface Waters

- <sup>1.5.1</sup> 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

<sup>&</sup>lt;sup>6</sup> 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).

<sup>&</sup>lt;sup>7</sup> 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.

<sup>&</sup>lt;sup>8</sup> 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



hydromorphological (e.g. depth, width, flow, and 'structure') factors. These elements are summarised in Table 1.1.

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

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

### 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.
- 1.6.2 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

- 1.7.1 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)).
- 1.7.2 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 Structure of this Report

- 1.8.1 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 WRMP feasible options;
  - Section 6 presents the results of the assessment of the WRMP preferred options, including the cumulative and protected area assessments;
  - Section 7 provides a summary of the key outcomes, and the requirements for further work; and
  - **Section 8** is the statement of compliance with the WFD.





# 2. Review of Existing Abstractions

# 2.1 Introduction

- 2.1.1 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.
- 2.1.2 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.
- 2.1.3 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 identified<sup>9</sup>:
  - 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.
- 2.2.2 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

2.3.1 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

<sup>&</sup>lt;sup>9</sup> Noted in United Utilities WRMP Methodology WFD no deterioration document – 2 August 2017 and Tipping Points spreadsheet – 2 August 2017.



operational activities or abstraction levels, most licences are unlikely to have a significant impact on WFD objectives of the relevant water bodies (e.g. impact levels are either no or minimal impact or minor impact).

- <sup>2.3.2</sup> 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.
- 2.3.3 The results of the WFD assessments are presented in Table 2.1.

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.

#### Table 2.1 WFD Water Bodies Impacted by Current Abstraction



Water body ID	Water body name	Licences	WFD screening result	Comment
GB112072066250	Wyre – conf R Brock to tidal	2672405006, 2672405010, 2672406022, 2672408015, 2672408020, 2672408021, 2672409004, 2672410001, 2672411002, 2672401001, 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.
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.



Water body ID	Water body name	Licences	WFD screening result	Comment
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.
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.



Water body ID	Water body name	Licences	WFD screening result	Comment
GB112068060500	Weaver (Dane to Frodsham)	2568001154, 2568002138, 2568003124, 2568003091, 2568002156, 2568001159, 2568001159, 2568001153, 2568001153, 2568001155, 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.
GB212069061523	Relief Channel		No or minimal impact	GW risk assessments indicates that there is no risk of deterioration.

2.3.4 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).
- 2.3.5

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?
- 3.1.2 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?
- 3.1.3 If the answer to all of the above five questions is 'no' then the option can be considered to be WFD compliant.
- 3.1.4 Whilst some guidance is available to help answer the above questions, the overall assignment of WFD impact was based on expert judgement.
- 3.1.5 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*<sup>10</sup>, 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 Justice<sup>11</sup> 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.

<sup>&</sup>lt;sup>10</sup> Environment Agency (2016) *Clearing the waters for All – available at: <u>https://www.gov.uk/quidance/water-framework-directive-assessment-estuarine-and-coastal-waters</u>* 

<sup>&</sup>lt;sup>11</sup> Court ruling available at <u>curia.europa.eu</u>



- <sup>3.1.7</sup> Furthermore, the Cycle 2 RBMPs<sup>12</sup> 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 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.
- <sup>3.1.8</sup> The EA has also made available their position statement on WFD assessment of new physical works in rivers (position 488\_10<sup>13</sup>) which has been used, as appropriate, to guide the assessment of levels of impact to the construction and operation phase of each WRMP option.
- 3.1.9 The EA has not published any guidance on WFD compliance assessments of lake or groundwater bodies.

# 3.2 WFD Assessment Process

- 3.2.1 The WFD assessment has been undertaken on 81<sup>14</sup> confirmed feasible 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.
- 3.2.2 WFD assessment steps:
  - 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 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 engineering pro forma to the spatial extent of WFD water bodies obtained from the EA's Catchment Data Explorer website<sup>15</sup> and NRW Water Watch website<sup>16</sup>. 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.

<sup>&</sup>lt;sup>12</sup> 2015 River Basin Management Plans – available at <u>https://www.gov.uk/government/collections/river-basin-management-plans-2015</u>

<sup>&</sup>lt;sup>13</sup> Environment Agency (2015) Position 488\_10 Protecting and improving the water environment: WFD compliance of physical works in rivers.

<sup>&</sup>lt;sup>14</sup> This includes the enabling works for the trading option, given the option ID 'B2' for the purposes of this assessment.

<sup>&</sup>lt;sup>15</sup> EA Catchment data explorer, available at: <u>http://environment.data.gov.uk/catchment-planning/</u>

<sup>&</sup>lt;sup>16</sup> NRW Water Watch website, available at: <u>http://waterwatchwales.naturalresourceswales.gov.uk/en/</u>



### Step 2: Level 1 Screening of Options

- 3.2.5 Each option was broken down into its main constituent parts ('activities') based on construction and operational phases. This included activities such as:
  - 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.
- 3.2.6 Each water body that the option intersects was considered against each activity which would occur in that water body, and the likely impact assigned based on the definitions of impacts described in Table 3.1.

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 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.

#### Table 3.1 Impact Classification Categories

- 3.2.7 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 has 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). Where the Level 1 screening has 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 has been screened out from the Level 2 detailed assessment and is considered to be WFD compliant (note that the same water body may be screened in as a result of activities on other WRMP options).
- 3.2.8 Other activities have the potential for a medium or high level of impact on a water body. These include activities that could have long term impact on water resources (e.g. a new surface water or groundwater abstraction, 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). Where the Level 1 screening has 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.
- 3.2.9 Note that feasible options have been initially assessed as though they will be the only option to be put in 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.



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

#### Table 3.2 Level 1 Screening Impacts from Option Activities

- 3.2.11 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.
- 3.2.12 The exception to this is 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 have been 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 has been 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 has been considered, downstream river water bodies have not been 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

- 3.2.14 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)<sup>17</sup>. 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.
- 3.2.16 The water availability was used to estimate the likely effects of new or changed abstractions and discharges. This was supported by aquifer designation data<sup>18</sup> and the location of the abstraction compared to surface water courses where required.
- 3.2.17 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 has been 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 has been used (e.g. the assessments have assumed that the pipe line has watercourse crossings rather than not).
- 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 has been 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

<sup>&</sup>lt;sup>17</sup> Abstraction Licencing Strategies, accessed October 2017: <u>https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process</u>

<sup>&</sup>lt;sup>18</sup> Aquifer designation data, accessed October 2017:

http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx



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 3.3Confidence 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.	

3.2.21 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**

- 3.2.22 Where two or more Preferred Plan options are located in the same water body or operational catchment<sup>19</sup>, 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**

- 3.2.24 Assessments have been undertaken on protected areas related to the protection of habitats and species that are identified in the EA's Catchment Data Explorer<sup>20</sup> as being linked to a water body that may be impacted by a Preferred Plan option. The habitats present in each protected area<sup>21</sup> have been reviewed, and only protected areas with habitats which may be water dependent (e.g. inland water bodies, bogs, marshes, water fringed vegetation and fens) have been included in the assessment.
- 3.2.25 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

<sup>&</sup>lt;sup>19</sup> An operational catchment may comprise a number of river water bodies that combine to form a drainage catchment, or a regional groundwater body.

<sup>&</sup>lt;sup>20</sup> Downloaded from the EA's Catchment Data Explorer website October 2017:

http://environment.data.gov.uk/catchment-planning/RiverBasinDistrict/12

<sup>&</sup>lt;sup>21</sup> Habitat data for protected areas downloaded from the Joint Nature Conservation Committee website October 2017: <u>http://jncc.defra.gov.uk/page-4</u>

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.
- 3.2.27 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

- 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 Prevention<sup>22</sup>, 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. 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;

<sup>&</sup>lt;sup>22</sup> <u>http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-</u> series/guidance-for-pollution-prevention-gpps-full-list/



- 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;
- 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.

### Operation

- 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

4.1.1 The 81 WRMP feasible 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

- 4.1.2 56 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 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 due to 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.

#### **Catchment Construction Activities**

- 4.1.4 74 WRMP feasible options include the construction or modification of raw water transfer pipe lines, water treatment works, booster stations and other infrastructure within WFD river water body catchments and groundwater bodies, 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

- 4.1.6 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.
- 4.1.7 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

- 4.1.8 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).
- 4.1.9 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.
- 4.1.10 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.
- 4.1.11 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.
- 4.1.12 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.

### **Operation Phase Activities**

### Water Transfers

- 4.1.13 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).
- 4.1.14 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

- 4.1.15 A total of 63 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.
- 4.1.16 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.
- 4.1.17 A total of 31 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 ecological or chemical status of the surface water body due to reduction of dilution of specific pollutants, priority substances or priority hazardous substances; 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.
- 4.1.18 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

- 4.1.19 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.
- 4.1.20 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.
- 4.1.21 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

- 4.1.22 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.
- 4.1.23 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.

### **Enabling Works for Trading Option**

4.1.24 The WRMP includes a strategic choice to trade water to Thames Water during drought years. Water will be released from Lake Vyrnwy into the River Severn, re-abstracted from the River



Severn at Deerhurst, transferred by a new pipe line to the River Thames at Culham, then reabstracted from the River Thames using Thames Water existing infrastructure.

- 4.1.25 For the purposes of preparing the WRMP and undertaking the WFD assessment, UU has agreed with Thames Water that any environmental impacts downstream of Vyrnwy in the Severn catchment, and in the Thames catchments associated with this transfer, will be assessed in its Water Resources Management Plan. These activities have therefore not been included in this WFD assessment. As the water traded is currently abstracted for UU supply it is assumed that there will be no impacts on Lake Vyrnwy itself.
- <sup>4.1.26</sup> In order to facilitate the transfer of water from the UU supply area to the Thames Water supply area, enabling works are 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.
- 4.1.27 These enabling works are included in this WFD assessment (Option B2).
- 4.1.28 In addition, the development of alternative supplies for UU customers is required, and this comprises the eight Preferred Plan options.







# 5. Results of the WFD Assessment of WRMP Feasible Options

## 5.1 Level 1 Screening of Feasible Options

5.1.1 The Level 1 screening identified 328 WFD water bodies that may be impacted by the 81 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

- 5.2.1 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.
- <sup>5.2.2</sup> 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.
- 5.2.3 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 Preferred Plan Options

### 6.1 Overview

6.1.1 As set out in Section 1.3, UU's Preferred Plan for the Draft WRMP incorporates 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 others hazards, through the Manchester and Pennine Resilience solution; and
- Continue to explore National water trading.
- 6.1.2 The Preferred Plan comprises a combination of preferred resource management and demand management measures designed to achieve the four strategic choices outlined above. The preferred resource management options have been considered as part of this WFD assessment.
- <sup>6.1.3</sup> Table 6.1 lists the resource management options that comprise the Preferred Plan together with their respective design capacity.

#### Table 6.1 Summary of Referred 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 3MI/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 MI/d.	3	AMP8



Ref	Preferred Option	Description	Design Capacity	Implem entation (AMP)
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
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

## 6.2 Level 1 Screening of Preferred Plan Options

6.2.1 The Level 1 screening of the preferred options that comprise UU's Preferred Plan for WRMP19 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 6.2 and presented in full in Appendix D.



#### Table 6.2 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
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.

## 6.3 Level 2 Assessment of Preferred Plan Options

- 6.3.1 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.
- 6.3.2 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 6.3 and Table 6.4, and presented in full in Appendix D. 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 6.3 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 6.4 Summary of Combined Assessment Results by Preferred Plan Option

Option Inf	formation	N	o of w	ater b	odies				
Ref Name		Total	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
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

## 6.4 Cumulative Assessment

#### Water Body Cumulative Assessment

- 6.4.1 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 6.5 and presented in full in Appendix E.
- 6.4.2 Eight water bodies have been identified as being impacted by two or more Preferred Plan options; however, for all of these the cumulative impact of those options will 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 6.5 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	
				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	Minor level of impact
			WR114	Python Mill Borehole	Medium level of impact	Low	
GB112069064720	River	Roch (Source to Spodden)	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
			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	
			B2	Enabling Works	No or minimal impact	High		
	Groundwater		WR099b	Worsthorne Borehole (Hurstwood IR)	Minor level of impact	Medium		
GB41202G100300		Douglas, Darwen and Calder Carboniferous Aquifers	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	Groundwater	Northern Manchester	WR114	Python Mill Borehole	Medium level of impact	Low	Madium laval of impact	
	Groundwater	Carboniferous Aquifers	WR159	Group 1 - Improved reservoir compensation release control	No or minimal impact	High	Medium level of impact	



#### **Operational Catchment Cumulative Assessment**

- 6.4.3 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 has been used for the cumulative assessments as for the Level 1 and Level 2 assessments. The results are summarised in Table 6.6 and presented in full in Appendix F.
- 6.4.4 A total of 17 operational catchments (including river catchments and regional aquifers) have been 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 will 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 6.6 Summary of Operational Catchment Cumulative Assessment

Catchment	WFD Water Body Ir	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	
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		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		A	Assessment Result		
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 Information			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 Information			Option		A	Assessment Result	
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 minimal
Sinopsinie	GB109054050010	River	Oswestry Bk	B2	Enabling Works	No or minimal impact	High	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 Information			Option		As	Assessment Result		
Operational Catchment	ID	Туре	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 Iwrch - 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 Information			Option		Assessment Result		
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.



## 6.5 Protected Area Assessment

- 6.5.1 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 to<sup>23</sup>, to the list of water bodies affected by the preferred options (Appendix D).
- 6.5.2 Protected area assessments were undertaken for nine protected areas. The results are presented in Table 6.7. 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 6.7 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

<sup>23</sup> Downloaded from the EA's Catchment Data Explorer website October 2017: <u>http://environment.data.gov.uk/catchment-planning/RiverBasinDistrict/12</u> 55

Protected area	Designation	Preferred options	Summary of protected area assessment	Assessment Results
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 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.	Minor level of impact.
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





# 7. Summary and Conclusions

### 7.1 Summary of Feasible Options Assessment

- 7.1.1 A WFD assessment was undertaken on 81 feasible resource management options to inform UU's draft WRMP. For each option, the WFD water bodies in which activities would take place were identified, and each option-water body combination 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 and C, and summarised in Section 5.

## 7.2 Summary of Preferred Plan Options Assessment

- 7.2.1 UU has identified eight preferred water supply options which form part of the Preferred Plan for WRMP19. These options are:
  - WR099b: Worsthorne Borehole (Hurstwood IR);
  - WR101: Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity;
  - WR102e: Bold Heath Boreholes to Prescot WTW;
  - WR113: Tytherington boreholes;
  - WR114: Python Mill borehole;
  - WR159: Group 1 Improved reservoir compensation release control;
  - WR160: Group 2 Improved reservoir compensation release control; and
  - WR821: Shropshire Union Canal.
- 7.2.2 In addition, the enabling works (Option B2) required to facilitate the trading agreement with Thames Water have also been assessed.
- Following confirmation by UU of the Preferred Plan options, the results of the Level 1 screening and the Level 2 detailed assessments for the preferred options were extracted from the feasible options assessment results. These are presented in Appendix C and D and summarised in Section 6. The results of the individual assessments were then combined, in order to undertake a cumulative assessment (both on a water body and a catchment scale), and a protected area assessment.
- 7.2.4 Each of the preferred options is considered in turn below, with a summary of the impacts that would occur as a result of the individual option in isolation, cumulatively with other options (or other elements of the same option), and on protected areas.

#### WR099b: Worsthorne Borehole (Hurstwood IR)

- 7.2.5 The principal elements of this option are the reinstatement and refurbishment of the Worsthorne borehole, and construction of a new raw water main to supply Hurstwood impounding reservoir. An abstraction licence is already in place for the anticipated abstraction volume.
- 7.2.6 The results of the individual assessment for this option are that the option may have a minor level of impact on two water bodies: GB112071065090 (Brun- headwaters to conf Don), and GB112071065090 (Douglas, Darwen and Calder Carboniferous Aquifers).



- 7.2.7 The confidence level of this assessment is medium, reflecting the low level of uncertainty in the option design, and that there are several pieces of evidence that indicate the groundwater abstraction is unlikely to have a significant impact on the aquifer or surface watercourses.
- 7.2.8 A cumulative assessment has been undertaken for both water bodies as they are affected by more than one Preferred Plan option, but the expected impact on either water body did not increase beyond a minor level of impact. The option has also been considered as part of the cumulative assessment for the River Calder operational catchment, but again the cumulative impact on the catchment is no greater than a minor level of impact.
- 7.2.9 The option occurs in a water body that is linked to the South Pennine Moors SAC, and the protected areas assessment result is a minor level of impact.

#### WR101: Franklaw Z Site Plus Increased Franklaw WTW Treatment Capacity

- 7.2.10 The principal elements of this option are the reinstatement of boreholes at the Franklaw Z site, the optimisation of other operational Franklaw and Broughton borehole sites, and the construction of a new WTW. An abstraction licence is in place for the anticipated abstraction volume.
- 7.2.11 The results of the individual assessment for this option are that the option may have a medium level of impact on six water bodies:
  - GB112072065760 (Woodplumpton Brook);
  - GB112072065790 (New Draught Brook);
  - GB112072065800 (Barton (Westfield) Brook):
  - GB112072065822 (Wyre DS Grizedale Brook confl);
  - GB112072066220 (Calder (Wyre)); and
  - GB41201G100500 (Fylde Permo-Triassic Sandstone Aquifers).
- 7.2.12 It will also have a minor impact on one further water body (GB112072065810 (Brock)).
- 7.2.13 The confidence level of the assessment is low. This reflects the high level of uncertainty at this time over the distribution of the increased abstraction volume between the large number of boreholes in the Franklaw and Broughton group (a worst case scenario of abstraction volume has been assumed for each borehole site), and the linkages between the Fylde Permo-Triassic sandstone aquifer and the overlying surface watercourses (a good linkage (i.e. groundwater abstractions will impact on surface watercourses) has been assumed). As option design information becomes available and further investigations are undertaken where necessary, it is likely that the level of impact can be reduced from medium to minor for several if not all of the six water bodies listed above, and the confidence in the assessment can be increased.
- 7.2.14 A water body scale cumulative assessment has not been undertaken for this option, as no other Preferred Plan options occur in the same water bodies. However, a catchment scale cumulative assessment was required for the Brock and Trib and the Wyre and Calder operational catchments, to assess the cumulative impact of the changes in multiple water bodies arising from this option. The cumulative impact on the catchments was assessed to be no greater than a medium level of impact.
- 7.2.15 The option occurs in a water body that is linked to the Bowland Fells SPA, but no hydrological pathway between the option and the designated features of the SPA has been identified and therefore no impact on the protected area is predicted.

#### WR102e: Bold Heath Boreholes to Prescot WTW

7.2.16 The principal elements of this option are the recommissioning of existing boreholes at Bold Heath, and the construction of a new raw water main to transfer water to Prescot open reservoirs. A new

abstraction licence would be required, but the site was previously licenced for the required abstraction quantity.

- 7.2.17 The results of the individual assessments for this option are that the option may have a minor or no or minimal impact on seven water bodies:
  - GB112069061210 (Hardshaw (Windle) Brook);
  - GB112069061170 (Sutton Brook);
  - GB112069060990 (Whittle Brook (Mersey Estuary));
  - GB112069060710 (Prescot Brook (Logwood Mill Brook));
  - GB41202G100100 (Sankey and Glaze Carboniferous aquifers); and
  - A non-reportable water body to the north of the River Mersey (reference 170).
- 7.2.18 The confidence level of the assessments for this option is high, reflecting the level of certainty in the option design, and that there is evidence that indicates the proposed groundwater abstraction quantity is within available groundwater resources. The ALS states that there is restricted water in the groundwater body, but evidence from the EA<sup>24</sup> states that there is 3 Ml/d annual average available for licensing. This is greater than the 1.35 Ml/d annual average abstraction proposed by the option. The EA also states that the proposed peak abstraction of 9 Ml/d may be possible.
- 7.2.19 A water body scale cumulative assessment has not been undertaken for this option, as no other Preferred Plan options occur in the same water bodies. However, a catchment scale cumulative assessment was required for the Sankey operational catchment, to assess the cumulative impact of the changes in multiple water bodies arising from this option. The cumulative impact on the catchment was assessed to be a minor level of impact (the results of individual assessments for the four water bodies in this catchment were all a no or minimal or a minor level of impact, and the water bodies with a medium level of impact noted above were located in a different catchment).
- This option is not linked to any protected areas.

#### **WR113: Tytherington Boreholes**

- 7.2.21 The principal elements of this option are the construction of a new treated water main to allow an increased peak abstraction rate from the Tytherington boreholes. This is within the existing abstraction licence.
- 7.2.22 The results of the individual assessments for this option are that the option may have a minor level of impact on two water bodies (GB112069061320 (Bollin (Source to Dean)), and GB41201G101100 (Manchester and East Cheshire Permo-Triassic Sandstone Aquifers)).
- 7.2.23 The confidence level of this assessment is medium, reflecting the level of certainty in the option design, and that there are several pieces of evidence that indicate the groundwater abstraction is unlikely to have a significant impact on the aquifer or surface watercourses.
- 7.2.24 Cumulative assessments were undertaken for one water body (GB112069061320: Bollin (Source to Dean)), and one operational catchment (Bollin Dean Mersey Upper), as two options (WR113 and WR159) occur in this water body and in multiple water bodies within the catchment. The cumulative impact of both options is minor, both in the individual water body and in the operational catchment.
- This option is not linked to any protected areas.

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<sup>&</sup>lt;sup>24</sup> Personal communication email between the EA and UU 20/12/2016.

#### WR114: Python Mill Borehole

- 7.2.26 The principal elements of this option are the reinstatement of the abstraction borehole at Python Mill and the construction of a new raw water main for discharge into the Rochdale Canal. A new abstraction licence would be required.
- 7.2.27 The results of the individual assessment for this option are that the option may have a medium level of impact on two water bodies (GB112069064720: Roch (Source to Spodden), and GB41202G101800: Northern Manchester Carboniferous Aquifers), and a minor level of impact on the Rochdale Canal itself (GB71210517).
- 7.2.28 The confidence level of the assessments for Roch (Source to Spodden) and Northern Manchester Carboniferous Aquifers is low. This reflects the lack of knowledge at this time regarding linkages between the Northern Manchester Carboniferous aquifer and surface water courses (a worst case scenario of a strong linkage between the aquifer and the River Roch is assumed), and that there is no assessment of the availability of groundwater provided in the ALS. The minor level of impact for the Rochdale Canal has a high confidence, but is based on two key assumptions. Firstly that the discharge to the canal 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, and secondly that management of water levels and flows in the canal is and will be undertaken with due consideration to WFD status and objectives (see Section 3.3).
- 7.2.29 A water body scale cumulative assessment was undertaken for the two medium impact water bodies listed above, and for both, the cumulative assessment remains at medium. A catchment scale cumulative assessment was undertaken for the Roch Irk and Medlock operational catchment, the cumulative impact also remains at medium for this catchment.
- 7.2.30 The Rochdale Canal is a SAC. The assessment result for this protected area is a minor level of impact, based on the two key assumptions outlined above.

#### WR159: Improved Reservoir Compensation Release Control from 76 Individual Reservoirs

- 7.2.31 The principal element of this option is the reduction of compensation flows at local reservoirs across UU's supply area. The assessment for this option has been broken down by reservoir group, as detailed in the engineering scope document.
- The option impacts on a total of 116 water bodies, all of which will be subject to a no or minimal or a minor level of impact.
- 7.2.33 The confidence level of this assessment is medium, reflecting that although there is some uncertainty in the option design, there is good evidence (HMWB investigations) that indicates that the reductions in compensation flows will not have a significant impact on the WFD status of the downstream river water bodies.
- 7.2.34 A water body scale cumulative assessment was undertaken for six water bodies affected by option WR159. Only in two of these is the cumulative impact greater that the individual impact attributed to option WR159 in the individual water body assessments. These are both groundwater bodies (GB41202G100300 (Douglas, Darwen and Calder Carboniferous Aquifers), and GB41202G101800 (Northern Manchester Carboniferous Aquifers)), where the impact from other options was minor or medium. Option WR159 does not increase the level impact on these water bodies.
  - A catchment scale cumulative assessment was undertaken for eleven catchments affected by option WR159. In one of these catchments (Roch Irk Medlock), the cumulative impact is greater than the impact of the individual reductions in compensation releases due to the presence of WR114 (Python Mill borehole) that has a greater individual impact. Option WR159 does not increase the level impact in this catchment.
- 7.2.35 Option WR159 will impact water bodies linked to several protected areas. For most of these, there is no hydrological link between the option and the protected area. For three protected areas, the reduction in compensation releases will reduce flows in the protected area, but the impact will be no greater than minor.

#### WR160: Improved Reservoir Compensation Release Control from Vyrnwy, Rivington, Thirlmere and Haweswater Reservoirs

- 7.2.36 The principal element of this option is the reduction of compensation flows at four regional reservoirs across UU's supply area. The assessment for this option has been broken down by individual reservoir, as detailed in the engineering scope.
- 7.2.37 The option impacts on a total of twelve water bodies, all of which will be subject to a no or minimal or a minor level of impact.
- 7.2.38 The confidence level of this assessment is medium, reflecting the good level of certainty in the option design, and that there is good evidence (HMWB investigations) that indicates that the reductions in compensation flows will not have a significant impact on the WFD status of the downstream river water bodies.
- 7.2.39 A water body scale cumulative assessment was undertaken for four water bodies affected by option WR160. The cumulative impact was not raised above the level of the individual impact, with a maximum cumulative impact of minor. An operational catchment scale cumulative assessment was required for one catchment (Eamont), in which the cumulative impact remained at minor level, the same as the individual impact.
- 7.2.40 Option WR160 will impact on water bodies linked to four protected areas. For two of these, there is no hydrological pathway between the option and the protected areas. For the remaining two, the reduction in compensation releases will reduced stream flows in the protected area, but the impact will be no greater than minor.

#### WR821: Shropshire Union Canal

- 7.2.41 The principal elements of this option are a new abstraction from the Shropshire Union Canal (Middlewich Branch). A new abstraction licence would be required.
- 7.2.42 The results of the individual assessment for this option are that the option may have a no or minimal or a minor level of impact on four water bodies.
- 7.2.43 The confidence level in this assessment is low, reflecting uncertainty in the option design over the source of the abstracted water.
- 7.2.44 A water body scale cumulative assessment was not required, but a catchment scale cumulative assessment was required for the Weaver Upper operational catchment. The cumulative impact is no greater than the minor level of impact assigned in the individual assessment.
- 7.2.45 This option will impact water bodies linked to the Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses SAC by the Weaver and Dane Quaternary Sand and Gravel Aquifer groundwater body. The impact on the SAC is no or minimal impact.

#### **B2: Water Trading Enabling Works**

- 7.2.46 The principal elements of this option are the upgrading of the Vyrnwy Aqueduct, construction of four new booster stations, and modifications to Oswestry WTW.
- 7.2.47 The results of the individual assessment for this option are that the option will have a no or minimal impact on eleven water bodies.
- 7.2.48 There is a high level of confidence in this assessment due to the limited potential for interaction between the option and the water environment.
- 7.2.49 A water body scale cumulative assessment was undertaken on two water bodies. For one, the cumulative impact remains at no or minimal, but for the second (GB109054049880 (Vyrnwy Lake Vyrnwy to conf Afon Cownwy)), the impact is raised to minor due to the individual impact of option WR160. The enabling works do not increase the level of cumulative impact in this water body. The enabling works were also considered as part of the cumulative assessment for two operational catchments, but in neither catchment was the cumulative impact raised above no or minimal.



7.2.50 The enabling works could impact on water bodies linked to one protected area (Berwyn and South Clwyd Mountains SAC and SPA), but no hydrological link between the option and the protected area has been identified.

## 7.3 Summary of the Preferred Plan

7.3.1 The assessment results for the Preferred Plan for WRMP19 are summarised in Table 7.1. The results indicate that three of the options could have a medium level of impact against WFD objectives and as such, these options will require further assessment at the detailed planning stage.

	Result of Individual assessment	Result of cumulative assessment	Result of Protected Area assessment	Overall result	Confidence level
WR099b: Worsthorne borehole (Hurstwood IR)	Minor level of impact	Minor level of impact	Minor level of impact	Minor level of impact	Medium
WR101: Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	Medium level of impact	Medium level of impact	n/a	Medium level of impact	Low
WR102e Bold Heath boreholes to Prescot WTW	Minor level of impact	Minor level of impact	n/a	Minor level of impact	High
WR113: Tytherington boreholes	Minor level of impact	Minor level of impact	n/a	Minor level of impact	Medium
WR114: Python Mill borehole	Medium level of impact	Medium level of impact	Minor level of impact	Medium level of impact	Low
WR159: Group 1 - Improved reservoir compensation release control	Minor level of impact	Minor level of impact	Minor level of impact	Minor level of impact	Medium
WR160: Group 2 - Improved reservoir compensation release control	Minor level of impact	Minor level of impact	Minor level of impact	Minor level of impact	Medium
WR821: Shropshire Union Canal	Minor level of impact	Minor level of impact	No or minimal impact	Minor level of impact.	Low
B2: Enabling Works	No or minimal impact	No or minimal impact	n/a	No or minimal impact	High

#### Table 7.1 Summary of Assessment Results for the Preferred Plan Options

## 7.4 WRMP Preferred Plan Options Requiring Further Assessment

#### The Reality of Moderate Potential Impact: A Regulatory Perspective

- 7.4.1 Three of the nine Preferred Plan options have been assigned a medium level of potential impact on account of increased levels of groundwater abstraction. These activities pose a potential risk of widespread or prolonged impacts on the status of WFD water bodies.
- 7.4.2 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, these options are 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 or medium 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 groundwater abstractions will impact on 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 Options Requiring Further Assessment**

- Further detailed WFD assessment should be undertaken on the Preferred Plan options that have been assigned a medium or high level of impact in either the individual, cumulative or protected area assessments. No preferred plan options have been assessed as having a high level of impact, but two are assessed as having a medium level of impact. These options are:
  - WR101 Franklaw boreholes; and
  - WR114 Python Mill boreholes.
- Further assessment should include consideration of more detailed design information, investigation of the water environment associated with each 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.

### 7.5 Alternative Preferred Plan Options

- 7.5.1 Option WR100 (Thorncliffe Road borehole) may be included in the Preferred Plan if WR114 (Python Mill borehole) proves not to be a suitable option. This reflects the uncertainties currently identified in the HRA with regard to the potential impacts of Option WR114 on European designated sites.
- The individual option assessment for WR100 has assigned a minor level of impact on the two water bodies that this option may affect (with a medium level of confidence for the surface water body and a high level of confidence for the groundwater body). This compares to a medium level of impact on two water bodies (low confidence) and a minor level of impact on one water body (high level of confidence) for WR114 (refer to Appendices B and E).
- The substitution of WR100 for WR114 in the Preferred Plan would result in an overall lowering of the potential impact of the Preferred Plan. Cumulative and protected area assessments have not been undertaken on WR100 at this time, but given the minor level of impact in the individual assessments for this option, it is unlikely (but not guaranteed) that an impact greater than minor would result from the cumulative or protected area assessments.





# 8. Statement of Compliance with the WFD

### 8.1 Current Abstraction Licences

8.1.1 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.

## 8.2 Preferred Plan Options

- <sup>8.2.1</sup> The assessments for the preferred options that comprise the Preferred Plan for WRMP19 indicate that three of the options could have a medium level of impact against WFD objectives. 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.
- 8.2.2 In reality, on consideration of further information and dialogue with the EA on proposed bespoke mitigation measures during the consultation and project stages, these options are 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.

### 8.3 Article 4.7 Requirements

- <sup>8.3.1</sup> 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.
- <sup>8.3.2</sup> 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 7.4.





# Appendix A List of Feasible Options



Ontion		
Option Ref	Option Name	Preferred Option?
WR001	River Alt To Prescot WTW	Preferred Option?
WR003	Fisher Tarn (Kendal) to Thirlmere Aqueduct and Lostock For Treatment	
WR004	Longsleddale Reservoir	
WR006	Glaze Brook	
WR007	Sankey Brook	
WR009	River Rawthey To Watchgate	
WR012	Borrow Beck IR	
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	River Litch (Temple Solverby) to Watchgate	
WR047a	Miler Tunel, Bagilt (Transfer to Huntington)	
WR049b	River Ribble (Transfer to Anglezarke IR)	
WR062a	Worthington WTW	
WR062b	Worthington WTW (Rivington)	
WR074	River Darwen (Transfer to Fishmoor WTW)	
WR076	River Bollin	
WR079b	Appleton Reservoir, Warrington	
WR079c	Appleton Reservoir, Warrington	
WR079d	Appleton Reservoir, Warrington	
WR095	Roughton Gill	
WR099a WR099b	Worsthorne Borehole (Compensation) Worsthorne Borehole (Hurstwood IR)	Yes
WR099b WR099c	Worsthorne Borehole (Worsthorne WTW)	165
WR099C	Thorncliffe Road Borehole, Barrow-In-Furness	1
WR101	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	Yes
WR102a	Widnes Boreholes to Prescot WTW	
WR102ai	Widnes Boreholes To Prescot WTW	
WR102b	Widnes Boreholes To Liverpool And Warrington DMZs	
WR102c	Widnes Boreholes To Runcorn And Warrington DMZs	
WR102d	Eccleston Hill Borehole to Prescot WTW	
WR102e	Bold Heath Boreholes to Prescot WTW	Yes
WR105a	Lymm Boreholes (Abandonment of Existing WTW Facility; New WTW at Sow Brook)	
WR105ai WR105b	Lymm Boreholes (Abandonment of Existing WTW Facility; New WTW at Sow Brook) Lymm Boreholes (Abandonment of Existing WTW Facility; New WTW at Hill Cliffe)	
WR105bi WR105bi	Lymm Boreholes (Abandonment Of Existing WTW Facility; New WTW At Hill Cliffe)	
WR1055	Walton And Daresbury Boreholes	
WR107a	Aughton Park & Moss End Boreholes (Royal Oak WTW)	
WR107ai	Aughton Park & Moss End Boreholes (Royal Oak WTW)	
WR107b	Randles Bridge, Knowsley, Primrose Hill	
WR109	Swineshaw Boreholes (Buckton Castle WTW)	
WR110	Rushton Spencer Boreholes	
WR111	Woodford Borehole	
WR112	Bramhall Borehole	
WR113	Tytherington Boreholes	Yes
WR114	Python Mill Borehole	Yes
WR119a	Egremont Boreholes (Existing)	
WR119b	Egremont Boreholes (New)	
WR120 WR120i	Cross Hill Boreholes, Wirral Cross Hill Boreholes, Wirral	
WR121a	Eaton Boreholes (Hollins Hill)	
WR121b	Eaton Boreholes (Mid Cheshire Main)	
WR122	Newton Hollows Boreholes	
WR125	Bearstone Boreholes	
WR128	Tarn Wood (North Eden to Carlisle)	
WR129	North Cumbria Boreholes	
WR140	Horwich Wwtw – Final Effluent Reuse	
WR141	Rossendale Wwtw- Final Effluent Reuse	_
WR142	Hyndburn Wwtw – Final Effluent Reuse Saddlawaeth and Mosclay Top, Final Effluent Pouro	
WR144 WR146	Saddleworth and Mossley Top- Final Effluent Reuse Davyhulme- Final Effluent Reuse	1
WR146 WR148	Cumwhinton Boreholes plus Castle Carrock Link	
WR148 WR150	Castle Carrock Dead Water Storage	1
WR153	Simmonds Hill- Increased WTW Capacity	1
WR154	Sandiford – Increased WTW Capacity	
WR159	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	River Bela to Thirlmere Aqueduct	
WR810	Third Party Option: Cow Green IR To Haweswater via Heltondale Aqueduct	
WR812	Third Party Option: Kielder Water IR Transfer	
WR813	Third Party Option: Scammonden IR To Buckton Castle via Huddersfield Narrows Canal	
WR814a	Increased Abstraction Capacity at Heronbridge	
	Increased treatment capacity at Hurleston WTW via Canal	
WR814b	Increased treatment capacity at Hurleston WTW via Canal	
WR814c	Third Party Ontion: Manchester Bolton Bury Canal To Integrated Zone	
WR814c WR816	Third Party Option: Manchester Bolton Bury Canal To Integrated Zone Third Party Option: Carr Mill Dam To Integrated Resource Zone	
WR814c WR816 WR817	Third Party Option: Carr Mill Dam To Integrated Resource Zone	
WR814c WR816 WR817 WR820		Yes
WR814c WR816 WR817	Third Party Option: Carr Mill Dam To Integrated Resource Zone Third Party Option: Shropshire Union Canal To Integrated Resource Zone	Yes



# Appendix B Summary of Level 1 Screening and Level 2 Detailed Assessment Results for Feasible Options



Option	WFD Water Body	Information												Option Detail		er oir	~		90	= = = =		80	Impacts		
														on land with water rossings	odified vater (e.g. ake	nping statio odified wat 1t works rage reserve	fall to river r/canal/ t	of water via nnal / t creased vater on quantity	n of exisitin e to surface	traction we iment traction we is	creased rater on quantity i to reservoi	ervoir / ment raising			
Ref Option Name	ID	Туре	Hydro - morphological Designation	WB Name	Operational Catchment	Ecological Stat	Ecological us Objective	Quantitative Status	Quantitative Objective	Chemical Status	Chemical Objective	Overall Statu:	s Overall Objective	Pipe line Pipe line course c	New / rr surface v river) int	New pur New / m treatme New sto	New out reservoi aq ued ue	Transfer river / ci aq ued uc New / in surface v ab stracti	Cessatio discharg water	New ab: drilling / refurbis! New ab: headw o	New / in groundv ab stracti chang ec com pen	New res emb ank	Level 1 Screening Results	Level 2 Screening Required?	Level 2 Screening Level 2 Screening Combined Screening Result Combined Screening Result
WR001 River Alt To Prescot WTW	GB11206906071		No designation	Prescot Brook (Logwood Mill Brook)	Ditton	moderate	Moderate by 202	7 n/a	n/a	Good	Good by 2027	Moderate	Moderate by 2027	Y Y	N	NY	N N	N N	Ν	N N	N N	Ν	Minor level of impact	N	Minor level of impact
WR001 River Alt To Prescot WTW WR001 River Alt To Prescot WTW	GB11206906061		Heavily modified Heavily modified	Croxteth/Knowsley Brook Simonswood Brook	Alt	Moderate Moderate	Good by 2027 Good by 2027	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Moderate Moderate	Good by 2027 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
WR001 River Alt To Prescot WTW	GB11206906144		Heavily modified	Alt US Bull Bridge	Alt	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
WR001 River Alt To Prescot WTW	GB11206306144	River	Heavily modified	Alt DS Bull Bridge	Alt	Moderate	Good by 2027	n/a	n/a	Fail	Good by 2027	Moderate	Good by 2027	Y N	Y	Y N	N N	N Y	N	N N	N N	Ν	Medium level of impact	Y	Medium level of impact Medium Medium level of impact
WR001 River Alt To Prescot WTW	GB41202G10010		No designation	Sankey and Glaze Carboniferous Aquifers Lower Mersey Basin and North Merseyside Permo-Triassic	Sankey and Glaze Carboniferous Aq Mersey Basin Lower and Merseyside North Permo-Trias		n/a	Good	Poor by 2015	Poor	Good by 2027	Poor	Poor by 2027	Y Y	N	NY	N N	N N	N	N N	N N	N	Minor level of impact	N	Minor level of impact Minor level of impact Minor level of impact
WR001 River Alt To Prescot WTW Fisher Tarn (Kendal) to Thirlmere Aqueduct and Lostock WR003 Treatment	GB11207307110		No designation	Sandstone Aquifers Stainton Beck	Sandstone Aq Bela	n/a Moderate	n/a Good by 2027	n/a	Good by 2027 n/a	Good	Good by 2027 Good by 2015	Poor Moderate	Good by 2027 Good by 2027	Y N	N	Y Y	N N	N Y	N	N N	N N	N	Medium level of impact Medium level of impact	Y	Minor level of impact Medium Minor level of impact Minor level of impact Medium Minor level of impact
Fisher Tarn (Kendal) to Thirlmere Aqueduct and Lostock WR003 Treatment	For GB41202G10210	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	Y N	N	Y Y	N N	N <b>Y</b>	N	N N	N N	N	Medium level of impact	Y	No or minimal impact High No or minimal impact
WR004 Longsleddale Reservoir	GB11207307143	) River	No designation	Sprint	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 Y	N	N N	N N	Y	High level of impact	Y	High level of impact High High
WR004 Longsleddale Reservoir WR006 Glaze Brook	GB41202G10210		No designation	South Cumbria Lower Palaeozoic and Carboniferous Aquifers	Cumbria South Lower Palaeozoic and Carboniferous Aq	n/a Poor	n/a Poor by 2015	Good	Good by 2015	Poor Good	Good by 2027 Good by 2015	Poor	Good by 2027 Poor by 2015	Y Y	N	Y N	N N	N Y	N	N N	N N	Y	High level of impact Medium level of impact	Y	Minor level of impact High Minor level of impact Medium level of impact Medium Medium level of impact
WR006 Glaze Brook	GB11206906452		Heavily modified	Hey/Borsdane Brook	Glaze	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2013	y y	N	N Y	N N	N N	N	N N	N N	N	Minor level of impact	N	Minor level of impact
WR006 Glaze Brook	GB41201G10170	0 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 by 2027	Poor	Good by 2027	Poor	Good by 2027	y y	Y	N Y	N N	N Y	N	N N	N N	Ν	Medium level of impact	Y	Minor level of impact Medium Minor level of impact
WR007 Sankey Brook	170	River	No designation	Non reportable water body to the north of the 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	N	N N	N N	Ν	Minor level of impact	N	Minor level of impact
WR007 Sankey Brook WR007 Sankey Brook	GB53120690810	) Transitional v Canal	vater Heavily modified	Mersey Bridgewater Canal	Sankey Sankey	Moderate Moderate	Good by 2027 Good by 2027	n/a n/a	n/a n/a	Fail Good	Good by 2027 Good by 2015	Moderate Moderate	Good by 2027 Good by 2027	N N	Y	N N	N N	N Y	N	N N	N N	N	Medium level of impact	Y N	Medium level of impact Medium Medium 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	N N	N N	N N	N	N N	N N	N	Minor level of impact	N	Minor level of impact
WR007 Sankey Brook	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 Lower Mersey Basin and North Merseyside Permo-Trias	n/a sic	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Y Y	N	N Y	N N	N N	N	N N	N N	Ν	Minor level of impact	N	Minor level of impact
WR007 Sankey Brook	GB41201G10170		-	Sandstone Aquifers	Sandstone Aq	n/a	n/a	Poor	Good by 2026	Poor	Good by 2027	Poor	Good by 2027	Y Y	Y	NY	N N	N Y	N	N N	N N	Ν	Medium level of impact	Y	No or minimal impact Medium No or minimal impact
WR009 River Rawthey To Watchgate WR009 River Rawthey To Watchgate	GB11207207171		No designation	Rawthey - Lower Lune - conf Birk Beck to conf Rawthey	Greta and Rawthey Lune Upper	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 Y Y Y	Y N	Y N	N N	N Y	N	N N	N N	N	Medium level of impact Minor level of impact	Y N	Medium level of impact Medium Medium level of impact
WR009 River Rawthey To Watchgate	GB11207207172		No designation	Peasey Beck	Bela	Good	Good by 2027 Good by 2027	n/a	n/a	Good	Good by 2027 Good by 2027	Good	Good by 2027 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
WR009 River Rawthey To Watchgate	GB11207307110	0 River	No designation	Stainton Beck	Bela	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	Ν	N N	N N	Ν	Minor level of impact	N	Minor level of impact
WR009 River Rawthey To Watchgate	GB11207307134		No designation	Flodder beck	Kent	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	Ν	N N	N N	Ν	Minor level of impact	N	Minor level of impact
WR009 River Rawthey To Watchgate WR009 River Rawthey To Watchgate	GB11207307137		No designation	Mint Mint - Upper	Kent	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 Y	N	N 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	GB11207307146		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	N 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	GB11207307143	) River	No designation	Sprint	Kent	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	y y	N	NY	N N	N N	N	N N	N N	Ν	Minor level of impact	N	Minor level of impact
WR009 River Rawthey To Watchgate	GB41202G10270			Lune and Wyre Carboniferous Aquifers	Lune and Wyre Carboniferous Aq	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Good	Good by 2027	Y Y	Y	Y N	N N	N Y	N	N N	N N	Ν	Medium level of impact	Y	Minor level of impact Medium Minor level of impact
WR009 River Rawthey To Watchgate WR012 Borrow Beck IR	GB41202G10210 GB11207307464		No designation	South Cumbria Lower Palaeozoic and Carboniferous Aquifers Mint- Upper	South Cumbria Lower Palaeozoic and Carboniferous Aq	n/a Good	n/a Good by 2015	Good	Good by 2027	Good	Good by 2027 Good by 2015	Good	Good by 2027 Good by 2015	Y Y	N	N Y	N N	N N	N	N N	N N	N	Minor level of impact	N	Minor level of impact
WR012 Borrow Beck IR	GB11207207177		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	N N	N N	N N	N	N N	N N	Y	High level of impact	Y	High level of impact High
WR012 Borrow Beck IR	GB41202G10210	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	Y Y	N	Y N	N N	N N	Ν	N N	N N	Y	High level of impact	Y	Minor level of impact High Minor level of impact
WR012 Borrow Beck IR	GB41202G10270		No designation	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 Y	N	N N	N N	N N	N	N N	N N		Minor level of impact	N	Minor level of impact
WR026a River Ribble Support To Stocks Reservoir WR026a River Ribble Support To Stocks Reservoir	GB11207106561		No designation	Ribble DS Stock Beck Bashall Brook	Ribble Middle - Settle to Calder Ribble Middle - Settle to Calder	Good	Good by 2015 Good by 2015	n/a n/a	n/a	Fail Good	Fail by 2015 Good by 2015	Moderate Good	Moderate by 2015 Good by 2015	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	Medium level of impact Medium Medium level of impact
WR026a River Ribble Support To Stocks Reservoir	GB11207106538	0 River	No designation	Easington Brook	Hodder and Loud	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	Ν	N N	N N	Ν	Minor level of impact	N	Minor level of impact
WR026a River Ribble Support To Stocks Reservoir	GB11207106556		No designation	Hodder - conf Easington Bk to conf Ribble	Hodde and Loud	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y N	Ν	N N	N N	N N	Ν	N N	N N	Ν	No or minimal impact	N	No or minimal impact
WR026a River Ribble Support To Stocks Reservoir WR026a River Ribble Support To Stocks Reservoir	GB11207106535		No designation Heavily modified	Hodder - conf Croasdale Bk to conf Easington Bk Hodder - Stocks Reservoir to conf Croasdale Bk	Hodder and Loud	Good Moderate	Good by 2015 Good by 2021	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Good Moderate	Good by 2015 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
WR026a River Ribble Support To Stocks Reservoir	GB31230030	Lake	Heavily modified	Stocks Reservoir	Hodder and Loud	Moderate	Good by 2021	n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	N N	N	N N	N Y	N N	N	N N	N N	N	Minor level of impact	N	Minor level of impact
WR026a River Ribble Support To Stocks Reservoir	GB41202G10300	0 Groundwater	No designation	Ribble Carboniferous Aquifers	Ribble Carboniferous Aq	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	y y	Y	Y N	N Y	N Y	N	N N	N N	N	Medium level of impact	Y	Minor level of impact Medium Minor level of impact
WR037a Haweswater Reservoir – Raise Embankment Structure	GB30229073	Lake	Reservoir	Haweswater Reservoir	Eamont	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	N N	Ν	N N	N N	N N	Ν	N N	N N	Y	High level of impact	Y	Minor level of impact Medium Minor level of impact
WR037a Haweswater Reservoir – Raise Embankment Structure WR037a Haweswater Reservoir – Raise Embankment Structure	GB10207607072		No designation	Haweswater Beck Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Eamont Eden and Esk Lower Palaeozoic and Carboniferous Aq	Good n/a	Good by 2027 n/a	n/a Good	n/a Good by 2015	Good	Good by 2027 Good by 2015	Good	Good by 2027 Good by 2015	N N	N	N N	N N	N N	N	N N	N N	Y	High level of impact	Y	Minor level of impact Medium Minor level of impact High 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	N N	N N	N N	N	N N	N N		High level of impact	Y	Minor level of impact Medium Minor level of impact
WR037b Haweswater Reservoir – Raise Embankment Structure	GB10207607072	River	No designation	Haweswater Beck	Eamont	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	N N	Ν	N N	N N	N N	Ν	N N	N N	Y	High level of impact	Y	Minor level of impact Medium Minor level of impact
WR037b Haweswater Reservoir – Raise Embankment Structure	GB40202G10230		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 N	Y	High level of impact	Y	Minor level of impact High Minor level of impact
WR039a River Eden (Temple Sowerby) To Watchgate WR039a River Eden (Temple Sowerby) To Watchgate	GB10207607098		No designation	Eden Lyvennet to Eamont Leith	Eden Upper Eden Upper	Moderate Good	Good by 2015 Good by 2015	n/a	n/a n/a	Good	Good by 2015 Good by 2015	Moderate Good	Good by 2015 Good by 2015	Y N	N	N N	N N	N N	N	N N	N N	N	Medium level of impact Minor level of impact	Y N	High level of impact Medium High level of impact
WR039a River Eden (Temple Sowerby) To Watchgate	GB10207607083		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	N N	N N	N N	Ν	N N	N N	N	No or minimal impact	N	No or minimal impact
WR039a River Eden (Temple Sowerby) To Watchgate	GB10207607069		Heavily modified	Lowther (Upper)	Eamont	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	Ν	N N	N N	Ν	No or minimal impact	N	No or minimal impact
WR039a River Eden (Temple Sowerby) To Watchgate	GB11207207181		No designation	Birk Beck Borrow Beck	Lune Upper	Moderate Good	Good by 2027 Good by 2027	n/a	n/a	Good	Good by 2015 Good by 2015	Moderate Good	Good by 2027 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
WR039a River Eden (Temple Sowerby) To Watchgate WR039a River Eden (Temple Sowerby) To Watchgate	GB112072071770 GB11207307464		No designation	Borrow Beck Mint - Upper	Kent	Good	Good by 2027 Good by 2015	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Good	Good by 2027 Good by 2015	Y Y	N	N Y	N N	N N	N	n N	N N	N	Minor level of impact Minor level of impact	N	Minor level of impact Minor level of impact
WR039a River Eden (Temple Sowerby) To Watchgate	GB40201G10040	0 Groundwater		Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifer	Eden Valley and Carlisle Basin Permo-Triassic sandstone Aquifers Eden and Esk Lower Palaeozoic and Carboniferous	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y Y	Y	Y N	N N	N Y	N	N N	N N	Ν	Medium level of impact	Y	Medium level of impact Medium Medium level of impact
WR039a River Eden (Temple Sowerby) To Watchgate	GB40202G10230			Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Aquifers	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	Y N	N	N N	N N	N N	Ν	N N	N N		No or minimal impact	N	No or minimal impact
WR039a River Eden (Temple Sowerby) To Watchgate WR039a River Eden (Temple Sowerby) To Watchgate	GB41202G10270 GB41202G10210		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	n/a n/a	Good	Good by 2015 Good by 2015	Good	Good by 2015 Good by 2027	Good Poor	Good by 2015 Good by 2027	Y Y Y V	N	N N	N N	N N	N	N N	N N		Minor level of impact	N	Minor level of impact
WR039a River Eden (Temple Sowerby) To Watchgate WR041 River Inthing to Cumwhinton plus Castle Carrock Link	GB10207607398		No designation	South Cumbria Lower Palaeozoic and Carboniterous Aquiters	South Cumbria Lower Palaeozoic and Carboniterous Aq	n/a Good	n/a Good by 2015	n/a	n/a	Good	Good by 2027 Good by 2015	Good	Good by 2027 Good by 2015	Y Y	Y	Y N	N N	N Y	N	N N	N N	N	Minor level of impact	Y	Minor level of impact Medium Medium level of impact
WR041 River Irthing to Cumwhinton plus Castle Carrock Link	GB10207607391	0 River	No designation	Pow Maughan Beck	Eden Lower	Poor	Good by 2027	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Y Y	N	NY	N N	N N	Ν	N N	N N	Ν	Minor level of impact	N	Minor level of impact
WR041 River Irthing to Cumwhinton plus Castle Carrock Link	GB10207607394		No designation	Eden- Eamont to tidal	Eden Lower	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	Ν	N N	N N		Minor level of impact	N	Minor level of impact
WR041 River Irthing to Cumwhinton plus Castle Carrock Link WR041 River Irthing to Cumwhinton plus Castle Carrock Link	GB10207607387		No designation	Caim Beck Trout Beck (Caim Beck)	Eden Lower	Poor Moderate	Good by 2027 Good by 2027	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Poor Moderate	Good by 2027 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
WR041 River Inthing to Cumwhinton plus Castle Carrock Link WR041 River Inthing to Cumwhinton plus Castle Carrock Link	GB10207607404		No designation	Gelt	Esk and Irthing	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	N N	N	Minor level of impact	N	Minor level of impact
WR041 River Irthing to Cumwhinton plus Castle Carrock Link	GB40201G10040	0 Groundwater	No designation	Eden Valley and Carlisle Basin Permo-Triassic Sandstone aquifer	Eden Valley and Carlisle Basin Permo-Triassic Sandstone Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y Y	Y	Y Y	N N	N Y	N	N N	N N	Ν	Medium level of impact	Y	Minor level of impact Medium Minor level of impact
WR047a Milwr Tunnel, Bagillt (Transfer to Huntington)	166	River	No designation	Non reportable water body at the mouth of the River Dee	n/a -	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Y Y	Y	Y N	N N	N Y	N	N N	N N	N	Medium level of impact	Y	Medium level of impact Low Medium level of impact
WR047a Milwr Tunnel, Bagillt (Transfer to Huntington) WR047a Milwr Tunnel, Bagillt (Transfer to Huntington)	GB11106705694		No designation	Swinchiard Brook Wepre Brook	Dee	Good Moderate	Good by 2015 Good by 2027	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	Minor level of impact	N	Minor level of impact
WR047a Milwr Tunnel, Bagillt (Transfer to Huntington)	GB11106705216		Heavily modified	Sandycroft Drain	Dee	Moderate	Good by 2021	n/a	n/a	Good	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	N	Minor level of impact
WR047a Milwr Tunnel, Bagillt (Transfer to Huntington)	GB11106705215	0 River	Heavily modified	Balderton Drain	Dee Estuary	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	Ν	N N	N N	Ν	Minor level of impact	N	Minor level of impact
WR047a Milwr Tunnel, Bagillt (Transfer to Huntington)	GB11106705708		Heavily modified	Dee- Chester Weir to Ceiriog	Dee	Moderate	Good by 2021	n/a	n/a	Fail	Good by 2021	Moderate	Good by 2021	Y N	N	N Y	N N	N N	N	N N	N N		No or minimal impact	N	No or minimal impact
WR047a Milwr Tunnel, Bagillt (Transfer to Huntington) WR047a Milwr Tunnel, Bagillt (Transfer to Huntington)	GB41101G20240 GB41102G20480			Dee Permo-Triassic Sandstone Dee Carboniferous Coal Measures	Dee Permo-Triassic Sandstone Dee Carboniferous Coal Measures	n/a n/a	n/a	Good	Good by 2015 None given	Good	Good by 2015 Poor by 2015	Good Poor	Good by 2015 Poor by 2015	Y Y	ri Y	Y N	N N	N N	N	N N	N N	N	Minor level of impact Medium level of impact	Y	Minor level of impact Minor level of impact

k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k         k	ing Results Confidence Combined Screening Result Confidence Combined Screening Result Minor level of impact Minor level of impact
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         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	ing Results Confidence Combined Screening Result Minor level of Impact of Impact Medium Ievel of Impact Minor Ievel of Impact
Pric         Option Name         D         Type         Designation         Option Name         Option Name        Option Name         Option Name         Option	ing Results Confidence Combined Screening Result Minor level of Impact of Impact Medium Ievel of Impact Minor Ievel of Impact
NRNS         Sker Rible (Tranfer to Anglezade Rift)         Revir         Name         Adder          Adder         Ad	Minor level of impact of impact Medium Medium Minor level of impact Minor level of impact Minor level of impact of impact Minor level of impact Minor level of impact Minor level of impact Minor level of impact Ninor level of impact Ninor level of impact Ninor level of impact Ninor level of impact
NRNSP         Rest Discription Conduction Condite Condite Condition Conducting Condinary Condition Conduction C	of impact Medium Medium level of impact Minor level of impact Minor level of impact Minor level of impact of impact Medium level of impact Minor level of impact Minor level of impact Minor level of impact
NRAPP         New Rubble (Transfer to Angleazake (R)         GB112071055300         River         No designation         Darwee-conf Roddleworth to tidal         Darwee-	Minor level of impact Minor level of impact of impact Medium Medium level of impact Minor level of impact Minor level of impact Minor level of impact
VR0498         River Ribble (Transfer to Anglezarke R)         GB12071055280         River         Heavily modified         Darwen         Moderate         Good by 2027         n/a         n/a         Good         Good by 2015         Noterate         Good by 2015         Noderate         Good by 2017         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         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	Minor level of impact Minor level of impact of Impact Minor level of impact Minor level of impact Minor level of impact Nicor minimal impact
WR049b River Ribble (Transfer to Anglezarke IR) G84201G100500 Groundwater No designation Fylde Permo-Triassic Sandstone Aquifers Fylde Permo-Triassic Sandstone Aquifers Fylde Permo-Triassic Sandstone Aquifers Pylde Permo-Triassic Sandstone Aquife	of Impact Medium Medium Ievel of Impact Minor Ievel of Impact Minor Ievel of Impact Ninor Ievel of Impact No or minimal Impact
	Minor level of impact Minor level of impact No or minimal impact
	Minor level of impact No or minimal impact
	No or minimal impact
WR049b         River Ribble (Transfer to Anglezarke IR)         G831231190         Lake         Artificial         Anglezarke Reservoir         Douglas OC         Moderate         Good         Good         Good         Good         VR049b         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         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	
WR052a         Worthington WTW         Gal12070064780         River         Heavily modified         Douglas OC         Moderate         Good         Good by 2017         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         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 <td></td>	
WR062b Worthington WTW (Rivington) G8112070064780 River Heavily modified Douglas-Mid Douglas-OC Moderate Good by 2027 n/a n/a Good Good by 2015 Moderate Good by 2017 Y Y N N N N N N N N N N N N N N N N N	Minor level of impact
WR062b Worthington WTW (Rvington) GB12070064800 River Heavily modified Buckhow (Hic Bibbi) Brook Dougles 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 N N N N	Minor level of impact
WR052b Worthington WTW (Rivington) G8112070054850 River Heavily modified Douglas-Upper Douglas OC Moderate Good by 2027 n/a n/a Good Good by 2015 Moderate Good by 2017 Y N N N N N N N N N N N N N N N N N N	Minor level of impact
WR062b         Worthington         Good by 2017         Y         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         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<	Minor level of impact
WR074         River Darwen (Transfer to Fishmoor WTW)         GB112071055500         River         Heavily modified         Ribble conf Calder to Tidal         Big Ribble         Moderate         Good         Good         Good         Good         Y         Y         Y         Y         Y         N         N         N         N         N         Medium level         Moderate         Good         Good         Good         Good         Good         Good         Y         Y         N         N         N         N         N         N         N         N         N         N         N         N         N         N         Medium level	of impact Medium Medium level of impact
WR074         River Darwen (Transfer to Fishmoor WTW)         G8112071055290         River         Darwen - conf Blakewater to conf Roddlesworth         Darwen         Poor         Good by 2027         n/a         Good by 2015         Poor         Good by 2027         Y         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         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
WR074 River Darwen (Transfer to Fishmoor WTW) G811207165250 River No designation Roddlesworth Darwen Good by 2027 n/a n/a Good Good by 2027 Good Good by 2027 W N N N N N N N N N N N N N N N N N N	No or minimal impact
WR074         River Darwen (Transfer to Fishmoor WTW)         GB112071055270         River         No designation         Darwen         Cood         Good by 2027         n/a         Good         Good         Good by 2027         W         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
WR074         River Darwen (Transfer to Fishmoor WTW)         G8412026100300         Groundwater         No designation         Douglas Darwen and Calder Carboniferous Aquifers         Douglas Darwen and Calder Carboniferous Aquifers         Douglas Darwen and Calder Carboniferous Aquifers         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         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 <th< td=""><td>No or minimal impact</td></th<>	No or minimal impact
WR074         River Darwen (Transfer to Fishmoor WTW)         Ge412015(105000         Groundwater         No designation         Fylde Permo-Trassic Sandstone Aquifers         Fylde Permo-Trassic Sandstone Aquifers         Fylde Permo-Trassic Sandstone Aquifers         Y         N         N         N         N         Medium level of impact         Y         Minor Level of           WR074         River Darwen (Transfer to Fishmoor WTW)         G6412015(105000         Ground by 2015         Good         Good         Good by 2015         Y         N         N         N         N         N         Medium level of impact         Y         Minor Level of           WR076         River Bollin         Good         Y         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	of impact Medium Minor level of impact
WR076         River Bollin         Ga11206906382         River         Heavily modified         Bollin Jean Mersey Upper         Moderate by 2015         N         N         N         N         N         N         Medium level           WR076         River Bollin         Ga11206906382         River         Heavily modified         Bollin Jean Mersey Upper         Moderate by 2015         N         Y         Y         Y         Y         Y         Y         Y         Y         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         N         N         N         N         N         N         N         N         N         N	of impact Medium Medium level of impact
WND/D         NVM NVM Re built         SelfLobSDU0590         NVM NVM Re built         SelfLobSDU0590         NVM NVM Re built         SelfLobSDU0590         NVM NVM Result         NVM Re	
WR079b Appleton Reservoir, Warrington G831232665 Lake Heavily modified Appleton Reservoir Weaver Lower Moderate by 2015 n/a n/a Good Good by 2015 Moderate Moderate by 2015 N N Y Y N N N N N N N N N N N N N N N	of impact Low Medium level of impact
WR079b Appleton Reservoir, Warrington 159 River No designation Non reportable water body to the south of the River Mersey n/a	impact Low Minor level of impact
WR079b Appleton Reservoir, Warrington G841202G991700 Groundwater No designation Weaver and Dane Quaternary Sand and Gravel Aquifers Underset Pasin and North Mersey Basin and North Mersey B	
	No or minimal impact
WR079:         Appleton Reservoir, Warrington         Ga31232665         Lake         Heavily modified         Appleton Reservoir         Moderate by 2015         N         Y         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         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	
WR075c Appleton Beservoir, Warrington GR12202091700 Groundwater No designation Weaver and Dave Quaternary Sand and Gravel Aq. n/a n/a Good Good by 2015 Poor Good by 2015 Poor Good by 2017 Poor	
Lower Mersey Basin and North Merseyside Permo-Triassic Lower Mersey Basin and North Merseyside Permo-Triassic Lower Mersey Basin and North Merseyside Permo-Triassic August and North Merseyside Perm	No or minimal impact
WR0799 Appleton Reservoir, Warrington G831232665 Lake Heavily modified Appleton Reservoir Weaver Lower Moderate by 2015 n/s n/a Good Good by 2015 Moderate Moderate by 2015 N Y N N N N N N N N N N N N N N N N N	of impact Low Medium level of impact
WR0793 Appleton Reservoir, Warrington 159 River No designation Non reportable water body to the south of the River Mersey n/a	
WR0736         Appleton Reservoir, Warrington         Ge412025991700         Groundwater         No designation         Weaver and Dane Quaternary Sand and Gravel Aquifers         Weaver and Dane Quaternary Sand and Gravel Aquifers         Veaver and Dane Quaternary Sand and Gravel Aquifers	impact Medium Minor level of impact
WWW/Sig         Appletion Reservoir, warmington         Gest 2010 00 / 0027         Poor         Good by 2027         Poor         Foor         Foor <t< td=""><td>No or minimal impact</td></t<>	No or minimal impact
WR095 Roughton Gill Good by 2015 R/a Good by 2015 R/a r/a Good Good by 2015 Good Good by 2015 Y Y Y N N N N N N N N N N N N N N N N	
WR095 Roughton Gill G8402026102300 Groundwater No designation Eden and Esk Lower Palaeoxoic and Carboniferous Aq n/a n/a Good Good by 2015 Good Good by 2015 Good Good by 2015 Good Good by 2015 W Y N N N N N N N N N N N N N N N N N N	impact Medium Minor level of impact
WR099a Worsthorne Borehole (Compensation) GB112071055090 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 N Y Y N N Y Y N N Medium level of impact Y Minor level of	impact Medium Minor level of impact
WR099a Worsthorne Borehole (Compensation) G841202G100300 Groundwater No designation Douglas, Darwen and Calder Carboniferous Aq n/a n/a Good Good by 2015 Poor Good by 2027 Po	
WR099b         Workshore Barehole (Hurstwood IR)         G8112071065090         River         Heavily modified         Brun-beadwaters to cont Don         Calder         Moderate         Good	
WR099: Worsthorne Borehole (Worsthorne WTW) GB41202G10300 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 N N N N N N	impact Medium Minor level of impact
WR100 Thomsdille Road Borehole, Barrow-In-Furness 344 River No designation Non reportable water body at the River Duddon Estuary n/a	impact Medium Minor level of impact
WR100 Thomsdiffe Road Borehole, Barrow-in-Furness G8412016101900 Groundwater No designation Furness Permo-Triassic sandstone aquifers Furness 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 N N N N N N N N	
WR101       Capacity       Gastay       Gastay       Good       Good by 2027       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       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	
WR101     Capacity     Gastary     Good     Good by 2015     n/a     Good     Good by 2015     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     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     N     N     N     N     N     N     N     N     N     N     N<	
Translature 2 (seption browseld Franklaw WTWT Translature (seption browseld Franklaw 2 (seption browseld Fran	
Franklaw Z Site plus increased Franklaw WTW Treatment         Franklaw Z Site plus increased Fran	of impact Low Medium level of impact
W131         Capacity         Galaxity         Galaxity         Galaxity         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         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         <	
WR121         Capacity         G8412016100500         Groundwater         No designation         Fylde Permo-Triasic Sandstone Aquifers         Fylde Permo-Triasic Sandstone Aquifers         Fylde Permo-Triasic Sandstone Aquifers         Y         Y         Y         Y         Medium Intel           WR121         Capacity         Good         Good by 2015         Good         Good by 2015         Good         Good by 2015         Good         Y         Y         Y         Medium Intel         Medium Intel         Medium Intel         Y         Y         Medium Intel         Y         Y         Medium Intel         Y         Y         Y         Medium Intel         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y         Y </td <td>of impact Low Medium level of impact</td>	of impact Low Medium level of impact
Withow         Withow         Gasta Description         Good	Minor level of impact Minor level of impact
WILDL2         Wildless for Prescot WTW         GS122059050590         River         Heavily modified         Ditton         Moderate by 2027         n/a         Good         Good         Good by 2027         Y         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         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 <td>Minor level of impact</td>	Minor level of impact
Will D22 Widene Boreholes to Preced WTW GB12065660710 River No designation Preced Brook Logwood Mill Brook) Ditton moderate y 2027 y n Gorate Moderate y 2027 y n k N N N N N N N N N N N N N N N N N N	No or minimal impact
Lower Mersey Basin and North Merseyside Permo-Triassic WR102a Widnes Boreholes to Precox WTW 68412015101700 Groundwater No designation Sandstone Aquifers Sandstone Aquifers North Permo-Triassic Sandstone Aq n/a n/a Good Good by 2027 Good Good by 2027 Good Good by 2027 Good Good by 2027 Provide Sandstone Aquifers No N N N N N N N N N N N N N N N N N N	Minor level of impact
WR102zi Widnes Bareholes To Prescot WTW GB112069060680 River Heavily modified Netherley Brook Ditton Brook (Halewood to Mersey Estuary) Good Good by 2027 n/a n/a Good Good by 2027 Good Good by 2027 V N N N N N N N N N N N N N N N N N N	Minor level of impact
WR102ai         Wr102ai         Wr102ai         Wr102ai         Wr102ai         Wr102ai         Moderate by 2027         Moderate by 2027         Y         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         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	Minor level of impact
W1102ai Widnes Boreholes To Prescot WTW G51120696060590 River Heavily modified Dog Clog Brook (including MII Brook) Ditton Good Good by 2027 n/a n/a Good Good by 2027 Cood Good by 2027 Y N N N N N N N N N N N N N N N N N N	Minor level of impact
WILDZai Widnes Boreholes To Prescot WTW Gest120big/00/20 River No designation Prescot WTW Gest20big/00/20 River Moseyside Permo-Triassic Lower Messeyside Perm	No or minimal impact
WR102b Widnes Boreholes To Livergood And Warrington DMZs G81120659606680 River Heavily modified Netherley Brook Halewood to Mersey Stuary) Good Good by 2027 n/a n/a Good Good	Minor level of impact
WR102b Widnes Boreholes To Liverpool And Warrington DMZs G8112069051390 River Heavily modified Ditton Brook (Halewood to Mersey Estuary) Ditton Brook (Halewood to Mersey Estuary) Moderate Moderate by 2027 n/a n/a Good Good by 2027 Moderate Moderate by 2027 n/a n/a Good Good by 2027 Moderate Moderate by 2027 Y Y N N N N N N N N N N N N N N N N N	Minor level of impact
WR102b Widnes Bareholes To Liverpool And Warrington DMZs G112069066690 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 Good Good by 2027 Y Y N N Y N N N N Y N N N N N N N N N	Minor level of impact
With the Stretchets To Liverpool And Warrington DMZs         167         River         Nodesignation         (n/a         (n/a <td>Minor level of impact</td>	Minor level of impact
WR102b Widnes Boreholes To Liverpool And Warrington DMZs GB41201501700 Groundwater No designation Sandstone Aquifers Sandstone Aquifers Sandstone Aquifers Sandstone Aquifers Sandstone Aquifers No Minor level of Impact N	Minor level of impact
WR102:         Widnes Boreholes To Runcom And Warrington DM2s         G6112069061390         River         Heavily modified         Ditton         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         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 <t< td=""><td>Minor level of impact</td></t<>	Minor level of impact
WR102: Widenes Soreholes To Runcom And Warrington DMZs Gal12069060680 River Heavily modified Netherley Brook Ditton Moderate Good by 2027 n/s n/s Good Good by 2027 n/s n/s Good Good by 2027 n/s n/s Good Good by 2015 Moderate Good by 2027 n/s n/s Good Good by 2027 n/s n/s Good Good by 2027 n/s n/s Good Good by 2015 Moderate Good by 2027 n/s n/s Good Good by 2015 Moderate Good by 2027 n/s n/s Good Good by 2015 Moderate Good by 2027 n/s n/s Good Good by 2015 Moderate Good by 2027 n/s n/s Good Good by 2015 Moderate Good by 2027 n/s n/s Good Good by 2015 Moderate Good by 2027 n/s n/s Good Good by 2015 Moderate Good by 2027 n/s n/s Good Good by 2015 Moderate	Minor level of impact
Non reportable water body to the north of the River Messey WR102c Widnes Boreholes To Runcorn And Warrington DMZs 157 River No designation estuary n/a	Minor level of impact
WR102c Widnes Boreholes To Runcom And Warrington DMZs 159 River No designation Non reportable water body to the south of the River Mersey n/a	No or minimal impact

Option	WFD Water Body Int	ormation											0	ption Detail 흹	ŵ	ation water	srvoir ver / /	rvia tity	iting ace	well well face	tity voir	le ase sing
			Hydro - morphological				Ecological	Quantitative Q	wantitative	Chemical	Chemical		hard no call	line with wa	·/ modified ace water (e. ) intake	pumping str / modified v tment works	storage rese outfall to riv rvoir / can al	sfer of water -/ canal / ad uct / in or eased sce water raction quan	ation of exis narge to surf. r	abstraction ng / rbishment abstraction Works / surf	ndwater raction quan	pensation reservoir / ankment rai
Ref Option Name	ID	Туре	Designation	WB Name	Operational Catchment	Ecological Status	Objective		bjective	Status	Objective	Overall Status	Overall Objective	Pipe	New surfa rive:	New trea	New New rese aqué	Tran rivei aq uç New surfi	Cess discl wate	New drilli refu New strue	grou Char	New com
WR102c Widnes Boreholes To Runcorn And Warrington DMZs	170	River	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-Triassi	n/a			/a		n/a	n/a	n/a	Y N	Ν	N N	N N	N N	Ν	N N	Ν	N N
WR102c Widnes Boreholes To Runcorn And Warrington DMZs	GB41201G101700	Groundwater	No designation	Sandstone Aquifers	Sandstone Aq	n/a	n/a		lood by 2026		Good by 2027	Poor	Good by 2027	Y Y	N	NY	N N	N N	N	Y Y	Ν	N N
WR102c Widnes Boreholes To Runcorn And Warrington DMZs WR102d Eccleston Hill Borehole to Prescot WTW	GB41101G202600 GB112069061210	Groundwater	No designation Heavily modified	Wirral and West Cheshire Permo-Triassic Sandstone Aquifers Hardshaw (Windle) Brook	Wirral and West Cheshire Permo-Triassic Sandstone Aq Sankey	n/a Moderate			iood by 2015		Good by 2027 Good by 2015	Poor Moderate	Good by 2027 Good by 2027	Y N	N	N N	N N	N N	N	N N	N	N N
WR102d Eccleston Hill Borehole to Prescot WTW WR102d Eccleston Hill Borehole to Prescot WTW	GB112069061210	Groundwater	No designation	Sankey and Glaze Carboniferous aquifers	Sankey and Glaze Carboniferous Ag	n/a	G000 by 2027		/a iood by 2015	Poor	Poor by 2015	Poor	Poor by 2015	Y N	N	N Y	N N	N N	N	N N	N	N N
WR102d Eccleston 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-Triassi Sandstone Aq		n/a		iood by 2027	Poor	Good by 2027	Poor	Good by 2027	Y N	N	N N	N N	N N	N	Y Y	Y	N N
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	n/a	Y Y	N	N N	N N	N N	N	Y Y	Y	N N
WR102e Bold Heath Boreholes to Prescot WTW	GB112069061210	River	Heavily modified	Hardshaw (Windle) 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	Ν	N N	Ν	N N
WR102e Bold Heath Boreholes to Prescot WTW	GB112069061170	River	Heavily modified	Sutton Brook	Sankey	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	Ν	N N	Ν	N N
WR102e Bold Heath Boreholes to Prescot WTW	GB112069060990	River	Heavily modified	Whittle Brook (Mersey Estuary)	Sankey	Moderate	Good by 2027	n/a n	/a	Good	Good by 2015	Moderate	Good by 2027	Y N	Ν	N N	N N	N N	Ν	N N	Ν	N N
WR102e Bold Heath Boreholes to Prescot WTW	GB112069060710	River	No designation	Prescot Brook (Logwood Mill Brook) Lower Mersey Basin and North Merseyside Permo-Triassic	Ditton Mersey Basin Lower and Merseyside North Permo-Triassi	moderate	Moderate by 2027		/a	Good	Good by 2027	moderate	Moderate by 2027	Y N	Ν	NY	N N	N N	Ν	N N	N	N N
WR102e Bold Heath Boreholes to Prescot WTW	GB41201G101700	Groundwater	No designation	Sandstone Aquifers	Sandstone Aq	n/a	n/a		lood by 2027	Poor	Good by 2027	Poor	Good by 2027	Y Y	N	N N	N N	N N	N	Y Y	Y	N N
WR102e Bold Heath Boreholes to Prescot WTW Lymm Boreholes (Abandonment of Existing WTW Facility; WR105a New WTW at Sow Brook)	GB41202G100100	Groundwater	No designation	Sankey and Glaze Carboniferous aquifers Non reportable water body to the south of the River Mersey	Sankey and Glaze Carboniferous Aq	n/a n/a	n/a n/a		iood by 2015 /a	Poor n/a	Poor by 2015 n/a	Poor n/a	Poor by 2015 n/a	N N	N	N Y	N N	N N	N	N N	N	N N
Lymm Boreholes (Abandonment of Existing WTW Facility; WR105a New 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-Triassi Sandstone Aq	n/a	n/a		iood by 2027		Good by 2027	Poor	Good by 2027	N N	N	N Y	N N	N N	N	N N	N	N N
Lymm Boreholes (Abandonment of Existing WTW Facility; WR105ai New WTW at Sow Brook)	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	N N	N	N Y	N N	N N	N	N N	N	N N
Lymm Boreholes (Abandonment of Existing WTW Facility; WR105ai New 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-Triassin Sandstone Aq	n/a	n/a	Poor G	iood by 2027	Poor	Good by 2027	Poor	Good by 2027	N N	N	N Y	N N	N N	Ν	N N	Ν	N N
Lymm Boreholes (Abandonment of Existing WTW Facility; WR105b New WTW at Hill Cliffe) Lymm 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-Triassi	n/a	n/a	n/a n	/a	n/a	n/a	n/a	n/a	Y Y	Ν	N Y	N N	N N	Ν	N N	Ν	N N
WR105b New WTW at Hill Cliffe) Lymm Boreholes (Abandonment Of Existing WTW Facility:	GB41201G101700	Groundwater	No designation	Sandstone Aquifers	Sandstone Aq	n/a	n/a	Poor G	iood by 2027	Poor	Good by 2027	Poor	Good by 2027	Y Y	Ν	N Y	N N	N N	Ν	N N	Ν	N N
WR105bi New WTW At Hill Cliffe) Lymm 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-Triassi	n/a	n/a	n/a n,	/a	n/a	n/a	n/a	n/a	Y Y	Ν	N Y	N N	N N	Ν	N N	Ν	N N
WR105bi New WTW At Hill Cliffe)	GB41201G101700	Groundwater	No designation	Sandstone Aquifers	Sandstone Aq	n/a	n/a		iood by 2027		Good by 2027	Poor	Good by 2027	Y Y	Ν	NY	N N	N N	Ν	N N	N	N N
WR106 Walton And Daresbury Boreholes WR106 Walton And Daresbury Boreholes	GB112068060520	River	heavily modified	Keckwick Brook	Weaver Lower	Moderate	Good by 2027		√a √a		Good by 2015	Moderate	Good by 2027 n/a	Y Y	N	N N	N N	N N	N	Y Y	Y	N N
WR106 Walton And Daresbury Boreholes WR106 Walton And Daresbury Boreholes	169 GB41201G101700	Groundwater	No designation	Non reportable water body to the south of the Kiver Mersey Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	n/a Lower Mersey Basin and North Merseyside Permo-Triassi Sandstone Aq	n/a :	n/a n/a		/a iood by 2027	n/a Roor	n/a Good by 2027	n/a Poor	n/a Good by 2027		N	N Y	N N	N N	N	Y Y	Y N	N N
WR106 Walton And Daresbury Boreholes WR106 Walton And Daresbury Boreholes	GB41201G101700 GB41202G991700	Groundwater	No designation	Sandstone Aquiters Weaver and Dane Quaternary Sand and Gravel Aquifers	Sandstone Aq Weaver and Dane Quaternary Sand and Gravel Aq	n/a n/a	n/a n/a		600d by 2027	Poor	Good by 2027 Good by 2027	Poor	Good by 2027 Good by 2027	Y Y	N	N N	N N	N N	N	Y Y	Y	N N
WR107a Aughton Park & Moss End Boreholes (Royal Oak WTW)	GB112069060640	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	v v	N	N Y	N N	N N	N	y y	Y	N N
WR107a Aughton Park & Moss End Boreholes (Royal Oak WTW)	GB41201G101700	Groundwater	No designation	Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	Mersey Basin Lower and Merseyside North Permo-Triassi Sandstone Aq	n/a	n/a	Poor G	iood by 2027	Poor	Good by 2027	Poor	Good by 2027	Y Y	N	N Y	N N	N N	Ν	Y Y	Y	N N
WR107ai Aughton 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-Triassi	Poor	Good by 2027	n/a n,	/a	Good	Good by 2015	Poor	Good by 2027	Y Y	Ν	N Y	N N	N N	Ν	Y Y	Y	N N
WR107ai Aughton Park & Moss End Boreholes (Royal Oak WTW)	GB41201G101700	Groundwater	No designation	Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	Sandstone Aq	n/a	n/a	Poor G	iood by 2027	Poor	Good by 2027	Poor	Good by 2027	Y Y	Ν	N Y	N N	N N	Ν	Y Y	Y	N N
WR107b Randles Bridge, Knowsley, Primrose Hill	GB112063060610	River	Heavily modified	Croxteth/ Knowsley Brook	Alt	Moderate	Good by 2027	n/a n	/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	Ν	N N	N N	N N	Ν	Y Y	Y	N N I
WR107b Randles Bridge, Knowsley, Primrose Hill	GB112063060630	River	Heavily modified	Simonswood Brook	Alt	Moderate	Good by 2027		/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	N	N N	N N	N N	Ν	N N	Ν	N N
WR107b Randles Bridge, Knowsley, Primrose Hill	GB112063060640	River	Heavily modified	Downholland (Lydiate/Cheshires Lines) Brook	Alt	Poor			/a		Good by 2015	Poor	Good by 2027	Y Y	N	N Y	N N	N N	N	N N	N	N N
WR107b Randles Bridge, Knowsley, Primrose Hill WR107b Randles Bridge, Knowsley, Primrose Hill	GB112063064510 GB112070064830	River	Heavily modified	Chisnall Brook	Alt Crossens System	Moderate			/a /a		Good by 2015 Good by 2015	Moderate Moderate	Good by 2027 Good by 2027	· ·	N	N N	N N	N N	N	Y Y	Y	N N
WR107b Randles Bridge, Knowsley, Primrose Hill	GB41201G101700	Groundwater	No designation	Lower Mersey Basin and North Merseyside Permo-Triassic Sanstone Aquifers	Mersey Basin Lower and Merseyside North Permo-Triassi Sandstone Aq	n/a			iood by 2027		Good by 2027	Poor	Good by 2027	Y Y	N	NY	N N	N N	N	Y Y	Y	N N
WR109 Swineshaw Boreholes (Buckton Castle WTW)	GB112069061111	River	Heavily modified	Tame (Chew Brook to Swineshaw Brook)	Goyt Etherow Tame	Moderate	Moderate by 2015	n/a n	/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	N	N N	N Y	Y N	N	y y	Y	N N
WR109 Swineshaw Boreholes (Buckton Castle WTW)	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good G	iood by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	Ν	N N	N Y	Y N	Ν	y y	Y	N N
WR110 Rushton 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	Ν	N N	N N	N N	Ν	N N	Y	N N
WR110 Rushton Spencer Boreholes	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifer	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good G	iood by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	Ν	N N	N N	N N	Ν	N N	Y	N N
WR111 Woodford Borehole	GB112069060950	River	No designation	Poise Brook	Goyt Etherow Tame	Poor			/a		Good by 2015	Poor	Good by 2027	N N	Ν	NY	N N	N N	Ν	N N	N	N N
WR111 Woodford Borehole	GB112069061360	River	No designation	Dean (Bollington to Bollin)	Bollin Dean Mersey Upper	Poor	Moderate by 2027		/a	Good	Good by 2015	Poor	Moderate by 2027	N N	Ν	N N	N N	N N	Ν	Y Y	Y	N N
WR111 Woodford Borehole WR111 Woodford Borehole	GB41202G102900 GB41201G101100	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers Manchester and East Cheshire Permo-Triassic Sandstone Aquifers	Manchester and Cheshire East Carboniferous Aq Manchester and Cheshire East Permo-Triassic Sandstone	n/a	n/a n/a		iood by 2015	Poor	Good by 2027 Good by 2021	Poor	Good by 2027 Good by 2021	N N	N	N Y	N N	N N	N	N N	N V	N N
WR112 Bramhall Borehole	GB112069060950	River	No designation	Poise Brook	Govt Etherow Tame	Poor	Good by 2027	n/a n	/a	Good	Good by 2021	Poor	Good by 2021 Good by 2027	Y N	N	N Y	N N	N N	N	N N	N	N N
WR112 Bramhall 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	N	Y Y	Y	N N
WR112 Bramhall 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	Ν	N N	Ν	N N 1
WR112 Bramhall Borehole	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	Ν	N N	N N	N N	Ν	N N	Ν	N N
WR112 Bramhall Borehole	GB112069060920	River	Heavily modified	Micker (Norbury) Brook	Bollin Dean Mersey Upper	Moderate	Good by 2027	n/a n,	/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	Ν	N N	N N	N N	Ν	N N	Ν	N N
WR112 Bramhall Borehole	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq Manchester and Cheshire East Permo-Triassic Sandstone	n/a	n/a	Good G	lood by 2015	Poor	Good by 2027	Poor	Good by 2027	Y Y	Ν	NY	N N	N N	Ν	N N	N	N N
WR112 Bramhall Borehole	GB41201G101100	Groundwater	No designation	Manchester and East Cheshire Permo-Triassic Sandstone Aquifers		n/a	n/a		iood by 2021		Good by 2021	Poor	Good by 2021	Y Y	Ν	N N	N N	N N	Ν	Y Y	Y	N N
WR113 Tytherington Boreholes	GB112069061320	River	Heavily modified	Bollin (Source to Dean)	Bollin Dean Mersey Upper Manchester and Cheshire East Permo-Triassic Sandstone	Moderate	Moderate by 2027		/a		Good by 2027	Moderate	Moderate by 2027	Y N	N	NY	N N	N N	N	Y Y	Y	N N
WR113 Tytherington Boreholes WR114 Python Mill Borehole	GB41201G101100 GB112069064720	Groundwater	No designation Heavily modified	Manchester and East Cheshire Permo-Triassic Sandstone Aquifers Roch (Source to Spodden)	Aq Roch Irk Medlock	n/a Moderate	n/a Good by 2027		iood by 2027 /a		Good by 2027 Good by 2027	Poor Moderate	Good by 2027 Good by 2027	Y N	N	N Y	N N	N N	N	Y Y Y Y	Y	N N
WR114 Python Mill Borehole WR114 Python Mill Borehole	GB112069064720 GB41202G101800	River Groundwater	No designation	Koch (Source to Spodden) Northern Manchester Carboniferous Aquifers	Roch Irk Mediock Manchester Northern Carboniferous Aq	n/a	Good by 2027		iood by 2027		Good by 2027 Good by 2027	Moderate Poor	Good by 2027 Good by 2027	Y N	N	N N	N N	Y N	N	Y Y Y Y	Y	N N
WR114 Python Mill Borehole	GB71210517	AWB - Canal	Artificial	Rochdale Canal, western section	Roch Irk Medlock Canals and SWT	Moderate	Good by 2027		/a	Good	Good by 2027	Good	Good by 2027	Y N	N	N N	N Y	Y N	N	N N	N	N N
WR119a Egremont Boreholes (Existing)	GB112074069980	River	No designation	Ehen (lower)	Ehen-Calder	Good	Good by 2015	n/a n	/a	Good	Good by 2015	Good	Good by 2015	N N	Ν	N N	N N	N N	Ν	N N	Y	N N
WR119a Egremont Boreholes (Existing)	GB112074070010	River	Heavily modified	Ehen (upper including Liza)	Ehen-Calder	Moderate	Good by 2027	n/a n,	/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	Ν	NY	N N	N N	Ν	N N	Ν	N N
WR119a Egremont 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/a	N N	Ν	N N	N N	N N	Ν	N N	Y	N N
WR119a Egremont Boreholes (Existing)	GB41201G102000	Groundwater	No designation	West Cumbria Permo-Triassic Sandstone Aquifers Derwent and West Cumbria Lower Palaeozoic and Carboniferous	Cumbria West Permo-Triassic Sandstone Aq Derwent and West Cumbria Lower Palaeozoic and	n/a	n/a		iood by 2015	Good	Good by 2015	Good	Good by 2015	N N	Ν	N N	N N	N N	Ν	N N	Y	N N
WR119a Egremont Boreholes (Existing)	GB41202G103700	Groundwater	No designation	Aquifers	Carboniferous Aq	n/a	n/a		iood by 2015	Poor	Good by 2027	Poor	Good by 2027	Y Y	Ν	NY	N N	N N	Ν	N N	N	N N
WR119b Egremont Boreholes (New)	GB112074069980	River	No designation	Ehen (lower)	Ehen-Calder	Good			/a	Good	Good by 2015	Good	Good by 2015	Y Y	N	Y N	N N	N N	Ν	Y Y	Y	N N
WR119b Egremont Boreholes (New) WR119b Egremont Boreholes (New)	GB112074070010	River	Heavily modified	Ehen (upper including Liza) Non reportable water body on the St Bees Coast	Ehen-Calder n/a	Moderate n/a	Good by 2027 n/a		/a /a		Good by 2015 n/a	Moderate n/a	Good by 2027 n/a	Y Y	N	N Y	N N	N N	N	N N	N	N N
WR119b Egremont Boreholes (New) WR119b Egremont Boreholes (New)	353 GB41201G102000	Groundwater	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		va iood by 2015		n/a Good by 2015	n/a Good	n/a Good by 2015	Y Y	N	Y N	N N	N N	N	Y Y	Y	N N
WR119b Egremont Boreholes (New)	GB41201G102000	Groundwater	No designation		Derwent and West Cumbria Lower Palaeozoic and Carboniferous Aq	n/a	n/a		iood by 2015	Poor	Good by 2013	Poor	Good by 2013	Y Y	N	N Y	N N	N N	N	N N	N	N N
WR120 Cross Hill Boreholes, Wirral	GB112068060530	River	Heavily modified	The Birket including Arrowe Brook and Fender	Wirral	Moderate			/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	NY	N N	N N	Ν	Y Y	Y	N N
WR120 Cross 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		iood by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	Ν	NY	N N	N N	Ν	Y Y	Y	N N
WR120i Cross 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	Ν	N	N N	N N	Ν	Y Y	Y	N N
WR120i Cross 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 G	iood by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	Ν	N	N N	N N	Ν	Y Y	Y	N N
WR121a Eaton Boreholes (Hollins Hill)	GB112068055440	River	No designation	Wettenhall Brook	Weaver Upper	Poor			/a		Good by 2015	Poor	Good by 2027	Y N	Ν	Y Y	N N	N N	Ν	Y Y	Y	N N
WR121a Eaton Boreholes (Hollins Hill)	GB112068060450	River	Heavily modified	Darley Brook	Weaver Lower	Moderate			/a		Good by 2015	Moderate	Good by 2027	Y N	Ν	N N	N N	N N	Ν	N N	N	N N
WR121a Eaton Boreholes (Hollins Hill) WR121a Eaton Boreholes (Hollins Hill)	GB41202G991700 GB41101G202600	Groundwater	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		iood by 2015	Poor	Good by 2027 Good by 2027	Poor	Good by 2027 Good by 2027	Y N	N	Y Y	N N	N N	N	Y Y	Y	N N
WR121a Eaton Boreholes (Hollins Hill) WR121b Eaton Boreholes (Mid Cheshire Main)	GB41101G202600 GB112068055440	Groundwater	No designation	Wirral and West Cheshire Permo-Triassic Sandstone Aquifers Wettenhall Brook	Wirral and West Cheshire Permo-Triassic Sandstone Aq Weaver Upper	Good	n/a Good by 2027		iood by 2015	Good	Good by 2027 Good by 2027	Poor	Good by 2027 Good by 2027	Y N	N	Y Y	N N	N N	N	Y Y	Y	N N
WR121b Eaton Boreholes (Wild Cheshire Main) WR121b Eaton Boreholes (Mid Cheshire Main)	GB41202G991700	Groundwater	No designation	Weaver and Dane Quaternary Sand and Gravel Aquifers	Weaver opper	n/a	n/a		iood by 2027	Good	Good by 2027	Good	Good by 2027 Good by 2027	Y N	N	y y	N N	N N	N	Y Y	Y	N N
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groundwater ab straction qua	hanged to rese ompensation r	lew reservo ir / mb ankment ra		Level 2			
ab st n	Chang	New	Level 1 Screening Results	Screening Required?	Level 2 Screening Results	Level 2 Screening Confidence	Combined Screening Result
Ν	Ν	Ν	No or minimal impact	N			No or minimal impact
Ν	Ν	Ν	Minor level of impact	N			Minor level of impact
N	N	N	No or minimal impact Medium level of impact	N Y	Minor level of impact	Medium	No or minimal impact Minor level of impact
N	N	N	No or minimal impact	N	Minor level of impact	Medium	No or minimal impact
Y	Ν	Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
Y	Ν	Ν	Medium level of impact	Y	Minor level of impact	High	Minor level of impact
Ν	Ν	Ν	No or minimal impact	N			No or minimal impact
N	N	N	Minor level of impact No or minimal impact	N			Minor level of impact
N	N	N	No or minimal impact	N			No or minimal impact
Y	Ν	Ν	Medium level of impact	Y	Minor level of impact	High	Minor level of impact
Ν	Ν	Ν	Minor level of impact	N			Minor level of impact
Ν	Ν	Ν	No or minimal impact	N			No or minimal impact
N	N	N	No or minimal impact	N			No or minimal impact
N	N	N	No or minimal impact	N			No or minimal impact
Ν	Ν	Ν	Minor level of impact	N			Minor level of impact
Ν	Ν	Ν	Minor level of impact	N			Minor level of impact
Ν	Ν	Ν	Minor level of impact	N			Minor level of impact
N	N	N	Minor level of impact	N	Minor level of impact		Minor level of impact
Y Y	N	N	Medium level of impact Medium level of impact	Y Y	Minor level of impact	Medium	Minor level of impact
N	N	N	Minor level of impact	N			Minor level of impact
Y	Ν	Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
Y	Ν	Ν	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
Y	Ν	Ν	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
Y	N	N	Medium level of impact Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
Y	N	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
Ν	Ν	Ν	Minor level of impact	N			Minor level of impact
Ν	Ν	Ν	Minor level of impact	N			Minor level of impact
Ν	Ν	Ν	Minor level of impact	N			Minor level of impact
Y	N	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
Y Y	N	N	Medium level of impact Medium level of impact	Y Y	Medium level of impact Minor level of impact	Low	Medium level of impact Minor level of impact
Y	N	N	Medium level of impact	Ŷ	Minor level of impact	Medium	Minor level of impact
Y	Ν	Ν	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
Y	Ν	Ν	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
Ν	N	Ν	No or minimal impact	N			No or minimal impact
Y N	N	N	Medium level of impact	Y N	Minor level of impact	Medium	Minor level of impact
Y	N	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
N	Ν	Ν	No or minimal impact	N			No or minimal impact
Y	Ν	Ν	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
Ν	Ν	Ν	Minor level of impact	N			Minor level of impact
N	N	N	Minor level of impact	N			Minor level of impact Minor level of impact
N	Ν	Ν	Minor level of impact	N			Minor level of impact
Y	Ν	Ν	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
Y	Ν	Ν	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact
Y	N	N	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact
Y Y	N	N	Medium level of impact Medium level of impact	Y Y	Medium level of impact Medium level of impact	Low	Medium level of impact Medium level of impact
N	N	N	Minor level of impact	N			Minor level of impact
Y	Ν	Ν	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact
Ν	Ν	Ν	Minor level of impact	N			Minor level of impact
Y	N	Ν	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact
N	N	N	Medium level of impact	Y N	Minor level of impact	Low	Minor level of impact
Y	N	N	Medium level of impact	Y	High level of impact	Medium	High level of impact
N	Ν	Ν	Minor level of impact	N			Minor level of impact
Y	Ν	Ν	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
Y	Ν	Ν	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
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
Y	N	N	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
Y	N	N	Medium level of impact	Y Y	Medium level of impact	Low	Medium level of impact
Y	Ν	Ν	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
Y	Ν	Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
N	N	N	No or minimal impact	N	March		No or minimal impact
Y N	N	N	Medium level of impact	Y N	Minor level of impact	Medium	Minor level of impact
Y	N	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
Y	Ν	Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact

Option		WFD Water Body Inf	formation											C	ption Detail								
															d s		tation I water G	servoir	ilver/	er via	isiting rface	n well n well rface	, the second sec
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		-	_	Hydro - morphological				Ecological	Quantitative	Quantitative	Chemical	Chemical			pe line pe line surse c	ew / m irface v /er) int	ew pur ew / m eatmer	ew sto	ew out servoi	ansfer /er / ca jued uc ew / in inface v	ssatio scharg at er	ew abs illing / furbist ew abs	ructur ew / in oundw
Ref	Option Name	ID	Type	Designation	WB Name	Operational Catchment	Ecological Status	Objective	Status	Objective	Status	Objective		Overall Objective	228	ž ž ć	2 25	ž	2 2 E	<u>⊢€8 231</u>	3 H S	25222	11 2 15 18 (
	Newton Hollows Boreholes	GB112068060550 GB41101G202600	River Groundwater	No designation	Crowton Brook Wirral and West Cheshire Permo-Triassic Sandstone Aquifers	Weaver Lower Wirral and Cheshire West Permo-Triassic Sandstone Aq	Poor n/a	Moderate by 2027 n/a	Good	n/a Good by 2015	Good	Good by 2015 Good by 2027	Poor	Moderate by 2027 Good by 2027	N N	N	N Y	N	N	N N	N	Y V	Y Y Y
	Bearstone Boreholes	GB109054055150	Biuge	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 2027	Moderate	Good by 2027		N			N	N N		,	li i
	Bearstone Boreholes	GB112068055220	River	No designation	Birchall Brook	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
	Bearstone Boreholes	GB112008033220 GB40901G300100	Groundwater	No designation	Shripshire Middle Severn- PT Sandstone East Shropshire	Severn Middle Shropshire- Permo-Triassic Sandstone East Shropshire		n/a	Poor	Poor by 2015	Poor	Good by 2015	Poor	Poor by 2015	v v	N	y y	N	N	N N	N	Y	x x
	Bearstone Boreholes	GB41202G991700	Groundwater	No designation	Weaver and Dane Quaternary Sand and Gravel Aquifers	Weaver and Dane Quaternary Sand and Gravel Ag	n/a	n/a	Good	Good by 2015	Poor	Good by 2030	Poor	Good by 2027	v v	N	N N	N	N	N N	N	N	N N
	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	v v	N	Y N	N	N	N N	N	Y	x x
	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
WR128	Tarn Wood (North Eden to Carlisle)	GB102076073940	River	No designation	Eden - Eamont to tidal	Eden lower	Good	Poor by 2027	n/a	n/a	Good	Good by 2027	Good	Poor by 2027	Y N	Ν	N N	N	N	N N	N	N	N N
WR128	Tarn Wood (North Eden to Carlisle)	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	Ν	Y N	Ν	N	N N	N	Y	y y
WR129	North Cumbria Boreholes	GB102075073410	River	No designation	Wampool (Upper)	Waver-Wampool	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	Ν	N N	Ν	N	N N	N	Y	y y
WR129	North Cumbria Boreholes	GB102075073390	River	Heavily modified	Wiza Beck	Waver-Wampool	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	Ν	N N	Ν	N	N N	N	N	N N
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	Ν	N N	Ν	Ν	N N	N	Y	y y
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	Ν	N N	Ν	Ν	N N	N	N	N Y
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	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
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 Y	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR129	North Cumbria Boreholes	GB112075073620	River	No designation	Threapland Gill	Ellen and West Coast	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	Ν	N N	N	Ν	N N	Ν	Ν	N N
WR129	North Cumbria Boreholes	GB112075073630	River	No designation	Ellen (upper)	Ellen and West Coast	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y Y	Ν	N Y	N	Ν	N N	Ν	Ν	N N
WR129	North Cumbria Boreholes	GB112075073600	River	No designation	Cockshot Beck	Ellen and West Coast	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y Y	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
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	Ν	N N	Ν	Ν	N N	Ν	N	N N
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	Ν	N N	Ν	Ν	N N	Ν	Y	Y Y
WR129	North Cumbria Boreholes	GB40201G100400	Groundwater	No designation	Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Eden Valley and Carrisle Basin Permo-Triassic sandstone Aq	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Good	Good by 2027	Y Y	Ν	N N	Ν	Ν	N N	Ν	Ν	N Y
WR129	North Cumbria Boreholes	GB40202G102300	Groundwater	No designation	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers Derwent and West Cumbria Lower Palaeozoic and Carboniferous	Eden and Esk Lower Palaeozoic and Carboniferous Aq Derwent and West Cumbria Lower Palaeozoic and	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	Y Y	Ν	N N	N	Ν	N N	Ν	Ν	N N
WR129	North Cumbria Boreholes	GB41202G103700	Groundwater	No designation	Derwent and West Cumbria Lower Palaeozoic and Carboniterous Aquifers	Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y Y	Ν	NY	N	Ν	N N	N	Ν	N N
WR140	Horwich Wwtw - Final Effluent Reuse	GB112070064850	River	Heavily modified	Douglas - Upper	Douglas OC	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	Y	Y Y	N	Ν	N Y	N	Ν	N N
WR140	Horwich Wwtw - Final Effluent Reuse	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	Y Y	Y	Y Y	N	Ν	N Y	N	Ν	N N
WR141	Rossendale Wwtw- Final Effluent Reuse	GB112069064641	River	Heavily modified	Inwell (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	Y	Y Y	N	Ν	N Y	N	Ν	N N
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	Y	Y Y	N	Ν	N Y	N	Ν	N N
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	Ν	N Y	N	Ν	N N
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	Ν	N Y	N	Ν	N N	N	Ν	N N
WR142	Hyndburn Wwtw - Final Effluent Reuse	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	Y Y	Y	Y Y	N	Ν	N Y	N	Ν	N N
WR144	Saddleworth and Mossley Top- Final Effluent Reuse	GB112063061111	River	Heavily Modified	Tame (Chew Brook to Swineshaw Brook)	Goyt Etherow Tame	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	Y Y	Ν	Y Y	N	Ν	N Y	N	Ν	N N
WR144	Saddleworth and Mossley Top- Final Effluent Reuse	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	Y Y	Ν	Y Y	N	N	N Y	N	N	N N
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	n/a	Good	Good by 2015	Moderate	Moderate by 2015	Y Y	Ν	NY	Ŷ	N	N N	Y	N	N N
WR146	Davyhulme- Final Effluent Reuse	GB112069061430	River	Heavily modified	Folly Brook and Salteye Brook	Croal Irwell Manchester and Cheshire East Permo-Triassic Sandstone	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Y Y	Ν	NY	Ŷ	N	N N	N	N	N N
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		n/a	n/a	Poor	Good by 2021	Poor	Good by 2021	Poor	Good by 2021	Y Y	Ν	N Y	Y	N	N N	Y	N	N N
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	Ν	NY	Y	N	N N	Ν	N	N N
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	Ν	Y Y	N	Ν	N N	Ν	Y	Y Y
WR148	Cumwhinton Boreholes plus Castle Carrock Link	GB102076073940	River	No designation	Eden - Eamont to tidal	Eden lower	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR148	Cumwhinton Boreholes plus Castle Carrock Link	GB102076073870	River	No designation	Caim Beck	eden lower	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR148	Cumwhinton Boreholes plus Castle Carrock Link	GB102076073900	River	No designation	Trout Beck (Cairn Beck)	Eden lower	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	Ν	N N	N	Ν	N N	Ν	Ν	N N
WR148	Cumwhinton Boreholes plus Castle Carrock Link	GB102076074040	River	No designation	Gelt	Esk and Irthing Eden Valley and Carlisle Basin Permo-Triassic sandstone	Good	Good by 2027	n/a	n/a	Good	Good by 2027	Good	Good by 2027	Y Y	Ν	Y Y	N	Ν	N N	Ν	N	N N
WR148	Cumwhinton Boreholes plus Castle Carrock Link	GB40201G100400	Groundwater	No designation	Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers		n/a	n/a	Good	Good by 2027	Good	Good by 2027	Good	Good by 2027	Y Y	Ν	Y Y	N	Ν	N N	Ν	Y	Y Y
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	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR150	Castle Carrock Dead Water Storage	GB40201G100400	Groundwater	No designation	Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	N N	Ν	N N	N	Ν	N N	Ν	N	N N
WR153	Simmonds Hill- Increased WTW Capacity	GB112068060330	River	No designation	Peckmill Brook, Hoolpool Gutter at Ince Marshes	Gowy	Poor	Poor by 2015	n/a	n/a	Good	Good by 2015	Poor	Poor by 2015	N N	Ν	N Y	N	Ν	N N	Ν	Y	Y Y
WR153	Simmonds Hill- Increased WTW Capacity	GB112068060500	River	Heavily modified	Weaver (Dane to Frodsham)	Weaver Lower	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N Y	N	Ν	N N	Ν	Y	Y Y
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	Ν	N Y	N	Ν	N N	Ν	Y	Y Y
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	Ν	N Y	N	Ν	N N	Ν	Y	Y Y
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	Ν	N Y	N	Ν	N N	Ν	Y	Y Y
WR154	Sandiford – Increased WTW Capacity Group 1 - Improved reservoir compensation release control	GB112068060480	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	Ν	N N	Ν	Ν	N N	Ν	Y	Y Y
WR159	- MITCHELLS HOUSE 1 & 2     Group 1 - Improved reservoir compensation release control	GB31230812	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	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR159	- MITCHELLS HOUSE 1 & 2 Group 1 - Improved reservoir compensation release control	GB31230833	Lake	Artificial	Mitchells House Reservoir No 2	Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR159	- MITCHELLS HOUSE 1 & 2 Group 1 - Improved reservoir compensation release control	GB112071065040	River	Heavily modified	Hyndburn	Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR159	- MITCHELLS HOUSE 1 & 2 Group 1 - 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	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR159	- POAKA BECK, PENNINGTON & HARLOCK Group 1 - Improved reservoir compensation release control	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	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR159	- POAKA BECK, PENNINGTON & HARLOCK Group 1 - Improved reservoir compensation release control	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	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR159	- POAKA BECK, PENNINGTON & HARLOCK Group 1 - Improved reservoir compensation release control	GB31229599	Lake	Artificial	Harlock Reservoir	Duddon	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR159	- POAKA BECK, PENNINGTON & HARLOCK Group 1 - Improved reservoir compensation release control	GB31229607	Lake	Heavily modified	Pennington Reservoir	Leven	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR159	<ul> <li>POAKA BECK, PENNINGTON &amp; HARLOCK</li> <li>Group 1 - Improved reservoir compensation release control</li> </ul>	GB31229615	Lake	Artificial	Poaka Beck Reservoir	Duddon	Poor	Good by 2027	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	N N	Ν	N N	Ν	Ν	N N	N	N	N N
WR159	<ul> <li>– POAKA BECK, PENNINGTON &amp; HARLOCK</li> <li>Group 1 - Improved reservoir compensation release control</li> </ul>	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	Ν	N N	Ν	Ν	N N	N	N	N N
WR159	- LEVERS WATER Group 1 - Improved reservoir compensation release control	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	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR159	- LEVERS WATER Group 1 - Improved reservoir compensation release control	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	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
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	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR159	- FISHMOOR TOTAL Group 1 - Improved reservoir compensation release control	GB31230883	Lake	Artificial	Fishmoor Reservoir	Darwen	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR159	- FISHMOOR TOTAL Group 1 - Improved reservoir compensation release control	GB112071065270	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	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR159	- FISHMOOR TOTAL Group 1 - 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	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR159	- RIDGEGATE & TRENTABANK Group 1 - Improved reservoir compensation release control	GB31233250	Lake	Heavily modified	Ridgegate Reservoir	Bollin Dean Mersey Upper	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR159	<ul> <li>RIDGEGATE &amp; TRENTABANK</li> <li>Group 1 - Improved reservoir compensation release control</li> </ul>	GB31233247	Lake	Heavily modified	Trentabank Reservoir	Bollin Dean Mersey Upper	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR159	- RIDGEGATE & TRENTABANK Group 1 - Improved reservoir compensation release control	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	Ν	N N	Ν	Ν	N N	Ν	N	N N
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	Ν	N N	N	Ν	N N	Ν	N	N N
WR159	- LAMALOAD Group 1 - Improved reservoir compensation release control	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	Ν	N N	Ν	Ν	N N	Ν	N	N N
WR159	- LAMALOAD Group 1 - Improved reservoir compensation release control	GB112069060650	River	Heavily modified	Dean (Lamaload to Bollington)	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	Ν	N N	Ν	N	N N
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
WR159	- WET SLEDDALE	GB102076070690	River	Heavily modified	Lowther (Upper)	Eamont	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

	Impacts				
sing					
iew reservo ir / mb ank ment raising					
iew reservoir / mbankment ra		Level 2 Screening		Level 2 Screening	
2 6 N	Level 1 Screening Results	Required?	Level 2 Screening Results	Confidence	Combined Screening Result
N	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
Ν	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
Ν	No or minimal impact	N			No or minimal impact
N	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
N	Minor level of impact	N Y	Minor level of impact	Medium	Minor level of impact
N	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
N	Minor level of impact	N Y	Minor level of impact	Medium	Minor level of impact
N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
Ν	Minor level of impact	N			Minor level of impact
Ν	Minor level of impact	N			Minor level of impact
Ν	Minor level of impact	N			Minor level of impact
N	Minor level of impact	N			Minor level of impact
N	Minor level of impact	N			Minor level of impact
Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
Ν	Minor level of impact	N			Minor level of impact
N	Minor level of impact Medium level of impact	N	Medium level of impact		Minor level of impact
N	Medium level of impact	Y Y	Minor level of impact	Medium	Medium level of impact
N	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
Ν	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
Ν	Minor level of impact	N			Minor level of impact
N	Medium level of impact	Y Y	Minor level of impact	Medium	Minor level of impact
N	Medium level of impact	Y Y	No or minimal impact	Medium	No or minimal impact
Ν	Medium level of impact	Y	Medium level of impact	Medium	Medium level of impact
Ν	Minor level of impact	N			Minor level of impact
Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
N	Minor level of impact	N	Minor level of impact	Medium	Minor level of impact
N	Medium level of impact	Y N	Minor level of impact	Medium	Minor level of impact
N	Minor level of impact	N			Minor level of impact
Ν	Minor level of impact	N			Minor level of impact
Ν	Minor level of impact	N			Minor level of impact
N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
N	No or minimal impact	N			No or minimal impact
N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
Ν	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
Ν	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
N	Medium level of impact	Y Y	Medium level of impact	Low	Medium level of impact
N	No or minimal impact	N			No or minimal impact
N	No or minimal impact	N			No or minimal impact
Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
N	No or minimal impact	N			No or minimal impact
N	Medium level of impact	Y Y	Minor level of impact	Medium	Minor level of impact
N	No or minimal impact	N			No or minimal impact
N	No or minimal impact	N			No or minimal impact
N	No or minimal impact	N			No or minimal impact
N	No or minimal impact	N			No or minimal impact
N	No or minimal impact	N Y	Minor level of impact	Medium	No or minimal impact
N	No or minimal impact	Y N	Minor level of impact	Medium	No or minimal impact
N	No or minimal impact	N			No or minimal impact
N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
Ν	No or minimal impact	N			No or minimal impact
N	No or minimal impact	N			No or minimal impact
N	No or minimal impact Medium level of impact	N	Minor level of impact	Medium	No or minimal impact
N	No or minimal impact	Y N		meandill	No or minimal impact
N	No or minimal impact	N			No or minimal impact
Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
N	No or minimal impact	N			No or minimal impact
N	Medium level of impact	Y	Minor level of impact	High	Minor level of impact

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Option		WFD Water Body Info	ormation											0	otion Detail									
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														back and	with w	odified ater (e. ike	ping st dified	t work	all to ri / can al	ef wate al /	ater ater on quar	of exis to surf	raction nent raction s / sur	reased ater on quar
				Hydro - morphological				Ecological	Quantitative	Quantitative	Chemical	Chemical			e line urse cre	w / mc face w er) inta	und w	atmen' w stor	w outf ervoir ued uct	msfer c er / can ued uct	w / mo	ssation charge ter	w abst urbishi w abst adworl ucturei	w / inc sundwi
	Option Name Group 1 - Improved reservoir compensation release control	ID	Туре	Designation	WB Name	Operational Catchment	Ecological Status	Objective	Status	Objective	Status	Objective	Overall Status	Overall Objective	Pip	Nev	Ne Ne	Ne tre	Ner res	adi i	apia	Ce: dis	Ne ref Ne Ne str	Bro Bro
	- WET SLEDDALE Group 1 - 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	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
	Group 1 - Improved reservoir compensation release control	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 N	N	N	Ν	N N	N	N	N	N N	N
WR159	- WAYOH, ENTWISTLE & JUMBLES Group 1 - Improved reservoir compensation release control	GB31231202	Lake	Heavily modified	Turton and Entwistle Reservoir	Croal Irwell	Moderate	Moderate by 2015		n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	N	N	Ν	N N	N	N	N	N N	N
	- WAYOH, ENTWISTLE & JUMBLES Group 1 - Improved reservoir compensation release control	GB31231306	Lake	Heavily modified	Jumbles Reservoir	Croal Inwell	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
	– WAYOH, ENTWISTLE & JUMBLES Group 1 - Improved reservoir compensation release control – WAYOH. ENTWISTLE & JUMBLES	GB112069064580 GB41202G101800	River Groundwater	Heavily modified	Bradshaw Brook Northern Manchester Carboniferous Aquifers	Croal Inwell Manchester Northern Carboniferous Ag	Moderate n/a	Good by 2027	n/a Good	n/a Good by 2015	Good	Good by 2015 Good by 2027	Moderate Poor	Good by 2027 Good by 2027	N N	N	N	N	N N	N	N	N	N N	N
	- WAYOH, ENTWISTLE & JUMBLES Group 1 - Improved reservoir compensation release control     - DELPH	GB41202G101800 GB31231264	Groundwater	No designation Heavily modified	Northern Manchester Carboniterous Aquiters	Manchester Northern Carboniterous Aq	n/a Moderate	n/a Moderate by 2015		Good by 2015	Good	Good by 2027 Good by 2015	Poor Moderate	Good by 2027 Moderate by 2015	N N	N	N	N	N N	N	N	N	N N	N
	Group 1 - Improved reservoir compensation release control - DELPH	GB31231264	Groundwater	No designation	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Ag	n/a	n/a	n/a Good		Poor	Good by 2015	Poor	Good by 2027	N N	N	N	N	N N	N	N	N	N N	N
	Group 1 - Improved reservoir compensation release control - DELPH	GB112069064570	River	Heavily modified	Eagley Brook	Croal Irwell	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
	Group 1 - Improved reservoir compensation release control	GB31231314	Lake	Artificial	Dingle Reservoir	Croal Irwell	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
	Group 1 - Improved reservoir compensation release control	GB31231312	Lake	Heavily modified	Springs Reservoir	Croal Irwell	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
	Group 1 - Improved reservoir compensation release control	GB112069064570	River	Heavily modified	Eagley Brook	Croal Irwell	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
	Group 1 - Improved reservoir compensation release control – SPRINGS DINGLE	GB41202G101800	Groundwater	No designation	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Ag	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
WR159		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 N	N	Ν	N	N N	N	N	N	N N	N
WR159		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 N	N	Ν	Ν	N N	Ν	N	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – ASHWORTH MOOR	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	Ν	Ν	N N	Ν	N	Ν	N N	N
WR159		GB31231260	Lake	Heavily modified	Greenbooth Reservoir	Roch Irk Medlock	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	Ν	Ν	Ν	N N	Ν	Ν	N	N N	N
WR159	Group 1 - Improved reservoir compensation release control – GREENBOOTH & 2 NADENS	GB31231250	Lake	Heavily modified	Lower Naden Reservoir	Roch Irk Medlock	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	Ν	Ν	N N	Ν	Ν	N	N N	N
WR159	Group 1 - Improved reservoir compensation release control – GREENBOOTH & 2 NADENS	GB31231229	Lake	Heavily modified	Middle Naden Reservoir	Roch Irk Medlock	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	Ν	Ν	N	N N	Ν	Ν	N	N N	N
WR159		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 N	Ν	Ν	Ν	N N	Ν	Ν	N	N N	N
WR159	Group 1 - Improved reservoir compensation release control – GREENBOOTH & 2 NADENS	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	Ν	Ν	N N	N	N	N	N N	N
WR159	Group 1 - Improved reservoir compensation release control – SPRING MILL, WATERGROVE & COWM	GB31231212	Lake	Heavily modified	Spring Mill Reservoir	Roch Irk Medlock	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	Ν	Ν	N N	Ν	N	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – SPRING 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	Ν	Ν	N	N N	Ν	N	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – SPRING MILL, WATERGROVE & COWM	GB31231141	Lake	Heavily modified	Cowm Reservoir	Roch Irk Medlock	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	N	Ν	N	N N	Ν	N	N	N N	N
WR159		GB112069064730	River	Heavily modified	Spodden	Roch Irk Medlock	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	Ν	N	N N	Ν	N	Ν	N N	N
WR159		GB112069064720	River	Heavily modified	Roch (Source to Spodden)	Roch Irk Medlock	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	Ν	N	N N	Ν	N	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – SPRING MILL, WATERGROVE & COWM	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	Ν	N	N N	N	N	N	N N	N
WR159	Group 1 - Improved reservoir compensation release control – HURSTWOOD	GB31230625	Lake	Heavily modified	Hurstwood Reservoir	Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	Ν	Ν	N N	N	N	Ν	N N	N
	Group 1 - Improved reservoir compensation release control – HURSTWOOD	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 N	N	Ν	N	N N	N	N	N	N N	N
	Group 1 - Improved reservoir compensation release control – HURSTWOOD	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
	Group 1 - Improved reservoir compensation release control – CANT CLOUGH	GB31230663	Lake	Heavily modified	Cant Clough Reservoir	Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	Ν	N	N N	N	N	N	N N	N
	Group 1 - Improved reservoir compensation release control – CANT CLOUGH	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 N	N	N	N	N N	N	N	N	N N	N
WR159	Group 1 - Improved reservoir compensation release control – CANT CLOUGH	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
WR159	Group 1 - Improved reservoir compensation release control - SWINDEN 1 & 2	GB31230591	Lake	Heavily modified	Swinden Higher Reservoir	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
	Group 1 - Improved reservoir compensation release control - SWINDEN 1 & 2	GB31230590	Lake	Artificial	Swinden Lower Reservoir	Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	Ν	N	N N	N	N	N	N N	N
	Group 1 - Improved reservoir compensation release control - SWINDEN 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 N	N	N	N	N N	N	N	N	N N	N
	Group 1 - Improved reservoir compensation release control - SWINDEN 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 N	N	Ν	N	N N	N	N	N	N N	N
WR159		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 N	N	Ν	N	N N	N	N	N	N N	N
WR159	Group 1 - Improved reservoir compensation release control – LANESHAW	GB112071065210	River	Heavily modified	Colne Water (Laneshaw)	Colne Water	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
WR159	Group 1 - Improved reservoir compensation release control – LANESHAW	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	Ν	N	N N	N	N	N	N N	N
WR159	Group 1 - Improved reservoir compensation release control – COLDWELL UPPER & LOWER	GB31230523	Lake	Heavily modified	Coldwell Lower Reservoir	Colne Water	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	Ν	N	N N	N	N	N	N N	N
	Group 1 - Improved reservoir compensation release control - COLDWELL UPPER & LOWER	GB31230533	Lake	Heavily modified	Coldwell Upper Reservoir	Colne Water	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	Ν	N	N N	N	N	N	N N	N
WR159		GB112071065130	River	Heavily modified	Walverden Water	Colne Water	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	Ν	Ν	N N	N	N	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control - COLDWELL 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 N	N	Ν	N	N N	N	N	N	N N	N
WR159		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 N	Ν	Ν	Ν	N N	Ν	Ν	N	N N	N
WR159	Group 1 - Improved reservoir compensation release control – OGDEN UPPER & LOWER	GB31230431	Lake	Heavily modified	Ogden Upper Reservoir	Colne Water	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	N	Ν	Ν	N N	N	N	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – OGDEN UPPER & LOWER	GB112071065230	River	No designation	Pendle Water - headwaters to Colne Water	Colne Water	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	N N	N	Ν	Ν	N N	N	N	Ν	N N	N
WR159		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	Ν	Ν	Ν	N N	Ν	Ν	N	N N	N
WR159		GB31230459	Lake	Heavily modified	Churn Clough Reservoir	Calder	Moderate	Good by 2021	n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	N N	N	Ν	Ν	N N	N	N	Ν	N N	N
WR159		GB112071065140	River	No designation	Sabden Brook	Calder	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	N N	N	Ν	Ν	N N	N	N	Ν	N N	N
WR159		GB41202G103000	Groundwater	No designation	Ribble Carboniferous Aquifers	Ribble Carboniferous Aq	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	N N	N	Ν	Ν	N N	N	N	Ν	N N	N
WR159		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	Ν	Ν	Ν	N N	Ν	N	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – STOCKS	GB112071065390	River	Heavily modified	Hodder - Stocks Reservoir to conf Croasdale Bk	Hodder and Loud	Moderate	Good by 2021	n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	N N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159		GB41202G103000	Groundwater	No designation	Ribble Carboniferous Aquifers	Ribble Carboniferous Aq	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	N N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW,	GB31231393	Lake	Heavily modified	Piethorne Reservoir	Roch Irk Medlock	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW, Group 1 - Improved recencils compensation release control	GB31231367	Lake	Heavily modified	Norman Hill Reservoir	Roch Irk Medlock	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW,	GB31231399	Lake	Heavily modified	Kitcliffe Reservoir	Roch Irk Medlock	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW, Group 1 - Improved recentral	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 N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – PIETHORNE, 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	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW, Group 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 N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW, Group 1 - Improved reception compensation release control	GB112069064690	River	Heavily modified	Beal	Roch Irk Medlock	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW,	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	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159		GB30431070	Lake	Heavily modified	Warland Reservoir	Calder Upper	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control - WARLAND	GB104027062600	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 N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159		GB40402G700400	Groundwater	No designation	Aire & Calder Carb Limestone / Millstone Grit / Coal Measures.	Aire and Calder Carb Limestone - Millstone Grit Coal - Me	as n/a	n/a	Good	Good by 2015	Poor	Poor by 2015	Poor	Poor by 2015	N N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159		GB31231168	Lake	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 N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159		GB30431104	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	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – LIGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE	GB104027062600	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 N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159		GB40402G700400	Groundwater	No designation	Aire & Calder Carb Limestone / Millstone Grit / Coal Measures.	Aire and Calder Carb Limestone - Millstone Grit Coal - Me	as n/a	n/a	Good	Good by 2015	Poor	Poor by 2015	Poor	Poor by 2015	N N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – LIGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE Group 1 - Improved receptor compensation release control	GB112069064720	River	Heavily modified	Roch (Source to Spodden)	Roch Irk Medlock	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – LIGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE	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	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159		GB31231531	Lake	Heavily modified	Upper and Lower Castleshaw Reservoirs	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159		GB112069064741	River	Heavily modified	Tame (Source to Chew Brook)	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control - CASTLESHAW UPPER & LOWER 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	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N
WR159	Group 1 - Improved reservoir compensation release control – READYCON DEAN, CROOKGATE, DOWRY & NEW YEARS	GB31231404	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	Ν	Ν	Ν	N N	Ν	Ν	Ν	N N	N

/ raising	impacis				
Vew reservoir / amb ankment raising	Lough 1 Corporation Results	Level 2 Screening	Lough 2 Economics Bosults	Level 2 Screening Confidence	Combined Screening Decisit
2 5 N	Level 1 Screening Results	Required?	Level 2 Screening Results	Confidence	Combined Screening Result
Ν	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
N	No or minimal impact	N			No or minimal impact
N	No or minimal impact	N			No or minimal impact
Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
Ν	No or minimal impact	N			No or minimal impact
N	No or minimal impact	N	Minor level of impact	Medium	No or minimal impact
N	No or minimal impact	Y	Minor level of impact	Medium	No or minimal impact
N	No or minimal impact	N			No or minimal impact
Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
Ν	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
N	No or minimal impact	N			No or minimal impact
N	No or minimal impact Medium level of impact	Y	Minor level of impact	Medium	No or minimal impact Minor level of impact
Ν	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
N	No or minimal impact	N Y	Minor level of impact	Medium	No or minimal impact
N	Medium level of impact	Ý	Minor level of impact	High	Minor level of impact
Ν	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
Ν	No or minimal impact	N			No or minimal impact
N	No or minimal impact Medium level of impact	N	Minor level of impact	Medium	No or minimal impact
N	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
N	No or minimal impact	N			No or minimal impact
N	Medium level of impact	Ŷ	Minor level of impact	High	Minor level of impact
Ν	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
N	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
Ν	Medium level of impact	Y	Minor level of impact	High	Minor level of impact
Ν	No or minimal impact	N			No or minimal impact
N	No or minimal impact	N			No or minimal impact
N	Medium level of impact	Y N	Minor level of impact	Medium	Minor level of impact
N	No or minimal impact	N			No or minimal impact
Ν	Medium level of impact	Y	Minor level of impact	High	Minor level of impact
Ν	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
N	No or minimal impact	N			No or minimal impact
N	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
Ν	Medium level of impact	Y	Minor level of impact	High	Minor level of impact
N	No or minimal impact	N			No or minimal impact
N	No or minimal impact Medium level of impact	N Y	Minor level of impact	Medium	No or minimal impact Minor level of impact
N	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
N	No or minimal impact	N			No or minimal impact
N	Medium level of impact No or minimal impact	Y N	Minor level of impact	High	Minor level of impact
N	No or minimal impact	N			No or minimal impact
Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact

Optic	n	WFD Water Body In	formation												Option Detail									Impacts				
															ater	-	ation water	ervoir ver /	rvia	tity iting	well well face	utit y	roir	sing				
															on land with w	odified rater (e. ake	ping st odified f work:	age res fall to ri / can al	t of wate nal / t oreased	rater on quar a of exis e to surf	traction ment traction ks / sur	a ter on quar	to rese ation re ervolr /	nent rai				
				Hydro - morphological				Ecological	Quantitative	Quantitative	Chemical	Chemical			pe line pe line urse cr	sw / mo rface w 'er) int:	ew purr ew / me	ew stor ew out servoir	ueduct ansfer ca rer / ca ueduct	irface w straction issation scharge	ew abst furbish furbish ew abst sadw or ructure	sw / in o oundw	mpens		Level 2 Screening		Screening	
Ref	Option Name Group 1 - Improved reservoir compensation release contri 59 - READYCON DEAN, CROOKGATE, DOWRY & NEW YEARS	DI CR21221454	Type	Designation Heavily modified	WB Name Crook Gate Reservoir	Operational Catchment Goyt Etherow Tame	Ecological Statu	Good by 2027	Status	Objective	Status	Objective Good by 2015	Overall Statu: Moderate	Good by 2027	đ đ 8	236	2 25	2 22	8 2 2 2	<u>38 385</u>	245 225	268		No or minimal impact	Required?	Level 2 Screening Results Confid	No or minimal im	ring Re
WR1	Group 1 - Improved reservoir compensation release contri 9 - READYCON DEAN, CROOKGATE, DOWRY & NEW YEARS	la	Lake	Heavily modified	Dowry 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 im	
WR1	Group 1 - Improved reservoir compensation release contro – READYCON DEAN, CROOKGATE, DOWRY & NEW YEARS	ol	Lake	Heavily modified	New Years Bridge Reservoir	Goyt Etherow Tame	Moderate		n/a	n/a	Good		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 im	
WR1	Group 1 - Improved reservoir compensation release contro	l	River	Heavily modified	Tame (Source to Chew Brook)	Goyt Etherow Tame	Moderate		n/a	n/a	Good		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 Mediu		
WR1	Group 1 - Improved reservoir compensation release contri - READYCON DEAN, CROOKGATE, DOWRY & NEW YEARS		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 im	npact
WR1	Group 1 - Improved reservoir compensation release contro 9 - GREENFIELD VALLEY-GREENFIELD, YEOMAN HEY,	GB31231778	Lake	Heavily modified	Greenfield 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 im	npact
WR1	Group 1 - Improved reservoir compensation release contri – GREENFIELD VALLEY-GREENFIELD, YEOMAN HEY,	GB31231791	Lake	Heavily modified	Yeoman Hey 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 im	npact
WR1	Group 1 - Improved reservoir compensation release contri 9 - GREENFIELD VALLEY-GREENFIELD, YEOMAN HEY,	GB31231829	Lake	Heavily modified	Dovestone 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 im	apact
WR1		GB31231942	Lake	Heavily modified	Chew 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	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	apact
WR1		GB112069061300	River	Heavily modified	Chew Brook	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 Medium level of impact	Y	Minor level of impact High	Minor level of im	ipact
WR1		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	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	ipact
WR1	Group 1 - Improved reservoir compensation release contro – BRUSHES, WALKERWOOD & SWINESHAW HIGHER &	GB31232108	Lake	Heavily modified	Brushes Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	ipact
WR1	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	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	ipact
WR1	Group 1 - Improved reservoir compensation release contri 9 – BRUSHES, WALKERWOOD & SWINESHAW HIGHER & Group 1 - Improved reservoir compensation release contri	GB31232066	Lake	Heavily modified	Higher Swineshaw Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1		GB31232094	Lake	Heavily modified	Lower Swineshaw Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	<ul> <li>BRUSHES, WALKERWOOD &amp; SWINESHAW HIGHER &amp; Group 1 - Improved reservoir compensation release contri</li> </ul>	GB112069061111	River	Heavily modified	Tame (Chew Brook to Swineshaw Brook)	Goyt Etherow Tame	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N Medium level of impact	Y	Minor level of impact Mediu	m Minor level of imp	pact
WR1		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	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1		GB31232499	Lake	Heavily modified	Kinder Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1		GB112069060970	River	No designation	Sett	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N Medium level of impact	Y	Minor level of impact High	Minor level of imp	pact
WR1	<ul> <li>Group 1 - Improved reservoir compensation release control</li> <li>Group 1 - Improved reservoir compensation release control</li> </ul>	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	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1		GB31233043	Lake	Heavily modified	Errwood Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1		GB31232950	Lake	Heavily modified	Fernilee Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	<ul> <li>Group 1 - Improved reservoir compensation release contri-</li> <li>Group 1 - Improved reservoir compensation release contri-</li> </ul>	GB112069060850	River	Heavily modified	Goyt (Source to Randall Carr Brook)	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N Medium level of impact	Y	Minor level of impact Mediu	m Minor level of imp	pact
WR1		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	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	<ul> <li>Group 1 - Improved reservoir compensation release contri-</li> <li>BOLLINHURST &amp; HORSE COPPICE</li> <li>Group 1 - Improved reservoir compensation release contri-</li> </ul>	GB31247004	Lake	Heavily modified	Bollinhurst Reservoir	Bollin Dean Mersey Upper	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	<ul> <li>Group 1 - Improved reservoir compensation release control</li> <li>BOLLINHURST &amp; HORSE COPPICE</li> <li>Group 1 - Improved reservoir compensation release control</li> </ul>	GB31247005	Lake	Heavily modified	Horse Coppice Reservoir	Bollin Dean Mersey Upper	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	59 – BOLLINHURST & HORSE COPPICE Group 1 - Improved reservoir compensation release contri	GB112069060920	River	Heavily modified	Micker (Norbury) Brook	Bollin Dean Mersey Upper	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N Medium level of impact	Y	Minor level of impact High	Minor level of imp	pact
WR1		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	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	59 – CALF HEY, OGDEN (GRANE) & HOLDENWOOD Group 1 - Improved reservoir compensation release contri	GB31231025	Lake	Heavily modified	Calf Hey Reservoir	Croal Inwell	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	59 – CALF HEY, OGDEN (GRANE) & HOLDENWOOD Group 1 - Improved reservoir compensation release contri	GB31231013	Lake	Heavily modified	Ogden Reservoir Lancashire	Croal Irwell	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	59 – CALF HEY, OGDEN (GRANE) & HOLDENWOOD Group 1 - Improved reservoir compensation release contri	GB31231027	Lake	Heavily modified	Holden Wood Reservoir	Croal Inwell	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	59 – CALF HEY, OGDEN (GRANE) & HOLDENWOOD Group 1 - Improved reservoir compensation release control	GB112069064650	River	Heavily modified	Ogden	Croal Inwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N Medium level of impact	Y	Minor level of impact Medius	m Minor level of imp	pact
WR1		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	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	59 – COWPE & CRAGG HOLES Group 1 - Improved reservoir compensation release contri	GB31231115	Lake	Heavily modified	Cowpe Reservoir	Croal Inwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	59 – COWPE & CRAGG HOLES Group 1 - Improved reservoir compensation release contri	GB112069064660	River	Heavily modified	Irwell (Source to Whitewell Brook)	Croal Inwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N Medium level of impact	Y	Minor level of impact Medium	m Minor level of imp	pact
WR1	59 – COWPE & CRAGG HOLES Group 1 - Improved reservoir compensation release contri	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	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	59 – SCOUT MOOR Group 1 - Improved reservoir compensation release contri	GB31231130	Lake	Heavily modified	Scout Moor Reservoir	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	<li>59 – SCOUT MOOR Group 1 - Improved reservoir compensation release contri-</li>	GB112069064620	River	Heavily modified	Irwell (Rossendale STW to Roch)	Croal Inwell	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N Medium level of impact	Y	Minor level of impact Medius	m Minor level of imp	pact
WR1	59 – SCOUT MOOR Group 1 - Improved reservoir compensation release contri	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	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	.pact
WR1	59 – CLOUGH BOTTOM Group 1 - Improved reservoir compensation release contri	GB31230858	Lake	Heavily modified	Clough Bottom Reservoir	Croal Inwell	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	59 – CLOUGH BOTTOM Group 1 - Improved reservoir compensation release contri	GB112069064670	River	Heavily modified	Whitewell Brook	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N Medium level of impact	Y	Minor level of impact Medium	m Minor level of imp	pact
WR1	<li>59 – CLOUGH BOTTOM Group 1 - Improved reservoir compensation release contri</li>	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	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	<li>59 – CLOWBRIDGE Group 1 - Improved reservoir compensation release contri-</li>	GB31230769	Lake	Heavily modified	Clowbridge Reservoir	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	<li>59 – CLOWBRIDGE Group 1 - Improved reservoir compensation release contri</li>	GB112069064680	River	Heavily modified	Limy Water	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	N N	N N	N N	N	Y	N Medium level of impact	Y	Minor level of impact Medium	m Minor level of imp	pact
WR1	59 – CLOWBRIDGE Group 1 - Improved reservoir compensation release contri	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	Ν	N N	Ν	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	59 – LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, Group 1 - Improved reservoir compensation release contri		Lake	Heavily modified	Woodhead Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	N	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	pact
WR1	Group 1 - Improved reservoir compensation release control	l	Lake	Heavily modified	Torside Reservoir	Goyt Etherow Tame	Moderate		n/a	n/a	Good		Moderate	Good by 2027	N N	Ν	N N	N	N N	N N	N N	N	Y	N No or minimal impact	N		No or minimal im	
WR1	Group 1 - Improved reservoir compensation release contro	ol	Lake	Heavily modified	Rhodeswood Reservoir	Goyt Etherow Tame	Moderate		n/a	n/a	Good		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 im	
WR1	Group 1 - Improved reservoir compensation release contro	la	Lake	Heavily modified	Valehouse Reservoir	Goyt Etherow Tame	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	Y	N No or minimal impact	N		No or minimal im	
WR1	<ul> <li>59 – LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, Group 1 - Improved reservoir compensation release control</li> </ul>	ol	Lake	Heavily modified	Arnfield 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 im	
WR1	59 – LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, Group 1 - Improved reservoir compensation release contin INDEXIDATE (WOODHEAD, TORSIDE, PURPER, DOCE 1000000000000000000000000000000000000	l	Lake	Heavily modified	Audenshaw Reservoirs	Bollin Dean Mersey Upper	Moderate	Moderate by 2015		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 No or minimal impact	N	Market Contractor	No or minimal im	
WR1	Group 1 - Improved reservoir compensation release contro	l	River	Heavily modified	Platt Brook (Source to Fallowfield Bk)	Bollin Dean Mersey Upper	Moderate			n/a	Good		Moderate	Good by 2027	N N	N	N N	N	N N	N N	N N	N	Y	N Medium level of impact		Minor level of impact Medius		
WR1	Group 1 - Improved reservoir compensation release contro	pl	River	Heavily modified Heavily modified	Etherow (Woodhead Res. to Glossop Bk.) Tame (Swineshaw Brook to Mersev)	Goyt Etherow Tame	Moderate	Good by 2027 Moderate by 2015		.,	Good		Moderate Moderate	Good by 2027 Moderate by 2015	N N	N	N N	N	N N	N N	N N	N	,	N Medium level of impact		Minor level of impact High Minor level of impact Mediu	Minor level of im	
WR1	Group 1 - Improved reservoir compensation release contro	ol	Grounds	Heavily modified No designation	Tame (Swineshaw Brook to Mersey) Manchester and East Cheshire Carboniferous Aquifers	Goyt Etherow Tame Manchester and Cheshire East Carboniferous Ao	moderate		n/a Good		Good		Moderate Poor	Moderate by 2015 Good by 2027	N N	N	N N	FN	N N	N N	N N	N	v	N No or minimal impact		Media	m Minor level of imp	
WR1	Group 2 - Improved reservoir compensation release control		Lake	No designation Heavily modified	Manchester and East Cheshire Carboniterous Aquiters	Manchester and Cheshire East Carboniterous Aq	Morlarato		n/a	n/a	600d	Good by 2027 Good by 2015	Poor Moderate	Good by 2027 Good by 2027	N N	FN NA	N P	N	N N	N N	N P	N	Y	No or minimal impact	N		No or minimal im	
WR1	Group 2 - Improved reservoir compensation release contro		River	Heavily modified	St John's Beck	Derwent	Moderate		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	No or minimal impact	, v	Minor level of impact High	No or minimal im	
WR1	Group 2 - Improved reservoir compensation release contro		Groundwater	No designation	Derwent and West Cumbria Lower Palaeozoic and Carboniferou		bonif n/a		Good	Good by 2015	Poor		Poor	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 im	
WR1	Group 2 - Improved reservoir compensation release contro		Lake	No designation	Rivington Reservoirs	Douglas OC	Moderate		n/a	0000 by 2015	Good		Moderate	Good by 2027	N N	14	N P	N	N N	N N	N P	N	Y	N No or minimal impact	N		No or minimal im	
WR1	Group 2 - Improved reservoir compensation release control		Lake	Heavily modified	Rivington Reservoirs Douglas - Upper	Douglas OC	Moderate		n/a n/a	n/a	Good		Moderate	Good by 2027 Good by 2027	N N	N	N N	N	N N	N N	N N	N	Y	No or minimal impact	, v	Minor level of impact Mediu		
AUD 1	Group 2 - Improved reservoir compensation release contro 60 – RIVINGTON		Groundwater			-	n/0		Good		Poor		Poor	Good by 2027	N N	N	N N		N N	N N	N N					minor reversi mipuet	No or minimal im	
WRI	<ul> <li>KIVINGTON</li> <li>Group 2 - Improved reservoir compensation release contri</li> <li>HAWESWATER</li> </ul>		Groundwater	No designation Heavily modified	Douglas, Darwen and Calder Carboniferous Aquifers Haweswater Reservoir	Douglas Darwen and Calder Carboniferous Aq Eamont	Morlarato	n/a Good by 2027	n/a	Good by 2015	600d	Good by 2027 Good by 2015	Poor Moderate	Good by 2027 Good by 2027	N N	FN NA	N P	N	N N	N N	N P	N	Y	N No or minimal impact	N		No or minimal im	
WR1	<ul> <li>HAWESWATER</li> <li>Group 2 - Improved reservoir compensation release contri</li> <li>HAWESWATER</li> </ul>	GB30229073 GB102076070720	Lake	Heavily modified	Haweswater Reservoir	Eamont	Moderate		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	No or minimal impact	, v	Minor level of impact High	No or minimal im	
WR1	Group 2 - Improved reservoir compensation release control	GB102076070720 GB40202G102300	Groundwater	No designation	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Earnont Eden and Esk Lower Palaeozoic and Carboniferous Aq	n/a		Good	Good by 2015	Good		Good	Good by 2027 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 im	
WR1	Group 2 - Improved reservoir compensation release contro		Lake	No designation	Eben and Esk Lower Palaeozoic and Carboniterous Aquiters	Severn Uplands	Moderate		n/a	0000 by 2015	Good		Moderate	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 im	
WR1	Group 2 - Improved reservoir compensation release control		Lake	Heavily modified	Liyn Efyrnwy Vrynwy - Lake Vrynwy to conf Afon Cownwy	Severn Uplands	Moderate		n/a n/a	n/a n/a	Good		Moderate	Good by 2021 Good by 2021	N N	N	N N	N	N N	N N	N N	N	Y	No or minimal impact	, v	Minor level of impact Mediu		
	Group 2 - Improved reservoir compensation release contri 50 – VYRNWY		Groundwater	No designation	Severn Uplands- Lower Palaeozoic	Severn	n/a		Good		Poor		Poor	Poor by 2015	N N	N	N N	N	N N	N N	N N	N	Y	N No or minimal impact	N	euu	No or minimal im	
	00 River Bela to Thirlmere Aqueduct	GB40902G205300 GB112073071070	River	No designation Heavily modified	Bela	Bela	Good		n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y Y	v	v N	N	N N	Y N	N N	N	N	N Medium level of impact	ÿ	Minor level of impact	Minor level of im	
	00 River Bela to Thirlmere Aqueduct	GB112073071070 GB112073071080	River	No designation	Lupton (Farleton) Beck	Bela	Good		n/a	n/a	Good	Good by 2015	Good	Good by 2015	y y	N	N N	N	Y N	N N	N N	N	N	N Minor level of impact	N	LUW	Minor level of im	
	00 River Bela to Thirlmere Aqueduct	GB112073071080 GB41202G102100	Groundwater	No designation	South Cumbria Lower Palaeozoic and Carboniferous Aquifers	Bera Cumbria South Lower Palaeozoic and Carboniferous Aq	n/a		Good	Good by 2015	Poor		Poor	Good by 2015	y y	v	v N	N	Y N	Y N	N N	N	N	N Medium level of impact	, i	No or minimal impact Medius		
WR8	Third Party Option: Cow Green IR To Haweswater via	GB41202G102100	Lake	No designation Heavily modified	Cow Green Reservoir	Tees Upper	q n/a Moderate		n/a	n/a	Good		Moderate	Good by 2027 Good by 2027	N N	v	N N	N	N N	Y N	N N	N	N	N Medium level of impact	, ,	No or minimal impact Low	No or minimal im	
WR8	Third Party Option: Cow Green IR To Haweswater via	GB103025076080	River	Heavily modified	Tees from Trout Beck to Maize Beck	Tees Upper	Moderate		n/a	n/a	Good		Moderate	Good by 2027 Good by 2027	y y	Y	Y N	N	N N	Y N	N N	N	N	N Medium level of impact	Y	No or minimal impact Low	No or minimal im	
WR8	Third Party Option: Cow Green IR To Haweswater via	GB103025072440	River	Heavily modified	Maize Beck from Source to River Tees	Tees Upper	High		n/a	n/a	Good	Good by 2015	Good	Good by 2027	y y	N	N N	N	N N	N N	N N	N	N	N Minor level of impact	N	COW COW	Minor level of im	
WRR	Third Party Option: Cow Green IR To Haweswater via 10 Heltondale Aqueduct	GB103025072440 GB102076070910	River	No designation	Burthwaite Beck	Eden Upper	Good			n/a	Good		Good	Good by 2027 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 im	
WR8	Third Party Option: Cow Green IR To Haweswater via	GB102076070960	River	No designation	Swindale Beck nr Dufton	Eden Upper	Good			n/a	Good	Good by 2015	Good	Good by 2013	y y	N	N N	N	N N	N N	N N	N	N	N Minor level of impact	N		Minor level of im	
			-	U ····																					_			

Option		WFD Water Body Inf	ormation												Option Detail								
															s ater		tation water is	servoir	iver/	ervia ditv	siting	n well n well rface	utity 1
															t on lan with v rossing	water (o	nping s iodified nt work	agere	fall to 1 r / cana	of wat anal / t ct crease water	n of exi e to su	tractio ment tractio	es rater ion qua
			•	Hydro - morphological	WB Name	0	Factor in the second	Ecological	Quantitative	Quantitative	Chemical	Chemical Objective	0	Overall Objective	pe line pe line ourse c ew / rr	ver) int	ew pui ew / m eatme	ew sto	ew out iservoi quedue	ansfer ver/ci quedue ew/in ew/in	essatio ischarg ater	ew abs rilling / rfurbisi ew abs	ructur ew / in oundv
Ref	Option Name Third Party Option: Cow Green IR To Haweswater via Heltondale Aqueduct	GB102076070930	Туре	Designation	WB Name	Eden Upper	Ecological Status	Good by 2027	n/a	Objective	Good		Moderate	Good by 2027		ಷ-೯ : 	2 2 5 :	2 ;	228	<u> </u>	243	262 22	
WR810	Third Party Option: Cow Green IR To Haweswater via Heltondale Aqueduct	GB102076070930 GB102076070880	River	No designation	Eden - Scandal Beck to Lyvennet	Eden Upper	Moderate Good	Good by 2027 Good by 2015	n/a	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
WR810	Third Party Option: Cow Green IR To Haweswater via Heltondale Aqueduct	GB102076070840	River	No designation	Lyvennet	Eden Upper	Poor	Good by 2013	n/a	n/a	Good	Good by 2015	Poor	Good by 2013		N	N N	N	N	N N	N	N	N N
WR810	Third Party Option: Cow Green IR To Haweswater via	GB102076070840	River	No designation	Morland Beck	Eden Upper	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
WR810	Heltondale Aqueduct Third Party Option: Cow Green IR To Haweswater via Heltondale Aqueduct	GB102076070830	River		Morland Beck	Eden Upper	Good	Good by 2027	n/a		Good	Good by 2015 Good by 2015	Good	Good by 2027 Good by 2015	Y Y	N	N N	N	N	N N	N	N	N N
	Third Party Option: Cow Green IR To Haweswater via			No designation						n/a					Y Y	N	N N	N	N	N N	N	N	N N
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	Moderate	Good by 2027	Y Y	N	N N	N	Y	Y N	N	N	N N
WR810	Heltondale Aqueduct Third Party Option: Cow Green IR To Haweswater via	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	Ν	N N	N	N	Y N	Ν	Ν	N N
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 2015	Moderate	Good by 2027	N N	N	N N	N	Y	N N	N	N	N N
WR810	Heltondale Aqueduct Third Party Option: Cow Green IR To Haweswater via	GB40302G700300	Groundwater	No designation	Tees Carb Limestone & Millstone Grit	Tees Carb Limestone & Millstone Grit	n/a	n/a	Good	Good by 2015	Poor	Poor by 2015	Poor	Poor by 2015	Y Y	Y	Y N	N	N	N Y	N	N	N N
WR810	Heltondale Aqueduct Third Party Option: Cow Green IR To Haweswater via	GB40202G102300	Groundwater	No designation	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Eden and Esk Lower Palaeozoic and Carboniferous 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	Ν	N N	N	Y	Y N	Ν	N	N N
WR810	Heltondale Aqueduct	GB40201G100400	Groundwater	No designation	Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Good	Good by 2027	Y Y	Ν	N N	Ν	Ν	N N	Ν	N	N N
WR812	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 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Y N	Ν	N	N N
WR812	Third Party Option: Kielder Water IR Transfer	GB102076070990	River	No designation	Earnont (Lower)	Eamont	Good	Good by 2027	n/a	n/a	Good	Good by 2015	Good	Good by 2027	Y Y	Ν	N N	N	Ν	N N	Ν	N	N N
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	Moderate	Good by 2027	Y Y	Ν	N N	N	Y	Y N	Ν	N	N N
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	Good	Good by 2015	Y Y	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
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	Moderate	Good by 2027	Y Y	Ν	N N	Ν	Ν	N N	Ν	N	N N
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	Poor	Good by 2027	Y Y	Ν	N N	Ν	Ν	N N	Ν	N	N N
WR812	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 2015	Moderate	Good by 2027	Y Y	Ν	N N	Ν	N	N N	Ν	N	N N
WR812	Third Party Option: Kielder Water IR Transfer	GB102076073940	River	No designation	Eden - Earnont to tidal	Eden lower	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Y Y	Ν	N N	Ν	Ν	N N	Ν	Ν	N N
WR812	Third Party Option: Kielder Water IR Transfer	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	N	N N	N	N	N N	Ν	N	N N
WR812	Third Party Option: Kielder Water IR Transfer	GB102076073982	River	No designation	Irthing US Crammel Linn Waterfall	Esk and Irthing	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 N
WR812	Third Party Option: Kielder Water IR Transfer	GB102076074010	River	No designation	New Water	Esk and Irthing	Poor	Good by 2027	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Y Y	Ν	N N	N	N	N N	Ν	N	N N
WR812	Third Party Option: Kielder Water IR Transfer	GB102076074020	River	No designation	Old Water	Esk and Irthing	Moderate	Moderate by 201	5		Good	Good 2015	Moderate	Moderate 2015	Y Y	N	N N	N	N	N N	N	N	N N
WR812	Third Party Option: Kielder Water IR Transfer	GB102076074070	River	No designation	Butter Burn	Esk and Irthing	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 N
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	Moderate	Good by 2027	Y Y	N	N N	N	N	N N	N	N	N N
WR812		GB103023074930	Piner	No designation	Chirdon Burn catch trib of N Tyne	North tyne upper	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	v v	N	N N	N	N	N N	N	N	N N
WR812		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	Good	Good by 2015		N	N N			N N	N	N	N N
WR812		GB103023074940 GB103023075070	River	heavily modified	N Tyne from Lewis Burn to Tarset Burn	North tyne upper	Moderate	Good by 2015		n/a	Good		Moderate	Good by 2015		N	N N	N	N N	N N	N	N	N N
									n/a			Good by 2015				N	T IN	N	N	N N	N	N	N N
WR812		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	Poor	Good by 2027	Y Y	N	N N	N	N	N N	N	N	N N
WR812		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
WR812		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
WR812		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	Ν	N N	N	N	N N	N	N	N N
WR812	Third Party Option: Kielder Water IR Transfer	GB103023075580	River	No designation	Tipalt Burn from Source to South Tyne	South Tyne Upper	Poor	Good by 2027	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Y Y	Ν	N N	Ν	Ν	N N	Ν	N	N N
WR812	Third Party Option: Kielder Water IR Transfer	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	Ν	Ν	Y N	N	N	N N
WR812	Third Party Option: Kielder Water IR Transfer	GB30327698	Lake	heavily modified	Kielder Water	North Tyne Upper Eden Valley and Carlisle Basin Permo-Triassic Sandstone	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Y	N N	Ν	Ν	N Y	N	Ν	N N
WR812	Third Party Option: Kielder Water IR Transfer	GB40201G100400	Groundwater	No designation	Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Aq	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y Y	Ν	N N	N	Ν	N N	Ν	Ν	N N
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	Good	Good by 2015	Y Y	Ν	N N	N	Y	Y N	Ν	Ν	N N
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	Poor by 2015	Y Y	N	N N	Ν	Ν	N N	N	N	N N
WR812		GB40302G702700	Groundwater	No designation	Tyne Carboniferous Limestone	Tyne Carboniferous Limestone	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	Y Y	Y	Y N	Ν	N	N Y	N	N	N N
WR813	Third Party Option: Scammonden IR To Buckton Castle via Huddersfield Narrows Canal	GB30431243	Lake	heavily modified	Scammonden Water	Calder Middle	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Y	N N	Ν	Ν	N Y	N	Ν	N N
WR813	Third Party Option: Scammonden IR To Buckton Castle via Huddersfield Narrows Canal	GB104027062570	River	heavily modified	Black Brook from Source to River Calder	Calder Middle	Moderate	Moderate by 201	5 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	Y Y	Y	Y N	N	N	N Y	N	N	N N
WR813	Third Party Option: Scammonden IR To Buckton Castle via Huddersfield Narrows Canal	GB104027063330	River	heavily modified	Colne from Wessenden Brook to R Holme	Colne and Holme	Moderate	Moderate by 201	5 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	Y Y	Ν	N N	N	Y	N N	Ν	N	N N
WR813		GB70410269	Canal	Artificial	Huddersfield Narrow Canal east section	Calder canals	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	N N	Ν	N N	N	Y	Y N	Ν	N	N N
WR813	Third Party Option: Scammonden IR To Buckton Castle via Huddersfield Narrows Canal	GB70410520	Canal	Artificial	Huddersfield Narrow Canal summit section	Calder canals	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	N N	N	N N	N	N	Y N	N	N	N N
WR813	Third Party Option: Scammonden IR To Buckton Castle via Huddersfield Narrows Canal	GB71210268	Canal	Artificial	Huddersfield Narrow Canal west section	Calder canals	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Good	Good by 2027	N N	Y	N N	N	N	Y Y	N	N	N N
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 201		n/a	Good	Good by 2015	Moderate	Moderate by 2015	¥ N	Y	Y N	N	N	N	N	N	N N
WR813	Third Party Option: Scammonden IR To Buckton Castle via	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								N	N N
WR813	Third Party Option: Scammonden IR To Buckton Castle via	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and East Cheshire Carboniferous Ag	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027								N	N N
						Dee Permo-Triassic Sandstone																	
WR814		GB41101G202400	Groundwater	No designation	Dee Permo-Triassic Sandstone		n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	N N	N	NY	N	N	N Y	N	N	N N
WR814		GB111067057080	River	Heavily modified	Dee- Chester Weir to Ceiriog	Dee	Moderate	Good by 2021	n/a	n/a	Fail	Good by 2021	Moderate	Good by 2021	N N	N	NY	N	N	N Y	N	N	N N
	b Increased treatment capacity at Hurleston WTW via Canal	GB111067052060	River	Heavily modified	Dee - Ceiriog to Alwen	Dee	Good	Good by 2015	n/a	n/a	Fail	Good by 2021	Moderate	Good by 2021	N N	N	N N	N	N	Y Y	N	N	N N
		GB111067051910	River	No designation	Ceiriog - confluence Dee to Teirw	Dee	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	N N	N	N N	N	N	Y N	N	N	N N
		GB111067051600	River	No designation	Morlas Brook	Ceiriog	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	N N	N	N N	N	N	Y N	N	N	N N
		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	N N	Ν	N N	N	Ν	Y N	Ν	N	N N
WR814	b Increased treatment 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	N N	Ν	N N	Ν	Ν	Y N	N	N	N N
WR814	b Increased treatment 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 202	7 n/a	n/a	Good	Good by 2015	Poor	Moderate by 2027	N N	Ν	N N	Ν	Ν	Y N	Ν	N	N N
WR814	b Increased treatment 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	N N	Ν	N N	Ν	Ν	Y N	Ν	Ν	N N
WR814	b Increased treatment 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	N N	Ν	N N	Ν	Ν	Y N	Ν	Ν	N N
WR814	b Increased treatment capacity at Hurleston WTW via Canal	GB111067052200	River	No designation	Worthenbury Brook - upper	Worthenbury	Poor	Moderate by 202	7 n/a	n/a	Fail	Good by 2027	Poor	Moderate by 2027	N N	Ν	N N	Ν	Ν	Y N	Ν	Ν	N N
WR814	b Increased treatment 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	N N	Ν	N N	Ν	Ν	Y N	Ν	Ν	N N
WR814	Increased treatment capacity at Hurleston WTW via Canal	GB112068055300	River	No designation	Weaver (Source to Marbury Brook)	Weaver Upper	Moderate	Moderate by 201	5 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	Ν	N N	Ν	N	Y N	Ν	N	N N
WR814	b Increased treatment capacity at Hurleston WTW via Canal	GB112068055470	River	No designation	Weaver (Marbury Brook to Barnett Brook)	Weaver Upper	Poor	Moderate by 202	7 n/a	n/a	Good	Good by 2015	Poor	Moderate by 2027	N N	N	N N	N	N	Y N	Ν	N	N N
WR814	b 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	Moderate	Good by 2027	N N	Ν	N N	N	N	Y N	N	N	N N
WR814	b Increased treatment capacity at Hurleston WTW via 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	N	N N	N	N	Y N	Ν	N	N N
WR814	b Increased treatment capacity at Hurleston WTW via 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 Y	N	N N	Ν	N	N N	Ν	Ν	N N
WR814	b Increased treatment capacity at Hurleston WTW via Canal	GB70910082	AWB - Canal	Artificial	Llangollen Canal	Perry Roden and Tern North Shropshire Canals	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	N N	N	N N	Ν	N	Y N	N	N	N N
		GB41102G200200	Groundwater	No designation	Dee Silurian/Ordovician	Dee Silurian/Ordovician	n/a	n/a	Good	None given	Good	Good by 2015	Good	Good by 2015	N N	N	N N	N	N	y v	N	N	N N
		GB41102G200200	Groundwater	No designation	Dee Carboniferous Limestone	Dee Carboniferous Limestone	n/a	n/a	Good	None given	Good	Good by 2015	Good	Good by 2015	N N	N	N N	N	N	Y	N	N	N N
	b Increased treatment capacity at Hurleston WTW via Canal	GB41101G202200	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	N N	N	N N	N	N	Y N	N.	N	N N
		GB41102G204800 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	N N	N	N 14	N	N	Y N	14	N	N N
		GB40902G205400 GB41101G202400			Severn Uplands - Carboniferous Uswestry Dee Permo-Triassic Sandstone	Severn Uplands - Carboniferous Uswestry Dee Permo-Triassic Sandstone	n/a n/a		Good	Good by 2015 Good by 2015	Good	Good by 2015 Good by 2015	Good	Good by 2015 Good by 2015	N N	N	N N	N	N	V	N N	N	N
			Groundwater	No designation		Severn Middle Shropshire - Secondary Mudrocks and Drif	t	n/a							N N	IN .	N N	14 14	ni N	, N	N	14	N N
		GB40902G991800	Groundwater	No designation	Shropshire Middle Severn - Secondary Mudrocks and Drift Wem	Wem	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
		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	Ν	Y N	N	N	N N
WR814		GB40902G991400	Groundwater	No designation	Dee Triassic Mercia Mudstone	Dee Triassic Mercia Mudstone	n/a	n/a	Good	None given	Good	Good by 2015	Good	Good by 2015	N N	Ν	N N	Ν	Ν	Y N	N	Ν	N N
WR814	c Increased treatment capacity at Hurleston WTW via Canal	GB111067052060	River	Heavily modified	Dee - Ceiriog to Alwen	Dee	Good	Good by 2015	n/a	n/a	Fail	Good by 2021	Moderate	Good by 2021	Y Y	Ν	N N	Ν	Ν	N Y	N	Ν	N N

	Vew reservoir / smbankment raising					
	lew reservolr / mbankment ra	Level 1 Screening Results	Level 2 Screening Required?	Level 2 Screening Results	Level 2 Screening Confidence	Combined Screening Result
N	N	Minor level of impact	N	cever 2 second nestits	connucie	Minor level of impact
Ν	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
Ν	Ν	Minor level of impact	N			Minor level of impact
Ν	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	N	Medium level of impact	Y	No or minimal impact	Medium	No or minimal impact
N	N	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
Ν	Ν	Minor level of impact	N			Minor level of impact
Ν	Ν	Minor level of impact	N			Minor level of impact
Ν	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
Ν	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N	Minor level of impact		Minor level of impact
N	N	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	Ν	Medium level of impact	Y	No or minimal impact	Low	No or minimal impact
N	Ν	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact
Ν	Ν	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact
Ν	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
	N	Minor level of impact Medium level of impact	N	Minor level of impact	Low	Minor level of impact
N	N	Medium level of impact	, ,	Minor level of impact	Low	Minor level of impact
N	N	Medium level of impact	Y	No or minimal impact	Medium	No or minimal impact
N	Ν	Medium level of impact	Y	No or minimal impact	Medium	No or minimal impact
N	Ν	Medium level of impact	Y	No or minimal impact	High	No or minimal impact
N	Ν	Medium level of impact	Y	No or minimal impact	High	No or minimal impact
N	Ν	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
N	Ν	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
N	Ν	Minor level of impact	N			Minor level of impact
Ν	Ν	Minor level of impact	N			Minor level of impact
N	N	Minor level of impact	N			Minor level of impact
iN .	N	Minor level of impact	N	Medium level of impact	Low	Minor level of impact Medium level of impact

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Option		WFD Water Body Infe	ormation											ption Detail									Im	pacts				
														ite	å ation	water i	ver / /	rvia tity	iting	well well face	tity	rvoir Iease	sing					
														on land with wi sssings odified	ater (e. ike ping st	t works t works t works	all to ri	of wate hal / reased ater	of exis to surf	raction nent raction s / suri	reased ater on quar	to resei	voir / ent rai					
				Hydro - morphological				Ecological Quantitative	Quantitative	Chemical				pe line pe line urse cr	rface w rer) int: ew purr	ew / me satmen satmen	servoir servoir jueduct	ansfer o rer / cal jued uct aw / ino stractio	scharge at er	illing / furbish w abst sadw or	sw / in oundw	mpens	ew rese nb ank n		Level 2 Screening		Level 2 Screening	
	Iption Name	ID	Type	Designation	WB Name Ceiriog - confluence Dee to Teirw	Operational Catchment	Ecological Statu	s Objective Status Good by 2015 n/a	Objective	Status	Objective Good by 2015	Good Good	Good by 2015			25 2	228	<u> </u>	343	202 223	2 6 ft	<u>58</u>	25 Le	vel 1 Screening Results	Required?	Level 2 Screening Result	Confidence	Combined Screening Re
	ncreased treatment capacity at Hurleston WTW via Canal Increased treatment capacity at Hurleston WTW via Canal			No designation	Morlas Brook	Dee	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		nor level of impact	N			Minor level of impact
	ncreased treatment capacity at Hurleston WTW via Canal		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 M	nor level of impact	N			Minor level of impact
	creased treatment capacity at Hurleston WTW via Canal		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 M	nor level of impact	N			Minor level of impact
WR814c	creased treatment 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	Ν	N N	Ν	N N	N	N	N <b>M</b>	nor level of impact	N			Minor level of impact
WR814c	creased treatment 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	Ν	N N	Ν	N N	N	Ν	N M	nor level of impact	N			Minor level of impact
WR814c	creased treatment 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	Ν	N N	Ν	N N	Ν	Ν	N M	nor level of impact	N			Minor level of impact
WR814c	creased treatment 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	Ν	N N	Ν	N N	Ν	Ν	N M	nor level of impact	N			Minor level of impact
WR814c	creased treatment 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	Ν	N N	Ν	N N	Ν	Ν	N M	nor level of impact	N			Minor level of impact
WR814c	ncreased 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	Moderate	Moderate by 2015	Y Y	N N	N N	Ν	N N	Ν	N N	Ν	Ν	N M	nor level of impact	N			Minor level of impact
WR814c	creased 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	Poor	Moderate by 2027	Y Y	N N	N N	Ν	N N	Ν	N N	Ν	Ν	N M	nor level of impact	N			Minor level of impact
WR814c	creased 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	Moderate	Good by 2027	Y Y	N N	N N	Ν	N N	Ν	N N	Ν	Ν	N M	nor level of impact	N			Minor level of impact
	creased 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 2015	Moderate	Good by 2021	Y Y	N N	N N	N	N N	Ν	N N	Ν	Ν		nor level of impact	N			Minor level of impact
	creased treatment capacity at Hurleston WTW via Canal		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	Ν	N N	Ν	N N	Ν	Ν		nor level of impact	N			Minor level of impact
	creased treatment capacity at Hurleston WTW via Canal		Canal	Artificial	Llangollen Canal	Perry Roden and Tern North Shropshire Canals	Good	Good by 2015 n/a	n/a	Good	Good by 2015	Good	Good by 2015	YY	N N	N N	Ν	N N	N	N N	Ν	N	NM	nor level of impact	N			Minor level of impact
	ncreased treatment capacity at Hurleston WTW via Canal				Dee Silurian/Ordovician	Dee Silurian/Ordovician	n/a	n/a Good	None given	Good	Good by 2015	Good	Good by 2015	YY	N N	N N	N	N Y	N	N N	N	N	N M	edium level of impact	¥ 	Minor level of impact	Low	Minor level of impact
	ncreased treatment capacity at Hurleston WTW via Canal			No designation	Dee Carboniferous Limestone	Dee Carboniferous Limestone	n/a	n/a Good	None given	Good	Good by 2015	Good	Good by 2015	Y Y	N N	N N	N	N N	N	N N	N	N	N M	nor level of impact	N			Minor level of impact
	creased treatment capacity at Hurleston WTW via Canal	GB41102G204800			Dee Carboniferous Coal Measures	Dee Carboniferous Coal Measures	n/a	n/a Good	None given	Poor	Poor by 2015	Poor	Poor by 2015	, Y	N N	N N	N	N N	N	N N	N	N	N M	nor level of impact	N 			Minor level of impact
	ncreased treatment capacity at Hurleston WTW via Canal Increased treatment capacity at Hurleston WTW via Canal		Groundwater	No designation	Severn Uplands - Carboniferous Oswestry Dee Permo-Triassic Sandstone	Severn Uplands - Carboniferous Oswestry	n/a	n/a Good	Good by 2015 Good by 2015	Good	Good by 2015 Good by 2015	Good	Good by 2015 Good by 2015	ý ý	N N	N N	N	N N	N	N N	N	N	N M	nor level of impact	N			Minor level of impact
	creased treatment capacity at Hurleston WTW via Canal		Groundwater	No designation	Dee Permo-I riassic sandstone Shropshire Middle Severn - Secondary Mudrocks and Drift Wem	Shropshire Middle Severn - Secondary Mudrocks and Dri	n/a It n/a	n/a Good	Good by 2015 Good by 2015	Good	Good by 2015 Good by 2015	Good	Good by 2015 Good by 2015	¥ ¥	N N	N N	N	N N	N	N N	N	N	N	nor level of impact	N			Minor level of impact
	creased treatment capacity at Hurleston WTW via Canal		Groundwater		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 2013	Poor	Good by 2013	· ·	N N	N N	N	N N	N	N N	N	N	N M	nor level of impact	N			Minor level of impact
	creased treatment capacity at Hurleston WTW via Canal		Groundwater	-	Dee Triassic Mercia Mudstone	Dee Triassic Mercia Mudstone	n/a	n/a Good	None given	Good	Good by 2015	Good	Good by 2015	v v	N N	N N	N	N N	N	N N	N	N	N M	nor level of impact	N			Minor level of impact
	hird Party Option: Manchester Bolton Bury Canal To	GB112069060840	River	heavily modified	Irwell (Roch to Croal)	Croal Invell	Moderate	Moderate by 2015 n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	v v	<b>y y</b>	Y N	N	y y	N	N N	N	N	N	edium level of impact	v.	Minor level of impact	Medium	Minor level of impact
	hird Party Option: Manchester Bolton Bury Canal To	GB71210501	Canal	Artificial	Manchester. Bolton and Bury Canal (North)	Croal Invell 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 M	edium level of impact	Y	Minor level of impact	Medium	Minor level of impact
	hird Party Option: Manchester Bolton Bury Canal To Integrated Zone	GB41202G101800	Groundwater	No designation	Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Ag	n/a	n/a Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y Y	Y Y	Y N	N	y y	N	N N	N	N	N M	edium level of impact	Y	No or minimal impact	Medium	No or minimal impact
VR816	hird Party Option: Manchester Bolton Bury Canal To stegrated Zone	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 Y	N N	N N	N	N N	N	N N	N	N	N M	nor level of impact	N			Minor level of impact
WR816	hird Party Option: Manchester Bolton Bury Canal To ntegrated Zone	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	Ν	N N	N	N N	N	Ν	N N	or minimal impact	N			No or minimal impact
VR817	hird Party Option: Carr Mill Dam To Integrated Resource one	GB112069061230	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 Y	Y Y	Y N	N	Y Y	N	N N	N	Ν	N M	edium level of impact	Y	Minor level of impact	Medium	Minor level of impact
WR817	hird Party Option: Carr Mill Dam To Integrated Resource one	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	Ν	N N	or minimal impact	N			No or minimal impact
WR817	hird Party Option: Carr Mill Dam To Integrated Resource one hird Party Option: Carr Mill Dam To Integrated Resource	GB71210088	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	Y N	N N	Ν	Y Y	N	N N	Ν	Ν	N M	edium level of impact	Y	Minor level of impact	Medium	Minor level of impact
WR817	one	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 Y	Y Y	Y N	Ν	Y Y	N	N N	Ν	Ν	N M	edium level of impact	Y	No or minimal impact	Medium	No or minimal impact
WR820	hird Party Option: Shropshire Union Canal To Integrated esource Zone hird Party Option: Shropshire Union Canal To Integrated	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 Y	N N	N N	N	N N	N	N N	Ν	Ν	N M	nor level of impact	N			Minor level of impact
WR820	esource Zone hird Party Option: Shropshire Union Canal To Integrated hird Party Option: Shropshire Union Canal To Integrated	GB71210133	River	Artificial	Shropshire Union Canal, Market Drayton to Ellesmere Port	Weaver Upper Canals	Moderate	Good by by 2027 n/a	n/a	Good	Good by 2015	Moderate	Good by by 2027	N N	Y N	N N	Y	N Y	Ν	N N	Ν	Ν	N M	edium level of impact	Y	Minor level of impact	Low	Minor level of impact
WR820	esource Zone hird Party Option: Shropshire Union Canal To Integrated	GB112068055340	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	Moderate	Good by by 2021	Y Y	N N	Y N	N	Y Y	N	N N	Ν	Ν	N M	edium level of impact	Y	Minor level of impact	Medium	Minor level of impact
	esource Zone	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	Y N	Y N	Y	Y Y	N	N N	Ν	Ν	N M	edium level of impact	Y	No or minimal impact	Medium	No or minimal impact
WR821	hropshire 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	Ν	N N	N	N N	Ν	Ν	N N	or minimal impact	N			No or minimal impact
VR821	hropshire 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 Y	Y N	Y N	Ν	N Y	N	N N	Ν	Ν	N M	edium level of impact	Y	Minor level of impact	Medium	Minor level of impact
	hropshire 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	Ν	Y Y	N	N N	Ν	Ν	N M	edium level of impact	Y	Minor level of impact	Low	Minor level of impact
	hropshire 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	Ν	Y Y	N	N N	N	N	N M	edium level of impact	Y	Minor level of impact	Low	Minor level of impact
	hird Party Option: 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	Ν	N N	Ν	N N	Y	N	N M	edium level of impact	Y	No or minimal impact	Medium	No or minimal impact
	hird Party Option: 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	Ν	N N	Ν	N N	Ν	Ν		nor level of impact	N			Minor level of impact
	hird Party Option: 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	YY	N N	N N	Ν	N N	N	N N	Ν	N	N M	nor level of impact	N			Minor level of impact
	hird Party Option: Blenkinsopp Mine		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	N N	N N	N	N N	N	N N	N	N		nor level of impact	N			Minor level of impact
	hird Party Option: Blenkinsopp Mine	GB102076074040 GB40202G102300	River Groundwater	No designation	Gelt Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Esk and Irthing Eden and Esk Lower Palaeozoic and Carboniferous Aq	Poor n/a	Good by 2027 n/a	n/a Good by 2015	Good	Good by 2015 Good by 2015	Poor	Good by 2027 Good by 2015	, Y	N N	N N	N	N N	N	N N	N	N	N M	nor level of impact	N 			Minor level of impact
vR824 VR824	hird Party Option: Blenkinsopp Mine hird Party Option: Blenkinsopp Mine	GB40202G102300 GB40302G701500			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 Eden Valley and Carlisle Basin Permo-Triassic Sandstone	n/a n/a	n/a Good n/a Good	Good by 2015 Good by 2015	Good Poor	Good by 2015 Poor by 2015	Good Poor	Good by 2015 Poor by 2015	Ý Ý	N N	N N N N	N	N N	N	N N N N	N	N	N M	nor level of impact nor level of impact	N			Minor level of impact Minor level of impact
R824	hird Party Option: Blenkinsopp Mine	GB40201G100400	Groundwater	No designation	Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Aq	n/a	n/a Good	Good by 2015	Poor	Good by 2027	Poor	Good by 2027	Y Y	N N	N N	Ν	N N	Ν	N N	Y	N	N M	edium level of impact	Y	Minor level of impact	Medium	Minor level of impact
	nabling 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	Ν	N N	Ν	N N	Ν	Ν	N N	or minimal impact	N			No or minimal impact
	nabling 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	Ν	N N	Ν	N N	Ν	Ν	N N	or minimal impact	N			No or minimal impact
2	nabling 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	Ν	N N	Ν	N N	Ν	Ν	N N	or minimal impact	N			No or minimal impact
2	nabling 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	Ν	N N	Ν	N N	Ν	Ν	N	or minimal impact	N			No or minimal impact
2	nabling 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	Ν	N N	Ν	N N	Ν	Ν	N N	or minimal impact	N			No or minimal impact
2	nabling 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	Ν	N N	Ν	N N	Ν	Ν	N N	or minimal impact	N			No or minimal impact
	nabling Works		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	Ν	N N	Ν	N N	Ν	Ν		or minimal impact	N			No or minimal impact
	nabling 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	Ν	N N	Ν	N N	Ν	Ν	N N	or minimal impact	N			No or minimal impact
	nabling Works		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	Ν	N N	Ν	N N	Ν	Ν	N N	or minimal impact	N			No or minimal impact
	nabling Works				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	Ν	N N	Ν	N N	Ν	Ν	N N	or minimal impact	N			No or minimal impact
52	nabling 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	YN	N N	Y N	N	N N	N	N N	N	N	N N	or minimal impact	N			No or minimal impact



# Appendix C Level 2 Detailed Assessments



		Water body ID:		GB112063061442	Scheme:		River Alt to	Prescot WTW	
		Water Body Name:		Alt DS Bull Bridge	Reference		WF	R001	
		RBMP:		Alt and Crossens	Scheme Phase	Construction		Operational	
		<b>Operational catchme</b>	nt:	Alt	Impact potential	Direct		Direct	
		Designation (and use	s):	Heavily modified					
		Relevant upstream w	ater bodies:	Alt US Bull Bridge, Downho	lland Brook				
		Downstream water be		Alt					
		WFD Element	Status	RBMP objective	Alternate Objective if less		Confidence		Confidence
		(Receptor)			than Good				
		Phytobenthos	Not provided						
		Macrophytes							
cal	Y	Macrophytes and phytobenthos	Good						
ers: Ecologi	Biology	Bethic invertebrates	Poor					New surface water abstraction quantity.	
Riv		Fish	Not provided			New /modified surface water intake.		Medium level of impact. New surface water abstraction from the River Alt near Maghull of 5-20 MI/d. In the ALS water is identified as available at all flows (Q30, Q50, Q70 and Q95)	
ts for	norp ay	Hydrological regime	Supports good			Minor level of impact.	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
en		River continuity	Not provided			Transfer pipe line on land.	riigii	issued by the Environment Agency.	meanam
	Hydi	Morphological conditions	Not provided			No or minimal impact.		Use of new transfer pipe line, and pumping station.	
WFD	Physico- chemical	General physico- chemical	All high/good except ammonia- moderate, Phosphate- poor			New pumping station. Minor level of impact.		No or minimal impact.	
	<u>н</u> о	Specific pollutants:	All high						
WFD lements for Rivers:	Chemical	Priority hazardous substances	Tributyltin Compounds- fail						
e		Priority substances	All good		¥/////////////////////////////////////				
Overall Status\ Potenti		Ecological	Moderate	Good by 2027	N/A				
ver; atu	a	Chemical	Fail	Good by 2027	N/A				
 2 2 2 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 footprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.

2 Deviation of the advantage of the adva

#### Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ Engineers Proforma: \WAR-FS1.abbal.amec.com/bared/Projects/38671 UU WRMP Support5 Design\Feasible Options\North Eden\WR127 EA Abstraction Licence Strategy, http://www.gov.uk/government/uplads/system/uploads/attachment\_data/ille/300490/LIT\_7881\_35d3ed.pdf

		Water body ID:		GB41201G101700	Scheme:		River Alt to I	Prescot WTW	
		Water body Name:		Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifer	Reference		WF	1001	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifer	Impact potential	Direct	1	Direct	1
		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
nts for tter: ve	Status	Quantitative Dependent Surface Water Body Status							
amer adwa	tive	Quantitative GWDTEs test	Good					Use of new transfer pipe line, and pumping station.	
/FD elc Grour Quz	Quantita	Quantitative Saline Intrusion				Transfer pipe line on land.		No or minimal impact.	
>	a	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	Status	Chemical Dependent Surface Water Body Status	Poor			Transfer pipe line with water course crossings. No or minimal impact.	High	20 Mid. 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	
te	E E	Chemical GWDTEs test	Good					groundwater body.	
ele	ч		Poor						
D TD		General Chemical Test	Good						
Grou	ting	Prevent and Limit Objective	-						
	5	Trend Assessment	Upward trend						
lls'	Ē	Quantitative	Poor	Good by 2027	N\A				
Overall Status	al	Chemical (GW)	Poor	Good by 2027	N\A				
0.00	ĩ	Overall	Poor	Good by 2027	N\A				

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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. 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 Proforms: \\\WAR-F51.global.amec.com\shared/Project\38671.UU.WRMP Support\5 Design\Feasible.Ontion1North Eden\WR127\ EA Abstraction Leone Strategy: https://www.gov.uk/government/uploads/system/uploads/sttachment\_data/file/300490.LTT\_7881\_35d3ed.pd

	Water body ID:		GB112073071100	Scheme:			DUCT AND LOSTOCK FOR TREATMENT	
	Water body ID: Water body Name:		Stainton Beck	Reference:	FIGHER TARN (KENDAL) I	O THIRLWERE AQUE	WR003	
	RBMP:		North West	Scheme Phase:	Construction		Operational	
	Operational catchment:		Bela	Impact potential:	Direct		Direct	
	Designation (and uses):		No designation	impact potential:	Dilect	1	Dilect	
			N/A					
	Relevant upstream water bo Downstream water bodies:	dies:	Bela					
	Downstream water bodies:	1	Bela					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
cal	Macrophytes and phytobenthos	Moderate						
Ecologi	Benthic invertebrates	Good						
ö	Fish	-						
River	Hydrological regime	High					New surface water abstraction quantity.	
	River continuity	-			New transfer pipe line on land		Minor level of impact. A new abstraction licence would be granted by the Environment Agency	
ments fo Hydrom	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 M/d. There is also a requirement to maintain an existing compensation flow condition of 0.273	
WFD ele sico- nical	General physico-chemical	All high			Minor level of impact. New / modified water treatment works	High	M/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).	Medium
Physic Chemi	Specific pollutants:	-			No or minimal impact.		Use of pipe line, pumping station, and water treatment works. No or minimal impact.	
for	Priority hazardous substances	Does not require assessment						
WFD elements for Rivers: Chemical	Priority substances	Does not require assessment						
Overall tatus\Po tential	Ecological	Moderate	Good by 2027	N/A			•	
Dve atu	Chemical	Good	Good by 2015	N/A				
St	Overall	Moderate	Good by 2027	N/A				

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- 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/

Calcimient Data Explorer\_Intro/Internetate.gov.ukcalcimientpartinguestastarTUUUWRMP\_SupportS DesigniFeasible Options/IRZWR003/WR003 Fisher Tam.xtsx Engineens Professor FSI (gabatameet, com/shared/Project338671 UUWRMP\_SupportS DesigniFeasible Options/IRZWR003/WR003 Fisher Tam.xtsx EA Flood Maps (WMPV).http://maps.environment-agency.gov.uk/wh/wh/wh/chr/teller/Xxs37683.04x355134.046acate=1 kite/effcrugs-default&ep=map&texton1y=off&lang=\_e&topic=floodmap#xs324705&ys511476&ktp=1.2 EA Flood Maps (WMPV).http://maps.environment-agency.gov.uk/wh/wh/wh/wh/chr/teller/Xxs37683.04x355114.046acate=1 kite/effcrugs-default&ep=map&texton1y=off&lang=\_e&topic=floodmap#xs32474&ys497910&ktp=1.2 EA Abstraction Licence Strategy (South Cumbria): https://www.gov.uk/government/publications/south-cumbria-abstraction-licensing-strategy/

	Water body ID:		Groundwater	Scheme:	FISHER TARN (KENDAL)	TO THIRLMERE AQU	JEDUCT AND LOSTOCK FOR TREATMENT	
	Water body Name:		IRZ	Reference		WR00	03	
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Cumbria South Low	e 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
ent	Quantitative Dependent Surface Water Body Status	Good						
Elem	Quantitative GWDTEs test	Good						
Status	Quantitative Saline Intrusion	Good						
itative :	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 -	
	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
mical St Element		Good			New / modified water treatment works No or minimal impact.		Use of pipe line, pumping station, and water treatment works.	
Ξ		Good					No or minimal impact.	
- Š		Good						
Ŭ	General Chemical Test	Good						
19 s	Prevent and Limit Objective							
Element	Trend Assessment	No trend						
amtia	Quantitative	Good	Good by 2015	N/A				
usvPotentia I	Chemical (GW)	Poor	Good by 2027	N/A				
ratu	Overall	Poor	Good by 2027	N/A				

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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.

		Water body ID:		GB112073071430	Scheme:		Longsleddale Reserv	voir	
		Water body Name:			Reference			WR004	
		RBMP:		Kent and Leven	Scheme Phase	Construction		Operational	
		Operational catchment:		Kent	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo	dies:	Not identified					
		Downstream water bodies:		Kent- conf Sprint to Tic	lal				
		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. No or minimal impact.			
ogical	Biology	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.	
Ecolo		Benthic invertebrates	High			New pumping station.		New impounding reservoir.	
ivers		Fish	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	ology	Hydrological regime	Supports good			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 win result non the hodong of the sprint will result from the presence of the reservoir. Both high and low flows will be changed. Changes to	
ments	orph	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
NFD 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/phytoberthos and invertebrates. Sediment loss downstream of the		Chemical and Physiochemical: long term water quality changes are likely to occur due to the stilling and storage of water in the reservoir.	
	/sico- mical	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.	
	Phy che	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 accidental spillage or leakage of chemicals such as Polycyclic Aromatic Hydrocarbons			
/FD ents for vers:	emical	Priority hazardous substances	Does not require assessment			acculational spinage or internage or chemicals such as inclusion. Automate "syntocations" (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.			
eleme Riv	Che	Priority substances	Does not require assessment						
= 4	8	Ecological	Good	Good by 2015	N/A				
Overall Status/P	ent	Chemical	Good	Good by 2015	N/A				
Sto	ğ	Overall	Good	Good by 2015	N/A				

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### Evidence

		Water body ID:		GB41202G102100	Scheme:		Longsledda	ale Reservoir	
		Water body Name:		South Cumbria Lower Palaeozoic and Carboniferous Aquifer	Reference		WF	3004	
		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
WFD elements for Groundwater: Quantitative		Quantitative Dependent Surface Water Body Status	Good						
ement ndwat ntitati	ative S ement	Quantitative GWDTEs test	Good						
/FD el Grou Qua	lant	Intrusion	Good						
\$	-	Balance	Good			New transfer pipe line on land.		Use of transfer pipe line and pumping station. No or minimal impact.	
mical		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.	
ater: Che	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
wpuno	al Stat	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 dependent surface water body status).	
s for Gr	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 sunace water body status).	
ements	-	General Chemical Test	Good						
WFD ele		Prevent and Limit Objective	•						
		Trend Assessment	No trend						
Overall Status\ Potenti		Quantitative	Good	Good by 2015	N/A				
/er; atu	8	Chemical (GW)	Poor	Good by 2027	N/A				
o to d		Overall	Poor	Good by 2027	N/A				

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Construction, returns the and using a proving on the proving stations, water treated with a lab and the main and the analysis of the anal

# Evidence

Catchment Data Explorer: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a> Engineers Proforma: \\\WAR-F51.global.amec.com\shared\Projects\38671 UU WRMP Support\S Design\Feasible Options\RZ\WR004\WR004 Longsleddale Reservoir.xisx</a> Abstraction Licensing Strategies (South Cumbria): https://www.gov.uk/government/publications/south-cumbria-abstraction-licensing-strategy

		Water body ID:		GB112069061420	Scheme:		Glaze Brook		
		Water body Name:		Glaze	Reference		WR	006	
		RBMP:		Mersey Lower	Scheme Phase	Construction		Operational	
		Operational catchment:		Glaze	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
				Bedford Brook and					
				Pennington Brook					
		Relevant upstream water bo	dies:	(Glaze)					
		Downstream water bodies:		Mersey/Manchester SI	hip Canal (Irwell/Manchester Ship	Canal to Bollin)			
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
			Not provided						
			Not provided						
al	gy	Macrophytes and phytobenthos	Poor						
Ecological	Biology	Benthic invertebrates	Poor						
ivers:		Fish	Poor			Transfer pipe line on land.		New surface water abstraction quantity.	
or R	jy 3		Supports good			No or minimal impact.		Medium level of impact. New surface water abstraction from Glaze Brook near the village	
tst	lo jo	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	
emen	Hydi	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	Medium
WFD ele	ysico- mical	General physico-chemical	All high/good except: Ammonia- moderate, BOD- poor, Phosphate- Poor			New surface water intake. Minor level of impact.		abstraction licence would be required to be issued by the Environment Agency. Use of new transfer pipe line. No or minimal impact.	
	Phys	Specific pollutants:	All high						
WFD ements for Rivers:	nical	Priority hazardous substances	All good						
e		Priority substances	All good						
Overall itatus/Po	Ital	-	Poor	Poor by 2015	N/A				
Ove	ten		Good	Good by 2015	N/A				
ŭ,		Overall	Poor	Poor by 2015	N/A				

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		Water body ID:		GB41201G101700	Scheme:		Glaz	ze 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)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
er: ve	status	Quantitative Dependent Surface Water Body Status	Good						
ntitati	tive S	Quantitative GWDTEs test	Good						
Quant	antita Ele	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	
	οu	Quantitative Water Balance	Good			No or minimal impact.		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	
	ement	Chemical Dependent Surface Water Body Status	Poor			Transfer pipe line on land. 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,	Mediur
	us Ele	Chemical Drinking Water Protected Area	Poor			No or minimal impact.		and not have a significant impact on the aquifers quantitative water balance.	
nical	l 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	
Chen	emica	Chemical Saline Intrusion	Poor			ive of minima impact.		No or minimal impact.	
	ç	General Chemical Test	Good						
	ting	Prevent and Limit Objective	-						
	~ `	Trend Assessment	Upward trend						
IS/	_	Quantitative	Poor	Good by 2027	N/A				
Status/ Potenti	a	Chemical (GW)	Poor	Good by 2027	N/A				
P S		Overall	Poor	Good by 2027	N/A				

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- 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: <u>http://environment.data.gov.uk/catchment-planning/</u> Engineers proforma:<u>\\WAR-F51.global.amec.com\shared\Project5386/1UUWRMP\_Support\5 Design\Feasible\_Options\IRZ\WR006\WR006\_Glaze\_Brook.xlsx</u> Abstraction Licence Strategy: <u>https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300490/LIT\_7881\_35d3ed.pdf</u>

		Water body ID:		GB41201G101700	Scheme:		Sai	nkey Brook	
				Lower Mersey Basin and North	Reference				
				Merseyside Permo-Triassic Sandstone				WR007	
		Water body Name: RBMP:		Aquifers North West	Scheme Phase	Construction		Operational	
		RBMP:		Lower Mersey Basin and North	Impact potential	Construction		Operational	
				Merseyside Permo-Triassic Sandstone	impact potential	Direct		Direct	
		Operational catchment:		Aquifers		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
é		Quantitative Dependent	good						
ΣĒ	sn	Surface Water Body Status							
uan	Status		good						
ē ē	0 5	Quantitative GWDTEs test	good						
WFD elements for Groundwater: Quantitive	Quantitativ	Quantitative Saline Intrusion	Poor						
d ve	шţ	Quantitative Saline Intrusion							
N N	gue		good			Transfer pipe line with water course crossing.		New surface water abstraction quantity. No or minimal impact. New surface water abstraction from Sankey Brook near	
5 G	-	Quantitative Water Balance				No or minimal impact.		Great Sankey of 10 MI/d. The ALS identifies restricted availability of groundwater	
			Poor			No		in the area. The abstraction is moderate in size, but is located in a transitional	
	tus	Chemical Dependent Surface Water Body Status				New water treatment works. No or minimal impact.	High	surface water body which has water available across all flows. Any reductions in	Medium
wat	nt Sta		Poor					flow as a result of the new abstraction are unlikely to have a significant impact on leakage to the aquifer or on the quantitative water balance of the aquifer.	mourum
	ane of the	Protected Area	1001			New surface water intake.		leakage to the aquifer or on the quantitative water balance of the aquifer.	
ž _	μ		good			No or minimal impact.		New Transfer Pipe Line and Pumping Station	
or Gro mical	Che		Poor					No or minimal impact.	
	•	General Chemical Test	good						
Che	6		-						
Ĕ.	nts	Prevent and Limit Objective							
e e	io di la la		Upward trend						
H H	Eler	Trend Assessment							
>	, i	9							
_		Quantitative	Poor	0	N/A				
ntia		Quantitative	Poor	Good by 2026	N/A				
Overall us/Poter			_						
s/Pei		Chemical (GW)	Poor	Good by 2027	N/A				
atric									
ŝ		Overall	Poor	Good by 2027	N/A				

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Subject the closed share coulds and subject to save if taken on ore than 30 days, and any in channel work will be undertaken at a time which wo 34. Saving of the pipeline across water courses will lake no more than 30 days, and any in channel wroks will be undertaken at a time which wo 44. New pipe line water courses will be installed via a tench and cover technique within a dry working area. New pipe line crossings would be installed via a tench 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 any migration that may be required.

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Evidence Catchment Data Explorer: <u>http://envforment.data.gov.uk/catchment.planning/</u> Engineers Proforms: \WAR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support5 Design/Feasible Options\IRZ\WR007\WR00

EA Abstraction Licence Strategy: https://www.gov.uk/gove 90/LIT\_7881\_35d

		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	dies:	and Clatter Brook, Ditton Brook					
		Downstream water bodies:		Mersey Mouth					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Moderate						
	>	Macrophytes	High	Good by 2015					
vers:		Macrophytes and phytobenthos							
<u>ar</u>			Good	Good by 2015				New surface water abstraction quantity.	
for		Fish	-	-				Medium level of impact. New surface water abstraction quantity.	
ements for Ecological	126	Hydrological regime	Supports good					Brook near Great Sankey of 10 Ml/d. In the ALS water is identified as	
E B	E S	River continuity	-			New surface water intake. Minor level of impact.	High	available at all flows for the transitional water body. However the abstraction is moderate in size and could have an impact on the	Medium
WFD el	Hydi	Morphological conditions	-			Minor level of impact.		hydrological regime of lower part of the Sankey Brook. A new abstraction	
Ň	iysic o- nemi	General physico-chemical	Moderate	Good by 2027				licence would be required to be issued by the Environment Agency.	
	5 5	Specific pollutants:	Moderate	Good by 2027					
WFD elemen ts for Rivers:	nemi cal	Priority hazardous substances	Good						
ele V ts	ວັ	Priority substances	Fail	Good by 2015					
Overall Status\Po	tial	Ecological	Moderate	Good by 2027	N\A				
) ve atu	en	Chemical	Fail	Good by 2027	N\A				
Sto	-	Overall	Moderate	Good by 2027	N\A				

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### Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ Engineers Proform: \WWAR-FS1.gbbalamec.com/bared/Projects/38671 UU WRMP Supports Design/Feasible Options/IRZWR007\WR007\_Sankey Brook.docx EA Abstraction Licence Strategy.https://www.gov.uk/government/ubplads/jattachment\_data/file/300490/LIT\_7881\_363ded.pdf

	1								
		Water body ID:		GB112072071710	Scheme:	RIVER RAWTH	HEY TO WATCHGATE		
		Water body Name:		Rawthey - Lower	Reference:		WR009	i	
		RBMP:		North West	Scheme Phase:	Construction		Operational	
		Operational catchment:		Greta and Rawthey	Impact potential:	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo	dies:	Clough, Dee - conf De	epdale Bk to conf Rawthey, Raw	hey - Upper			
		Downstream water bodies:		Lune - conf Rawthey t	o conf Greta				
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
		Macrophytes and phytobenthos	High						
Ecological	BIOIOB	Benthic invertebrates	High						
Rivers: E		Fish	High			Transfer pipe line on land. No or minimal impact.		Use of new transfer pipeline, and pumping station. No or minimal impact.	
for R	ā ~ 1		High			Transfer pipe line with water course crossings. Minor level of impact.		New surface water abstraction quantity.	
Its	n g	River continuity	-			Million level of impact.		Abstraction increase of up to 20MI/d	
elemer	Hydro oli	Morphological conditions	-			New /modified surface water intake. Minor level of impact.	High	Medium level of impact. New abstraction from the River Rawthey near Sedbergh of 10- 20 MVd. The ALS indicates that there is water available from the River Rawthey at high flow (Q30), but medium and low flows (Q50, Q70, Q95) have limited water available.	Medium
	<u><u>u</u> <u>u</u></u>	General physico-chemical	-			New pumping station. Minor level of impact.		The moderate size of the abstraction load (200 Mid) could impact on the hydrological regime of the river. A new abstraction (200 Mid) could impact on the hydrological regime of the river. A new abstraction loance would be required to be issued by the Environment Agency.	
	chem	Specific pollutants:	-					Environment Agency.	
e for	<b>d</b>	Priority hazardous substances	Does not require assessment						
WFD elements for Rivers: Chemical		Priority substances	Does not require assessment						
Overall Status/Po tential				Good by 2027	N\A			•	
atu		Chemical	Good	Good by 2027	N\A				
St S		Overall	Good	Good by 2027	N\A				

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: \\\WAR-FS1.globaLamec.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

		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:		Lune and Wyre Carboniferous Aquifers	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water		N\A					
		Downstream water bodie	s:	N\A					
		WFD Element (Receptor)		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
or	t	Quantitative Dependent	Good						
ents f vater: ative	ative emen	Quantitative GWDTEs test	Good						
elem oundv antit	Groundwater: Quantitative Quantitative Status Element	Quantitative Saline Intrusion	Good						
Grc Grc		Quantitative Water Balance	Good			Transfer Pipe Line.		Use of new transfer pipe line, and pumping station. No or minimal impact.	
		Chemical Dependent	Good			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 M/d. The ALS does not highlight any restricted or non availability of orcumdwater in the area. Due to the moderate size of the proposed abstraction	
water:	atus	Chemical Drinking Water Protected Area	Good			Transfer pipe line with water course crossings. No or minimal impact.			Medium
puno	cal Sta	Chemical GWDTEs test	Good				High		
nts for Grou Chemical	Chemia	Chemical Saline Intrusion	Good			New pumping station. No or minimal impact.		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	
ents 1 Che	o	General Chemical Test	Good					from surface water courses to maintain its quantitative water balance.	
elem	ortin	Prevent and Limit Objective	-						
WFD	d 3 4	Trend Assessment	Upward Trend						
_;	ential	Quantitative	Good	Good by 2027	N\A				• • •
Overall	s/Pote	Chemical (GW)	Good	Good by 2027	N\A				
U .	2								

### Assumptions

Sta

Overall

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

Good

N\A

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 course 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 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 exvariations would not require a permit from the Environment Agency/Natural Resources 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- Constructed, and in stepsing of groundwater abstraction wells will be undertaken under consent from the EA/NRW. Wells the discharged or ways as to prevent groundwater becoming politied, and in line with best practice.

Evidence
Catchment Data Explorer: <a href="http://environment.data.gov.uk/catchment.glanning/">http://environment.data.gov.uk/catchment.glanning/</a>
Engineers Proforma: <a href="http://www.gov.uk/cavemnent/uploads/system/uploads/attachment\_data/file/300485/LIT917v1\_161231.pdf">http://www.gov.uk/cavemnent/uploads/system/uploads/attachment\_data/file/300485/LIT917v1\_161231.pdf</a>
Catchment Data Explorer: <a href="http://www.gov.uk/cavemnent/uploads/system/uploads/attachment\_data/file/300485/LIT917v1\_161231.pdf">http://www.gov.uk/cavemnent/uploads/system/uploads/attachment\_data/file/300485/LIT917v1\_161231.pdf</a>

		Water body ID:		GB112072071770	Scheme:		Borrow Beck IR		
		Water body Name:		Borrow Beck	Reference			WR012	
		RBMP:		Lune	Scheme Phase	Construction		Operational	
		Operational catchment:			Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo	dies:	Not identified					
		Downstream water bodies:		Lune- conf Birk Beck to	o conf Rawthey				
		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.		Use of transfer pipe line.	
ogical	Biolog	Macrophytes and phytobenthos	Good			No or minimal impact. New transfer pipe line with water course crossings.			
: Ecol		Benthic invertebrates	High			Minor level of impact.		No or minimal impact. New impounding reservoir.	
Rivers		Fish	Not provided			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		High level of impact. <u>Biology</u> : long term habitat changes will result from the flooding of the Borrow Beck valley.	
ts for	ology	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. <u>Hydromorphology</u> : 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
elemei	morph	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.	riigii	Changes to sediment transport regime will change morphological conditions. River continuity will be interrupted by the embankment.	, ngn
WFD	Hydro	Morphological conditions	Supports good			<u>Hydromorphology</u> : 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 the stilling and storage of water in the reservoir.	
	sico- nical	General physico-chemical	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: cher	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	wFU ments Rivers: emical	Priority hazardous substances	Does not require assessment			"pulse" of poor quality water.			
elem		Priority substances	Does not require assessment						
lle /s	tial	Ecological	Good	Good by 2027	N\A				
vera	tent	Chemical	Good	Good by 2015	N\A				
0 0	6 # t	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- 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.cov.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

		Water body ID:			Scheme:		Borrow B	Beck IR	
		Water body Name:		South Cumbria Lower Palaeozoic and Carboniferous Aquifers	Reference		WR0	12	
		RBMP:			Scheme Phase	Construction		Operational	
		Operational catchment:		Cumrbia South Lower Paleozoic and 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)		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ts for ter: ve	Status ht	Surface Water Body Status	Good						
		Quantitative GWDTEs test	Good			New transfer pipe line on land. No or minimal impact. New transfer pipe line with water course crossings. No or minimal impact.		Use of transfer pipe line and pumping station.	
WFD elements f Groundwater: Quantitative	Quantitative Elemer	Quantitative Saline Intrusion	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 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. The solid geology is primarily mudstones and siltstones (with some sandstone layers). The relatively low permeability and	
3	σn	Quantitative Water Balance	Good						
ter:	ment	Chemical Dependent Surface Water Body Status	Poor						
Groundwater: al	us Ele	Chemical Drinking Water Protected Area	Good			New pumping station. No or minimal impact.	High		High
Grou cal	l 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	Che	General Chemical Test	Good					surface water body may have implications for the status of this groundwater body (e.g. via the quantitative dependent surface	
WFD e	ortin	Prevent and Limit Objective	Not provided					water body status).	
>	6 ddns	Trend Assessment	No trend						
Pot ==	_	Quantitative	Good	Good by 2015	N\A	· · · · · · · · · · · · · · · · · · ·			
Overall Status\Pot	entia	Chemical (GW)	Poor		N\A	1			
Sta	-	Overall	Poor	Good by 2027	N\A				

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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\IRZWR075\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/dotroller?topic=waste&layerGroups=default&lang=\_e&ep=map&scale=1&x=357682.999999994&y=355133.9999999994#x=322374&y=49791 EA aquifer designation mapping: http://maps.environment-agency.gov.uk/wiyby/default.aspx BGS Geology Mapping: http://maps.sb.ac.uk/geologyofbritain/home.html

		Water body ID:		GB112071065612	Scheme:	RIVER RIBBLE SUP	PORT TO STOCKS R	ESERVOIR	
		Water body ID: Water body Name:		Ribble DS Stock Beck		RIVER RIBBLE JUFF	WR026		
		RBMP:		North West	Scheme Phase:	Construction		Operational	
		Operational catchment:		Ribble Middle - Settle t		Direct		Direct	
		Designation (and uses):		No designation	impact potential.	Britte		Billott	
		Relevant upstream water bo	dies:	ite debignation					
		Downstream water bodies:	4100.						
	_	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
_	A.	Macrophytes and phytobenthos	Good						
cologica	Biology	Benthic invertebrates	High						
ivers: Ec		Fish	-			Transfer pipe line on land. No or minimal impact.		Use of new transfer pipe line, pumping station and surface water intake.	
for Ri	ohq	Hydrological regime	Supports good					No or minimal impact.	
ts	2 2	River continuity	-			Transfer pipe line with water course crossings. Minor level of impact.		New surface water abstraction quantity.	
) elemen	Hydron loç	Morphological conditions	-			Nimor level of impact. New surface water intake. Minor level of impact.	High	Medium level of impact. New surface water abstraction from the River Ribble near Citheree of 5 - 10 Mid. In the ALS water is identified as available at all flows (20), (250, Q70 and Q95) however the abstraction is moderate in size and could have a medium impact on the hydrological regime of the River Ribble. A new abstraction licence would be required to be issued by the Environment Agency.	Medium
WFD	Physico- chemical	General physico-chemical	Good			New pumping station. Minor level of impact.			
	Phy che	Specific pollutants:	High						
FD nts for	ical	Priority hazardous substances	Fail						
W eleme	River Chemi	Priority substances	Good						
Overall tatus\Po	Itial		Good	Good by 2015	N/A				
tati O	ter		Fail	Fail by 2015	N/A				
~		Overall	Moderate	Moderate by 2015	N/A				

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 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

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Evidence Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ Engineers Proforma: <u>WVAR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options/IRZWR026a/WR(</u> EA Abstraction Licence Strategy (xx): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300484/LIT7919v3\_1881

	Water body ID:		GB41202G103000	Scheme:	RIV	/ER RIBBLE SUPPO	ORT TO STOCKS RESERVOIR	
	Water body Name:		Ribble Carboniferous Aquifers	Reference		,	WR026a	
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment: Designation (and uses): Relevant upstream water bo	dies:	Ribble Carboniferous Aquifers No designation	Impact potential	Direct		Direct	
	Downstream water bodies:	4100.						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
WrU elements for Groundwater: Quantitive Quantitative Status Element	Surface Water Body Status	Good			Transfer pipe line on land.			
J elemel Iwater: ( ntitative Elemer		Good			Transfer pipe line with water course crossings.			
Ground	Quantitative Water Balance	Good			No or minimal impact. 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.	
vater: Status ot	Surface Water Body Status	Good			No or minima limpac. No or minima limpac. New pumping station.	High	Minor level of impact. New surface water abstraction quantity. Minor level of impact. New surface water abstraction from the River Ribble near Clitheroe of 5 - 10 M/d. 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	Medium
oundy nical (	Protected Area	Good			No or minimal impact.		abstraction there may be reductions in leakage from the river to the aquifer, however these would be localised, and the secondary Carboniferous aquifer is unlikely to be highly	
hen lical		Good			New outfall to reservoir.		dependent on leakage from surface water courses to maintain its quantitative water	
Chemi Chemi		Good			No or minimal impact.		balance.	
ts und		Good						
WFU ele Support Elemen	Trend Assessment	No trend						
ntial	Quantitative	Good	Good by 2015	N/A				
Overall us/Poten	Chemical (GW)	Good	Good by 2015	N/A				
Stat	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 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

For the plane metal was a construction, refurbishment, and lesting 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: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a> Engineers Proforma: <a href="http://www.gov.uk/government/uploads/system/uploads/attachment\_data/hile300484/LIT7919v3\_f8">http://www.gov.uk/government/uploads/system/uploads/attachment\_data/hile300484/LIT7919v3\_f8</a>

	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 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: Bio	Macrophytes and phytobenthos	-			Raise height of reservoir embankment.			
esen	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	
kes\R	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,		the raised embankment. No or minimal impacts on biology, hydromorphology, chemical and physiochemical elements are expected, which would not cause a	
or La omo logy	Hydrological regime	-			close to the embankment. Hydromorphology: No longer term or extensive changes to the hydrological regime of the reservoir	High	chemical and physiochemical elements are expected, 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.	Medium
Hydr Tpho	River continuity	-			are expected. Chemical and Physiochemical: direct temporary effects could occur as a result of accidental spillage			
elem al	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 hysic	General physico-chemical	Moderate			the new reservoir volume may result in a "pulse" of poor quality water.			
- to	Specific pollutants:	-						
ements for ikes\Re ervoirs: nemical	Priority hazardous substances	Does not require assessment						
elem fc Lake serv Chen	Priority substances	Does not require assessment						
all ıs\ nti	Ecological	Good	Good by 2027	N\A				
ver ate	Chemical	Good	Good by 2027	N\A				
P & C	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.

Sectors incomplexity of a sector of the sector of the

Deviating of UserMusics indextract regards a planmin room as Linkohmenn-regardighnateen resolute haves. In
 Deviating would be of uncontaminated waters, and water would be discharged within the same water body.
 S- Reservoir compensation flows and fish pass arrangements will be maintained during construction and operation.
 G- In-channel works will be undertaken at a time which worth have a significant impact on fish communities

Evidence Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ Engineers Proforma: WWAF-F51.globaLamec.com/shared/Projects/38871 UU WRMP SupportS Design/Feasible Options/IRZ/WR037a/WR037\_Haweswater Reservoir.docx EA aquier designation mapping: http://appapes.bds.ac.uk/geologyofbritain/home.html BGS Geology Mapping: http://mapapes.bds.ac.uk/geologyofbritain/home.html

	Water body ID:		GB102076070720	Scheme:	HAWESWATER RESI	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 bo	dies:	-					
		Downstream water bodies:						
			Lowther (Lower)	Alternate Objective if less				
	WFD Element (Receptor)	Status	RBMP objective	than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
	Macrophytes							
6	Macrophytes and	-						
Se al	phytobenthos							
Bi		01						
8	Benthic invertebrates	Good						
ů –	Fish	Moderate			Raise height of reservoir embankment.			
	Fish	modorato			Minor level of impact.			
v /er		-			Biology: There is the potential for suspended sediment to enter the Haweswater Beck and			
Riv	Hydrological regime				effect the ecology (i.e. smothering, reduction in light) including fish,		Operation of increased volume reservoir	
o lo					macrophytes/phytobenthos and invertebrates. However any impacts would be temporary.		Minor level of impact. Part of the upper reaches of the Haweswater Beck will be flooded by the	
pt sf	<b>a</b>	-			Hydromorphology: No long term or extensive changes to the hydrological regime of the		increased volume of the reservoir. This will result in changes to habitats, hydromorphology,	
and and	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
ě b					would be maintained during construction. Sediment release may have a short term impact on		small reach of water course, and an extension of the existing reservoir habitats so a deterioration	
yd ele	Morphological conditions	-			the morphological conditions of the Beck.		of the status of the WFD water body is unlikely. It is assumed that current compensation flow	
H, De	worphological continuons				Chemical and Physiochemical: direct temporary effects could occur as a result of accidental		releases and fish pass arrangements would be maintained.	
Å —		Good			spillage or leakage of chemicals such as Polycyclic Aromatic Hydrocarbons (PAHs)		loodoo and hor pado anangomento wolid bo maintained.	
9 19	General physico-chemical	0000			associated with construction vehicle/machinery fuels and oils, or metals (from machinery			
nic sic	Contoral priyotoo ontonnoal				itself). The initial flooding of the new reservoir volume may result in a "pulse" of poor quality			
hy		-			water.			
<u> </u>	Specific pollutants:							
		Does not require assessment						
ar. ē	Priority nazardous	Does not require assessment						
D sts	substances							
WFD ements Rivers: Chemic		Does not require assessment						
د <del>ب</del> ق ح	Priority substances							
<u> </u>	•							
Overall tatus/Po tential	Ecological	Good	Good by 2027	N\A				
Dve att	Chemical	Good	Good by 2027	N\A				
5 25	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.

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: \WAR-FS1.gbbal.amec.com/shared/Project/38671 UU WRMP SupportS Design\Feasible Options\IRZ\WR037a\WR037\_Haweswater Reservoir.docx EA acuifer designation mapping: http://mapaps.bgs.ac.uk/geology/default.aspx BGS Geology Mapping: http://mapaps.bgs.ac.uk/geology/doftain/home.html

	Water body ID:		GB40201G102300	Scheme:	HAWESWA	TER RESERVOIR – R	AISE EMBANKMENT STRUCTURE		
	Water Body Name:		Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Reference		WR	1037b		
	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		No designation						
	Relevant upstream wa		NA						
	Downstream water bo		NA						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
		Good							
tative lemen	GWDIEs test	Good							
tuanti atus E	Quantitative Saline	Good							
Sto	Quantitative Water Balance	Good							
ant	Curfees Meter Dedu	Good							
s Elem	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 unikely 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		
mica	Chemical Saline 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		
Che	General Chemical Test	Good					the groundwater body to impacts from the reservoir.		
g br)	Prevent and Limit	-							
Elements	Trend Assessment	Upward Trend							
	Quantitative	Good	Good by 2015	N\A			·		
tial	Chemical (GW)	Good	Good by 2015	N\A	- -				
	Overall	Good	Good by 2015	N\A					

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.

- Extensions, or new pumping stations, water treatment works, etc. would involve a relatively small boothrin the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
   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: \WAR-FS1.gbbal.amec.com/shared/Project/33671 UU WRMP Support/S Design\Feasible Options\IRZ\WR037a\WR037\_Haweswater Reservoir.docx EA aquifer designation mapping: http://mapacos.bas.ac.uk/qeology.gov.uk/wit/yb/default.aspx BGS Geology Mapping: http://mapacos.bas.ac.uk/qeology.ofbritain/home.html

	Water body ID:		GB30229073	Scheme:	HAWESWATER RESERVOIR	- RAISE EMBANKME	INT STRUCTURE	
	Water body Name:		Haweswater Reservoir	Reference		WR037	h	
	RBMP:		Solway Tweed	Scheme Phase	Construction		Operational	
	Operational catchment:		Eamont	Impact potential	Direct		Direct	
	Designation (and uses):		Heavily modified	input potential			Bilder	
	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						
gical	Macrophytes	-						
Ecolo	Phytobenthos	-						
oirs: Biol	Macrophytes and phytobenthos	-						
serv	Chironomids (CPET)	-			Raise height of reservoir embankment. Minor level of impact.			
es/Re	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		Operation of increased volume reservoir No or minimal impact. The reservoir water body would increase in size as a result	
r Lak	Hydrological regime	-			invertebrates. However any impacts would be temporary and restricted to the downstream section of the reservoir, close to the embankment.		of the raised embankment. No or minimal impacts on biology, hydromorphology, chemical and physiochemical elements are expected, which would not cause a	
Hydr Hydr	River continuity	-			Hydromorphology: No longer term or extensive changes to the hydrological regime of the reservoir are expected.	High	deterioration in WFD status. It is assumed that current compensation flow releases, fish pass arrangements and the characteristics of the banks of the	Medium
eleme	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 e hysicc hemic:	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.			
> F.P.	Specific pollutants:	-						
ements Ikes\ voirs: nical	WFD elements for Lakes\ Reservoirs: Chemical	Does not require assessment						
WFD elements for Lakes\ Reservoirs: Chemical	Priority substances	Does not require assessment						
al I s\ tial	Ecological	Good	Good by 2027	N\A				
Overall Status\ Potential	Chemical	Good	Good by 2027	N\A				
0,0,2	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

### Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ Engineers Proforma: WWAR-FS1.gbobal.amec.com/sharedProject/38671 UU WRMP SupportS Design/Feasible Options\IRZ\WR037b\WR037\_Haweswater Reservoir.docx EA aquifer designation mapping: http://aps.environment-agency.gov.uk/wib/yldefault.aspx BGS Geology Mapping: http://mapaps.bas.ac.uk/deology/obtriain/home.html

		Water body ID:		GB102076070720	Scheme:			BANKMENT STRUCTURE	
		Water body ID: Water body Name:		Haweswater Beck	Reference	HAWESWATER RESE		WR037b	
		RBMP:		Solway Tweed	Scheme Phase	Construction		Operational	
					Impact potential	Direct		Direct	
		Operational catchment:		Eamont	impact potential	Dilect	1	Direct	1
		Designation (and uses):		No designation					
		Relevant upstream water bo	odies:	-					
		Downstream water bodies:		Lowther (Lower)					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
WFD WFD WFD elements for Rivers: Ecological Rivers.	I Physico- Hydromorphology Biol	Phytobenthos Macrophytes Macrophytes and phytobenthos Benthic invertebrates Fish Hydrological regime River continuity Morphological conditions General physico-chemical Specific pollutants: Priority hazardous substances				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/phytolenthos 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. Sedment telease may have a short term impact on the morphological conditions of the Beck. <u>Chemical and Physiochemical</u> direct tempory effects could occur as a result of accidental spillage or leakage of chemicals such as Polycyclic Aromaic Hydrocarbons (PAHs) associated with construction which/imachinery fuels and obis, or matisk from machineny Issel). 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 Bock will be flooded by the increased volume of the reservoir. This will result in changes to habitats, hydromorphology, chemical and physiochemical elements in the effection each. 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
= -	a	Ecological	Good	Good by 2027	N\A				
Overall Status\	otent	Chemical	Good	Good by 2027	N\A				
0.0	ĩ	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 containitated fand 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 global water and 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: \WAR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options/IR2\WR037b/WR037\_Haweswater Reservoir.docx EA aquifer designation mapping: http://apage.ewironment-agency.gov.uk/wk/wdefault.aspx BGS Geology Mapping: http://mapages.bgs.ac.uk/geologyofbritain/home.html

	Water body ID:		GB40201G102300	Scheme:	HAWESWA	ATER RESERVOIR – R.	AISE EMBANKMENT STRUCTURE		
	Water Body Name:		Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Reference		WR	037b		
	RBMP:		Solway Tweed	Scheme Phase	Construction		Operational		
	Operational catchmer	nt:	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Impact potential	Direct		Direct		
	Designation (and use	s):	No designation						
	Relevant upstream wa		N\A						
	Downstream water bo	dies:	N\A						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
		Good							
ative ative	GWDTEs test	Good							
Quantit Quantit Status El	Intrusion	Good							
Sta Q	<sup>n</sup> Balance	Good							
ž	Surface Meter Dedu	Good							
us Eleme	Water Protected Area						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.		
l Statı	test	Good			Raise height of reservoir embankment 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	
mica	Intrusion	Good			widespread of prolonged enect 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		
Che	Test	Good					the groundwater body to impacts from the reservoir.		
6.5	Prevent and Limit	-							
Supportir Elements	Trend Assessment	Upward Trend							
oten	Quantitative	Good	Good by 2015	N\A					
itus/Pote tial	Chemical (GW)	Good	Good by 2015	N\A					
Stat	Overall	Good	Good by 2015	N\A					

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.

- Extensions, or new pumping stations, water treatment works, etc. would involve a relatively small boothrin the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
   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.gboal.amec.com/shared/Project/38671 UU WRMP Support/5 Design/Feasible Options/IRZ/WR037b/WR037\_Haweswater Reservoir.docx EA aquifer designation mapping: http://aps.environment-agency.gov.uk/wiyby/default.aspx BGS Geology Mappina: http://mapapos.bgs.ac.uk/qeology/ob/triain/home.html

				Scheme:				
	Water body ID:		GB102076070980		RIVER EDEN (TEI	MPLE SOWERBY) TO		
	Water body Name:		Eden Lyvennet to Eamont	Reference:	· · ·	WR0		
	RBMP:		Solway Tweed	Scheme Phase:	Construction		Operational	
	Operational catchment:		Eden Upper	Impact potential:	Direct	1	Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo	dies:	Crowdundle Beck - Lower, Eden -	Scandal 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	-						
_ >	Macrophytes and phytobenthos	Moderate						
cological 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 Ri	Hydrological regime	High			Transfer pipe line with water course crossings.		No or minimal impact.	
no	River continuity				Minor level of impact.		New surface water abstraction quantity.	
) elemer Hydror	2 Morphological conditions	-			New surface water intake. Micro level of impact.	High	High level of impact. New abstraction of 25 to 50 M/Vd from the river Eden near Temple Sowerby. In the ALS, water is identified as available at all flows (Q30, Q50 Q70 and Q35), however the abstraction quantity is large, and could have a high	Medium
WFD rsico-	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 its for srs: nical	Priority hazardous substances	Good						
WFD elements f Rivers: Chemical	Priority substances	Good						
Overall tatus\Po tential	Ecological	Moderate	Good by 2015	N/A				
tert	Chemical	Good	Good by 2015	N/A				
- W	Overall	Moderate	Good by 2015	N/A				

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 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.

Constant of the second of

Evidence
Catchment Data Explorer, <u>http://environment.data.gov.uk/catchment.planning/</u>
Engineers Proforma: <u>UWAR-FS1.gibbal.amec.com/shared/Projects/38671 UU WRMP-Support5 DesigniFeasible Options/IRZWR039WR039 River Eden
EA Abstraction Licence Strategy (Eden and Esk): <u>https://www.gov.uk/government/upbads/systen/upbads/attachment\_data/file/300466/LT\_7889\_1384b1</u></u>

		Water body ID:		GB40201G100400	Scheme:	RIVER EDEN (TEMPLE SOWERBY) TO WATCHGATE				
		Water body Name:		Eden Valley and Carlisle Basin Permo-Triassic sandstone aquifers	Reference	Kiye.		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	dies:							
		Downstream water bodies:								
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
for intitive	atus	Quantitative Dependent Surface Water Body Status	Good							
WFD elements for Groundwater: WFD Overall Chemical Groundwater atus/Potential Supporting Chemical Status Quant	0 5	Quantitative GWDTEs test	Good							
D eler dwate	5 -	Quantitative Saline Intrusion				Transfer pipe line on land.		Use of new transfer pipe line, pumping station, and surface water intake.		
Ground		Quantitative Water Balance	Good			No or minimal impact. Transfer pipe line with water course crossings.		No or minimal impact. New surface water abstraction quantity Medium level of impact. New surface water abstraction from the river Eden of 25-50 M/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		
/ater:	itatus it	Surface Water Body Status	Good			No or minimal impact. New surface water intake.	High		Medium	
the for Groundwater: Chemical Chemical Status	Protected Area	ea			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			
alg	БШ		Poor			New pumping station.		water courses to maintain its quantitative water balance.		
D elements for Groundwater: Chemical Chemical Status news Definition Chemical Status Definition		Good			No or minimal impact.					
		General Chemical Test	Good							
le ment C	rting ents	Prevent and Limit Objective								
WFD e	Elemi Elemi	Trend Assessment	Upward trend							
ntial		Quantitative	Good	Good by 2015	N/A					
Dverall s\Potel		Chemical (GW)	Poor	Good by 2027	N/A					
Statu	1	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 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 5- A ground investigation will be carried out and will identify any contaminated land and any mitgation that may be required.

b > A ground investigation will be called bout and will will not many any containmated and any meganice and any any meganice and any any meganice and meganice and any mega

Evidence
Catchment Data Explorer; http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \WAR-FS1.global.amec.com/shared/Projects/38671.UU WKMP\_Support/S Design/Feasible Options/IR2WR039/WR039
EA Abstraction Licence Strategy (Eden and Esk); https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300486/LIT\_788

	Water body ID:		GB102076073981	Scheme:	River Irthing	g to Cumwhinton Plus	Castle Carrock Link	
	Water body Name:		Irthing DS Crammel Linn Waterfall	Reference			WR041	
- I	RBMP:		Eden and Esk	Scheme Phase	Construction		Operational	
	Operational catchment:		Esk and Irthing	Impact potential	Direct		Direct	
1	Designation (and uses):		No designation					
1	Designation (and uses).		Gelt, Irthing US Crammel					
			Linn Waterfall, King Water					
Relevant upstream water boo	dies:	and Quarry Beck						
Downstream water bodies:		Eden- Eamont to tidal	4					
ľ	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confider
	Phytobenthos	Not provided		Good				
	Macrophytes	Not provided						
		Not provided		1				
	Macrophytes and	Good						
6 1	phytobenthos							
	Benthic invertebrates	High						
	Fish	Good						
		Supports good			Transfer pipe line on land.			
					No or minimal impact.		New surface water abstraction quantity.	
5	Hydrological regime						Medium level of impact. A new abstraction licence would be granted by the Environment Agency	
ē -					Transfer pipe line with water course crossings.		(assuming the proposed abstraction quantity would not have a detrimental effect on WFD status) on the	
à					Minor level of impact.		River Inthing at Newby East, near Warwick Bridge of 6.5 MI/d, The ALS (Abstraction Licensing Strategy)	
e l	River continuity	Not provided				Medium	indicates that there is restricted water available from surface water sources at all flow regimes (Q95,	Mediu
ē -					New surface water intake.		Q70, Q50 and Q30).	
<u>x</u>					Minor level of impact.			
£	Morphological conditions	Supports good					Use of new pipe lines, surface water intake and pumping station.	
					New pumping station. Minor level of impact.		No or minimal impact.	
					Minor level or impact.			
General I	General physico-chemical	All high						
i i i								
Pe								
5	Specific pollutants:	All high						
	Priority hazardous							
	substances	Does not require assessment						
-								
	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				

 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 ake 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.
 Application of standard best practice construction and pollution prevention methods.
 New pipe line water courses will 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 to the set of the to th 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: \\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Carlisle\WR041\WR041 River Inthing to Cumwhinton.docx	
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⟨=_e&topic=floodmap#x=344705&y=511476≶=1,2,10,&scale=7	
EA Historical Landfill: http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=waste&layerGroups=default⟨= e&ep=map&scale=1&x=357682.9999999994&y=355133.9999999994#x=322374&y=497910≶=1,2,3,10,&scale=7	
Abstraction Licensing Strategies (Eden and Esk): https://www.gov.uk/government/publications/eden-and-esk-abstraction-licensing-strategy	

	Water body ID:		GB40201G100400	Scheme:	Rive	er Irthing to Cum	whinton Plus Castle Carrock Link	
	Water body Name:		Permo-Triassic Sandstone Aquifers	Reference			WR041	
	RBMP:		Solway Tweed GW	Scheme Phase	Construction		Operational	
			Eden Valley and Carlisle Basin	Impact potential				
			Permo-Triassic Sandstone Ag	impaor potoniai	Direct		Direct	
			No designation					
	Relevant upstream wate		Not provided					
	Downstream water bod		Not provided					
	WFD Element (Recepto		RBMP objective	Alternate Objective if		Confidence		Confidence
	Quantitative Dependent		··	less than Good				
	* 0	Guuu						
ve ve	Quantitative GWDTEs	Good						
war tati	5 test							
nti ud	Quantitative Saline	ion	d					
na	g 🛱 Intrusion							
Grou Qua	Quantitative Water							
-	Balance							
		Good Chemical Dependent Surface Water Body						
	Chemical Dependent							
	Surface Water Body							
	Status							
a	*	Poor					New surface water abstraction quantity.	
Ê	Jer .	FUUI					Minor level of impact. A new abstraction licence would be granted by the Environment Agency (assuming the	
le	Chemical Drinking Wate				Transfer pipe line on land.		proposed abstraction quantity would not have a detrimental effect on WFD status) on the River Irthing at Newby	
;   i	Chemical Drinking Wate     Protected Area				No or minimal impact.		East, near Warwick Bridge of 6.5 Ml/d. The ALS (Abstraction Licensing Strategy) indicates that there is restricted	
;	Chemical GWDTEs test Chemical Saline Intrusion Good					High	water available from surface water sources at all flow regimes (Q95, Q70, Q50 and Q30). There may be localised minor reductions in leakage from rivers to the aquifer. Use of new pipe lines, surface water intake and pumping station. No or minimal impact.	Medium
ate		Poor			Transfer pipe line with water course crossings.			
					No or minimal impact.			
		Good						
2								
112								
	Good	Good						
	General Chemical Test	0000						
	General Chemical Test							
-		-						
	Prevent and Limit	-						
Lin I	Objective							
100	an de	Trend Assessment						
dr			d trend					
S	Trend Assessment							
ntial	Quantitative	Good	Good by 2015	N/A				
Overall us\Poter	Chemical (GW)	Poor	Good by 2027	N/A				
tatu:	Overall		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. 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 Proforms: \\WAR-51.global ame.com\shared\ProjectS38671UU WRMP Support\S Design\Feasible Optiont\Carlisle\WR041\WR041.River Inthing to Cumwhinton.docs

EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&v=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang= e&topic=floodmap#x=344705&ig=1,2,10.&scale=7 EA Historical Landfill: http://maps.environm

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

	Water body ID:		166	Scheme:	Milwr	Tunnel, Bagillt (Trans	sfer to Huntington)	
	Water body Name:		Non reportable WB at the mouth of the River Dee			rumo, bugint (rum	WR047a	
	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 Good		Confidence		Confidence
_	Phytobenthos	N/A						
< ca	Macrophytes	N/A						
cologic iology	Macrophytes and phytobenthos	N/A						
m m	Benthic invertebrates	N/A			Transfer pipe line on land. No or minimal impact.			
12:	Fish	N/A						
Š o :	Hydrological regime	N/A					New surface water abstraction quantity	
- H E E	River continuity	N/A			Transfer pipe line with water course crossings.		Medium level of impact. A new abstraction licence would be granted by National Resources Wales	
Hydro	Morphological conditions	N/A			Minor level of impact.	High	(assuming the proposed abstraction quantity would not have a detrimental effect on WFD status) from the outfall of the Milwr tunnel at Bagilit up to 20 Ml/d even in dry summers, possibly more at other times	Low
eleme ico-	General physico-chemical	N/A			New surface water intake. Minor level of impact.		There is no Abstraction Management Strategy (NRW) for this transitional waterbody. Use of new pipe lines, surface water intake and pumping station.	2011
Phys	Specific pollutants:	N/A			New pumping station. Minor level of impact.		No or minimal impact.	
WFD elements for Rivers: Chemical	Priority hazardous substances	N/A						
WI elerr for Ri Cher	Priority substances	N/A						
s lial	Ecological	N/A	N/A	NVA		•		
Overall Status\ otential	Chemical	N/A	N/A	N\A				
0 0 0	Overall	N/A	N/A	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.
 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 Proformas: \\\\\\WAR-FS1.global.amec.com\shared\Projects\\386711UU WMP Support\S Design\Feasible Options\\RZ\\WR075\Stocks Reservior.xisx EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby\wiybyController?x=357683.08y=355134.08scale=18layerGroups=default8ep=map&textonly=off&lang=\_e8topic=floodmap#x=3447058y=511476&lg=1.2.10

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

NRW Catchment Abstraction Management Strategy (Dee): https://naturalresources.wales/media/674759/dee\_cams\_2015\_english.pdf

		Water body ID:		GB41102G204800	Scheme:		Milwr Tunnel, Ba	igillt (Transfer to Huntington)	
		Water body Name:		Dee Carboniferous Coal Measures	Reference			WR047a	
		RBMP:		Dee	Scheme Phase	Construction		Operational	
		Operational catchment:		Dee Carboniferous Coal Measures	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
WFD elements for Groundwater: Quantitative	Status it	Quantitative Dependent Surface Water Body Status	Good						
ment idwat ititativ	tive S ment	Quantitative GWDTEs test	High						
<sup>-</sup> D ele 3rour Quar	Ele	Quantitative Saline Intrusion	Good						
ž	Quai	Quantitative Water	Good			Transfer pipe line on land.			
	Ŭ	Balance				No or minimal impact.		New surface water abstraction quantity.	
er:	ment	Chemical Dependent Surface Water Body Status	Poor			Transfer pipe line with water course crossings. No or minimal impact.		Minor level of impact. A new abstraction licence would be granted by National Resources Wales (assuming the proposed abstraction quantity would not have a detrimental effect on WFD status) from the outfail of the Milwr tunnel at Baglit up to 20 Mild even in dry summers, possibly more at other times). Increased surface water	
ndwat	us Ele	Chemical Drinking Water Protected Area	Good			New surface water intake.	High	abstraction may result in localised minor reductions in leakage from rivers to the aquiter, but the Coal Measures are unlikely to be heavily reliant on river leakage to support water resources.	Medium
Grour	ll Stati	Chemical GWDTEs test	Good			No or minimal impact.		Use of new pipe lines, surface water intake and pumping station.	
ents for Grou Chemical	emica	Chemical Saline Intrusion	Good			New pumping station. No or minimal impact.		No or minimal impact.	
come	÷	General Chemical Test	Good						
WFD el		Prevent and Limit Objective	Not provided						
3	g Fleme		Not provided						
lle /s i	1	Quantitative	Good	None provided.	MA				
Overall Status\ Potential		Chemical (GW)	Poor	Poor by 2015	N\A				
0.00		Overall	Poor	Poor 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.

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# Evidence

Catchment Data Explorer: <a href="http://environment.data.gov.uk/catchment.planning/">http://environment.data.gov.uk/catchment.planning/</a> Engineers Proformas: <a href="http://environment.geore.gov.uk/catchment.planning/">http://environment.geore.gov.uk/catchment.planning/</a> Engineers Proformas: <a href="http://environment.geore.gov.uk/whyty/wyty/controller?re-337683.08x+355134.08xcale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=map&textonly=off&lang==e&topic=floodmap#x=344705&y=5114768/g=1.2.10.&scale=18layerGroups-default&op=max=18layerGroups-default&op

EA Historical Landfill: http://maps.environment

NRW Catchment Abstraction Management Strategy (Dee): https://naturalresources.wales/media/674759/dee\_cams\_2015\_english.pdf

	Water body ID:		GB112071065500	Scheme:	R	liver 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	impuot potontiai	Direct			
				Marca 1				
	Relevant upstream w Downstream water be		RIBBLE	water to cont Ribble,Ri	oble DS Stock Beck,Duddel Brook			
	Downstream water be	bales:	RIBBLE					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos							
	Macrophytes							
ogical Biology	Macrophytes and phytobenthos	Moderate	Good by 2027	N\A				
's: Ecol	Benthic invertebrates	Good	Good by 2015	NVA				
or 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 the	
nents fe	Hydrological regime	Supports Good	Supports Good by 2015	NVA	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 Mid. The ALS (Abstraction Licensing Strategy) indicates that there is water available from the Robble (at Q70, Q50 and Q30), however 40 Mid is a relatively large abstraction and impacts on the hydrological regime may occur. Use of new pipe line, surface water intake and pumping station.	Medium
D elen	River continuity				New pumping station.			
WF	Morphological conditions	Supports Good	Supports Good by 2015	N\A	Minor level of impact.		No or minimal impact.	
sico-	General physico- chemical	Moderate	Good by 2027	N\A				
Phys	Specific pollutants:	High	High by 2015	N\A				
/FD elements for Rivers: Chemical	Priority hazardous substances	Good	Good by 2015	NVA	_			
WFD e for F Che	Priority substances	Good	Good by 2015	N\A				
all ode	Ecological	Moderate	Good by 2027	N\A			· · · · · · · · · · · · · · · · · · ·	
Overall atus\Pot ntial	Chemical	Good	Good by 2015	N\A				
Stat	Overall	Moderate	Good by 2027	N\A				

 Application of standard best practice construction and pollution prevention methods.
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 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 Proforma: WVAR-FS1.gbbal.amec.com/shared/Project/3/38671.UU.WRMP.Support/S.Design/Feasible.Options/IRZ/WR049b Engineers Proforma: Winkle, Double 8. Croccend: https://www.gov.uk/government/publications/ribble-douglas-and-crossers-bstractio sing-strate

		Water body ID:		GB41201G100500	Scheme:		River Ribble	(Transfer to Anglezarke ir)			
		Water Body Name:		Fylde Permo-Triassi	Reference			WR049b			
		RBMP:			Scheme Phase	Construction		Operational			
		<b>Operational catchmen</b>		Fylde Permo-Triassi	Impact potential	Direct		Direct			
		Designation (and use		No designation							
		Relevant upstream w		N\A							
		Downstream water be	odies:	N\A							
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence		
or			Good	Good by 2015	N/A						
ents f vater: ative	ative	Quantitative GWDTEs		Good by 2015	N/A						
elem oundv uantit	uantit	Quantitative Saline	Good	Good by 2015	N/A						
WFD ele Groun Quan	ō	Quantitative Water Balance	Good	Good by 2015	N/A						
	ť	Chemical Dependent				Transfer pipe line on land.					
hemical	s Elemer	Chemical Drinking Water Protected Area	Good	Good by 2015	N/A	No or minimal impact. Transfer pipe line with water course crossings.		New surface water abstraction quantity. Medium level of impact. A new abstraction icence would be granted by the Environment Agency (assuming the proposed abstraction quantity would not have a detrimental effect on VVFD status) with an abstraction of			
ter: C	Statu	Chemical GWDTEs test	Good	Good by 2015	N/A	No or minimal impact.	High	up to 40 MI/d. 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.	Medium		
ndwa	nical	Chemical Saline Intrusion	Good	Good by 2015	N/A	New surface water intake. No or minimal impact.					
Grou	Cher	General Chemical Test	Good	Good by 2015	N/A	New pumping station. No or minimal impact.		Use of new pipe lines, surface water intake and pumping station. No or minimal impact.			
ts for	_	Prevent and Limit Objective				No or minimai impact.					
WFD elemen	Supporting Flaments	Trend Assessment	No Trend	N/A							
Overall Status/	tial	Quantitative	Good	Good by 2015	N/A						
ver	ten	Chemical (GW)	Good	Good by 2015	N/A						
00	2	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.

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/5 Design/Feasible Options/IRZ/WR049b
EA Astraction Licence Strategy (Ribble, Douglas & Crossens): http://www.gov.uk/government/publications//ribble-douglas-and-crossens-bitraction-licence/strategy

		Water body ID: GB112071065500 Scheme:							
						RIVER DA	RWEN (TRANSFER TO		
		Water body name:		Ribble-conf Calder to Tidal	Reference	<b>0</b>		WR074	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchmer		Big Ribble	Impact potential	Direct		Direct	
		Designation (and use		Heavily modified					
		Relevant upstream wa			dle Water to conf Ribb	le,Ribble DS Stock Beck,Duddel Brook			
		Downstream water bo	dies:	RIBBLE					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos							
al	A.	Macrophytes							
logic	Bioloç	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	olodo	Hydrological regime	Supports Good	Supports Good by 2015	N\A	<ul> <li>No or minimal impact.</li> <li>New surface water intake.</li> </ul>		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	
emen	gy	River continuity				Minor level of impact.	High	that there is water available at all flow regimes (035, 070, 050 and 030), however the abstraction is moderate in size and could have a medium impact on the hydrological regime of the River Darwen. Use of new pipe line, surface water intake and pumping station. No or minimal impact.	Medium
/FD el	Hydr	Morphological conditions	Supports Good	Supports Good by 2015	N/A	New pumping station. Minor level of impact.			
>	<sup>o</sup> hysico- chemical	General physico- chemical	Moderate	Good by 2027	N\A				
	Phy: cher	Specific pollutants:	High	High by 2015	N\A				
WFD lements for Rivers:	emical	Priority hazardous substances	Good	Good by 2015	N'A				
elem Ri	ชี	Priority substances	Good	Good by 2015	N\A				
atus\ al		Ecological	Moderate	Good by 2027	N\A				
erall Statu Potential		Chemical	Good	Good by 2015	N\A				
Over		Overall	Moderate	Good by 2027	N\A				

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

- Softwart and output and a lower ground pipelay will be along roads and over water crossings along existing bridges
   Assumed all over ground pipelay will be along roads and over water crossings along existing bridges
   An abstraction licence can be granted that will ensure there is no significant environmental impact from the abstraction
   Powatering 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.

- Evidence Catchment Data Explorer: <u>http://environment.data.gov.uk/catchment.planning/</u> Engineers Proforma: <u>WAR-FS1 global.amec.com/shared/Projects/38671 UU WRMP Support5 Design/Feasible Options/IRZWR049b</u> EA Abstraction Lisence Strategy (Ribble, Douglas & Crossens)

		Water body ID:		GB41201G100500	Scheme:	RIVER DARV	WEN (TRANSFER TO FISH	IMOOR WTW)		
		Water Body Name:		Fylde Permo-Triassic Sandstone Aquifers	Reference		WF	R074		
		RBMP:		North West	Scheme Phase	Construction		Operational		
		Operational catchmen	t:	Fylde Permo-Triassic Sandstone Aquifers	Impact potential	Direct		Direct		
		Designation (and uses		No designation						
		Relevant upstream wa		N\A						
		Downstream water bo								
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	e
			Good	Good by 2015	N/A					
ents f vater: ative	ative emen	Quantitative GWDTEs test	Good	Good by 2015	N/A					
WFD elements for Groundwater: Quantitative	uantit tus El	Intrusion	Good	Good by 2015	N/A			New surface water abstraction quantity.		
WFD Gr Q	Qtaf	Balance	Good	Good by 2015	N/A			Minor level of impact. A new abstraction licence would be granted by the Environment Agency (assuming the proposed abstraction quantity would not have		
ater:	Element	Chemical Dependent	Good	Good by 2015	N/A	Transfer pipe line on land. No or minimal impact. New surface water intake. No or minimal impact.		a detrimental effect on WFD status) with an abstraction of up to 10 MI/d from the 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 sandstone aquifer. However as the ALS indicates there is water available at all flow regimes (QBS, Q70, Q50 and Q30) in the surface water body, the flow is		
Groundw	Status E	Chemical GWDTEs test	Good	Good by 2015	N/A		High		Medium	
emic.	nical	Intrusion	Good	Good by 2015	N/A	New pumping station. 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.		
nents Ch	Cher	General Chemical Test	Good	Good by 2015	N/A					
FD eler	orting nents	Prevent and Limit Objective						Use of new pipe line, surface water intake and pumping station. No or minimal impact.		
3	Elen	Trend Assessment	No Trend	N/A						
lla' Vsu			Good	Good by 2015	N/A					
Over Statu		Chemical (GW)	Good	Good by 2015	N/A					
0 %		Overall	Good	Good by 2015	N/A					

Assumptions
1- Environmental permitting will be adhered to and will stipulate appropriate conditions for water quality and quantity.
2- Application of standard best practice pollution prevention methods e.g. the GPPs

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

Assumed all over ground pipelay will be along roads and over water crossings along exsisting bridges
 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.

Evidence Catchment Data Explorer; http://environment.data.gov.uk/catchment-planning/ Engineers Proforma: Engineers Proforma: \\WAR-FS1.global amec.com\sharedProjects\38671 UU WRMP Support\5 Design\Feasible Options\\RZ\WR049b

		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			rook to River Bollin (including Rostherne 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						
logica	logy	Macrophytes and phytobenthos	Not provided						
E CO	F	Benthic invertebrates	Good			Transfer pipe line on land. No or minimal impact.			
livers		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.	
for F	mor	Hydrological regime	Supports good			Minor level of impact.		New surface water abstraction quantity.	
nts	유 준	River continuity	Not provided			New surface water intake.	High	Medium level of impact. New surface water abstraction from the River Bollin	Medium
eme	ξą	Morphological conditions	Not provided			Minor level of impact.	i ngin	near Lymm of 25 MI/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	medium
/FD el	sico- nical	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	
5	Phys	Specific pollutants:	Not provided			New water treatment works.		Agency.	
D ents vers:	ical	Priority hazardous substances	Does not require assessment			No or minimal impact.			
WFD elements for Rivers:	Chem	Priority substances	Does not require assessment						
Overall Status\		Ecological	Moderate	Moderate by 2015	N\A				
Ove Stat	5	Chemical	Good	Good by 2015	N\A				
_		Overall	Moderate	Moderate by 2015	N\A				

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

Pipelines will cross water courses with existing radways where possible to limit the amount of new watercourse crossings.
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 S- A ground investigation will be carried out and will addice and any mitigation that may be required.
 S- Extensions, modifications, router praymagrations, water treatment works, etc. would involve a relatively small footphint 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-F51 lgabal.amec.comshared/Projects/38671 UU VRMP Support/5 DesigniFeasible Options\\RZ-WR076\WR076 RR EA Abstraction Lecence Strategy (Upper Mersey): https://www.gov.uk/government/uploads/system/uploads/statachment\_data/tie/300491/LT\_7833

		Water body ID:		GB41202G991700	Scheme:		River	Bollin	
		Water body Name:		Weaver and Dane Quaternary Sand and Gravel Aquifers	Reference		WR	076	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment:		Weaver and Dane Quaternary Sand and Gravel Aquifers	Impact potential	Direct		Direct	
		Designation (and uses):	1	No designation					
		Relevant upstream water bodies: Downstream water bodies:		NVA NVA					
		WFD Element (Receptor)	1	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ents for Groundwater: Chemical Quantitative	Chemical contowater: Chemical Status Cuantitative Chemical Status Cuantitative Chemical Status Element Element	Quantitative GWDTEs test Quantitative Saline Intrusion Quantitative Water Balance Chemical Drinking Water Protected Area Chemical Drinking Water Chemical Saline Intrusion	Good Good Good Poor Good Poor Good Poor			Transfer pipe line on land. No or minimal impact. Transfer pipe line with water course crossings. No or minimal impact. New surface water intake. No or minimal impact. New pumping station. No or minimal impact.	High	Use of new transfer pipe line, pumping station and water treatment works. No or minimal impact. New surface water abstraction quantity. Minor level of impact. New surface water abstraction from the River Bolin near Lymm of 25 Mid. The ALS does not define a groundwater management unit for this water body. Dut there is no restricted or non availability of surface water in the overlying water body. Dut there is no restricted or non availability of surface water in the overlying water body. Due to the relatively large 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 from surface water courses to maintain its quantitative water balance.	Medium
WFD elem		Objective	Not provided Upward trend			No or minimal impact.			
Overall	tential	Quantitative	Good	Good by 2015	N\A			1	
Overa	Iodish	Chemical (GW)	Poor	Good by 2027	N\A				

Overall

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

Poor

Good by 2027

N\A

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 terch and course technique with a dy 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, and the transmission was a constructed at a construction of a construct

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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\WR076\\WR076 River Bollin.x/sx EA Abstraction Licence Strategy (Upper Mersey): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/ile/300491/LIT\_7883\_7c60/1.pdf

for WFD elements

VFD

	Water body ID:		GB31232665	Scheme:	APPLETON RE	SERVOIR, WARRING	GTON	
	Water body Name:		Appleton Reservoir	Reference:		WR079	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
	Phytoplankton	Moderate						
	Macrophytes	-						
	Phytobenthos	-						
ology	Macrophytes and phytobenthos	-					Increased surface water abstraction quantity	
Biol	Chironomids (CPET)	-					Medium level of impact. Reinstatement of surface water abstraction from the Appleton reservoir, near Warrington of 6 Ml/d.	
·	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	
20	Hydrological regime	-					water available at Q30 to Q70 and limited water available at Q95. This means	
Hydromo	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	Low
iemical	Morphological conditions	-					MI/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	
sico-ch	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.	
Phy	Specific pollutants:	-						
œs\Reser voirs: hemical	Priority hazardous substances	Does not require assessment						
C	Priority substances	Does not require assessment						
Is/	Ecological	Moderate	Moderate by 2015	N/A				
Status\ Potenti al	Chemical	Good	Good by 2015	N/A				
Ω Å	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 - Devatering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Devatering and a corresponding discharge of sufficient magnitude, duration, or sensibility 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.

## Evidence

Water body ID: Water body Name: RBMP:		GB169	Scheme:		PLETON RESERVOIR.		
RBMP:		Not part of a river WB catchment	Reference:		<u> </u>	WR079b	1
		North West	Scheme Phase:	Construction		Operational	
Operational catchme	t:	-	Impact potential:	Direct		Direct	
Designation (and use		-	impuot potontian				I
Relevant upstream w		-					
Downstream water be					-		
WFD Element (Rece		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
Phytobenthos	-						
Macrophytes	-						
Macrophytes and	-						
phytobenthos						Use of new transfer pipe line, pumping station water treatment works, and surface water	
						intake.	
Benthic invertebrates	-						
e Bentric invertebrates				Transfer pipe line on land.		No or minimal impact.	
8				No or minimal impact.			
ш	-			No or minimal impact.		Increased surface water abstraction quantity.	
🤨 Fish						Minor level of impact. Reinstatement of surface water abstraction from the Appleton reservoir, near	
Š				Transfer pipe line with water course crossings.		Warrington of 6 MI/d.	
Hydrological regime	-			Minor level of impact.			
b E Hydrological regime						The ALS states that the catchment in which Appleton Reservoir is located has no water available at	
$\frac{1}{9}$ $\frac{1}{2} \geq River continuity$	-			New surface water intake.		Q30 to Q70 and limited water available at Q95. This means that river flows are below the level	
	-			Minor level of impact.	Hiah	required to support good ecological status. However, the water body downstream of the reservoir	Low
E to Morphological condit	ons				, J	has water available at all flows	
응 국				New pumping station.		has water available at all hows.	
				Minor level of impact.		Reinstating the abstraction has the potential to reduce flows in the downstream part of the water	
Ĕ				Minor level of impact.			
Seneral physico-che	nical					body (assuming the reinstated abstraction would be greater than the current use as emergency fire	
1.5 E				New water treatment works.		fighting supply), but given the downstream surface water body has water available at all flows, the	
<u> </u>	-			No or minimal impact.		abstraction is from a reservoir rather than the "natural" water courses within the surface water body,	
Specific pollutants:						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	
b _ Priority hazardous	-					widespread.	
Substances State State State State State State State State Priority substances							
N I I I I I I I I I I I I I I I I I I I	-						
Priority substances							
0							
O Ecological Ecological Chemical	-	-					
Chemical	-	-					
Overall	-	-					

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A New pipe line water course crossings would be installed via a trench and cover technique within a dy working area. New pipe line vater course crossing
 A new pipe line vater course crossing would be installed via a trench and cover technique within a dy working area. New pipe line crossing
 S- A ground investigation will be carried out and will dentify any containminated land and any mitigation that may be required.
 Factorsions, modifications, rower pumping astations, water treatment works, etc. would involve a relatively small foctorint 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:\\\\WRAF51.global.amec.com\shared\Projects\38671.UU.WRMP.Support\5 Design\Feasible Options\IRZ\\WR079abcd\\WR079 Apple EA Abstraction Licence Strategy (Lower Mersey & Alt): https://www.gov.uk/government/uploads/stystem/uploads/attachment\_data/file/300490

		-							
		Water body ID:			Scheme:		APPLETON RES	ERVOIR, WARRINGTON	
		Water body Name:		Quaternary Sand and Gravel Aquifers			v	WR0796	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Quaternary Sand and Gravel Aquifers	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water boo	dies:	-					
		Downstream water bodies:		-					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
WFD elements for Groundwater: Quantitive		Quantitative Dependent Surface Water Body Status	Good						
ments er: Qué	itative St Element	Quantitative GWDTEs test	Good						
D ele dwate	ž –	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	Qua	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	
rater:	tatu	Surface Water Body Status	Poor			No or minimal impact. Modified surface water intake.	High	reservoir, near Warrington of 6 Ml/d. There may be localised or temporary effects on interactions between the reservoir,	Medium
wpuno	- 2	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	
nts for Gro Chemical	БШ		Poor			New pumping station.		proposed abstraction is from a reservoir, within the current abstraction licence (12 Ml/d),	
i o i		Chemical Saline Intrusion	Good			No or minimal impact.		and downstream surface water bodies have water available at all flows, changes are	
s fe	_	General Chemical Test	Poor					unlikely to be widespread or prolonged. There is no groundwater management unit defined for this area.	
lement CI	ents ents	Prevent and Limit Objective	-					tor this area.	
WFD e	Elem Elem	Trend Assessment	Upward trend						
 		Quantitative	Good	Good by 2015	N/A				
Overall		Chemical (GW)	Poor	Good by 2027	N/A				
1010	5	Overall	Poor	Good by 2027	N/A				

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Population of statistic constructions and postcorpresentation recommendation.
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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, or new pumping stations, water treatment works, etc. would not be a 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.

	Water body ID:		GB31232665	Scheme:	APPLETON RESERVOI			
	Water body Name:		Appleton Reservoir	Reference:		WR079	c	
	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	Conf	nfidence		Confidence
	Phytoplankton	Moderate						
	Macrophytes	-						
	Phytobenthos	-						
Biology	Macrophytes and phytobenthos	-					Increased surface water abstraction quantity	
ä	Chironomids (CPET)	-					Medium level of impact. Reinstatement of surface water abstraction from the Appleton reservoir, near Warrington of 9 Ml/d.	
	Fish	-					The ALS does not provided an assessment of the water availability of the	
or VE	Hydrological regime	-					reservoir itself, but the catchment in which Appleton Reservoir is located has no	
Hydrom	River continuity	-			Modified surface water intake. H Minor level of impact.		water available at Q30 to Q70 and limited water available at Q95. This means that river flows are below the level required to support good ecological status. The required abstraction quantity is within the current abstraction licence (12	Low
nemical	Morphological conditions	-				1	M/d) for the reservoir. Recent use of the reservoir has been for emergency fre- fighting supply for an industrial customer. It is assumed that the reinstated potable water abstraction would involve higher abstraction rates than recent	
sico-ch	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.	
Phy	Specific pollutants:	-						
hemical	Priority hazardous substances	Does not require assessment						
ö	Priority substances	Does not require assessment						
	Ecological	Moderate	Moderate by 2015	N/A				
al	Chemical	Good	Good by 2015	N/A				
	Overall	Moderate	Moderate by 2015	N/A				

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## Evidence

Water body ID:		GB169	Scheme:	APPLETON	RESERVOIR, WARRIN	NGTON	
Water body Name:		Not part of a river WB catchment			WR07		I
RBMP:		North West	Scheme Phase:	Construction		Operational	
Operational catchment:		-	Impact potential:	Direct		Direct	
Designation (and uses):			impact potential.				
Relevant upstream water	hodiaci	-					
Downstream water bodie		-					
WFD Element (Recepto		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
Phytobenthos	-						
Macrophytes	-						
Macrophytes and							
> phytobenthos							
a a priviobeninos						Use of new transfer pipe line, pumping station water treatment works, and surface water	
Benthic invertebrates	-					intake.	
E Benthic Invertebrates				Transfer pipe line on land.		No or minimal impact.	
3							
	-			No or minimal impact.		Increased surface water abstraction quantity.	
Fish						Minor level of impact. Reinstatement of surface water abstraction from the Appleton reservoir, near	
				Transfer pipe line with water course crossings.		Wind level of impact. Reinstatement of surface water adstraction from the Appleton reservoir, near Warrington of 9 Ml/d.	
	-			Minor level of impact.		vv arrington of 9 Mi/d.	
5 A Hydrological regime							
River continuity	-			New surface water intake.		The ALS states that the catchment in which Appleton Reservoir is located has no water available at	
5 5	-			Minor level of impact.	High	Q30 to Q70 and limited water available at Q95. This means that river flows are below the level	Low
Morphological conditions					, v	required to support good ecological status. However, the water body downstream of the reservoir has	
				New pumping station.		water available at all flows.	
· - ·				Minor level of impact.			
				Winor level of impact.		Reinstating the abstraction has the potential to reduce flows in the downstream part of the water body	
୍ଡ ଟ୍ର General physico-chemica	1					(assuming the reinstated abstraction would be greater than the current use as emergency fire fighting	
is in				New water treatment works.		supply), but given the downstream surface water body has water available at all flows, the abstraction	
ht h	-			No or minimal impact.		is from a reservoir rather than the "natural" water courses within the surface water body, the	
Specific pollutants:						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	
b _ Priority hazardous	-					widespread.	
in in B substances						widopreau.	
substances			1				
er se							
Priority substances							
<b>v</b>			200000000000000000000000000000000000000				
Ecological	-	-					
Ecological Ecological							
Chemical							
Overall							
Overall	1-	1-	1				

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		Water body ID:			Scheme:		APPLETON RES	ERVOIR, WARRINGTON	
		Water body Name:		Weaver and Dane Quaternary Sand and Gravel Aquifers	Reference		,	WR079c	
		RBMP:			Scheme Phase	Construction		Operational	
		KDWP:			Impact potential	Construction		Operational	
		Operational catchment:		Quaternary Sand and Gravel Aquifers		Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water boo	dies:	-					
		Downstream water bodies:		-					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
WFD elements for Groundwater: Quantitive	Status It	Quantitative Dependent Surface Water Body Status	Good						
ments r: Qui		Quantitative GWDTEs test	Good						
D eler dwate	Intitative Eleme	Quantitative Saline Intrusion	Good			Transfer pipe line on land.		Use of new transfer pipe line, pumping station, surface water intake. No or minimal impact.	
Ground	Qua	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	
ater:	tatu	Surface Water Body Status	Poor			No or minimal impact. Modified surface water intake.	High	reservoir, near Warrington of 9 Ml/d. There may be localised or temporary effects on interactions between the reservoir,	Medium
wpun		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	
al	ĒΞ		Poor			New pumping station.		proposed abstraction is from a reservoir, within the current abstraction licence (12 MI/d),	
nts for Gro Chemical	÷	Chemical Saline Intrusion	Good			No or minimal impact.		and downstream surface water bodies have water available at all flows, changes are	
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lements Ch	rting ents water)	Prevent and Limit Objective	-					for this area.	
WFD e	Elemo Elemo	Trend Assessment	Upward trend						
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			North West	Scheme Phase:	Construction		Operational	
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	Downstream water bodies:							
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	Macrophytes	-						
	Phytobenthos	-						
Biology	Macrophytes and phytobenthos	-					Increased surface water abstraction quantity	
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or VB	Hydrological regime	-					reservoir itself, but 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 required to support good ecological status. The required abstraction quantity is within the current abstraction licence (12 MI/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	ns Low 2 re-
no o	River continuity	-			Modified surface water intake. Minor level of impact.	High		
nemical	Morphological conditions	-						
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al	Chemical	Good	Good by 2015	N/A				
	Overall	Moderate	Moderate by 2015	N/A				

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## Evidence

RBMP:     North West     Scheme Phase:     Construction     Operational       Operational catchment:     -     Impact potential:     Direct     Direct       Designation (and uses):     -     -     Operational     Direct     Direct       Relevant upstream water bodies:     -     -     -     -     -       Downstream water bodies:     -     -     -     -     -	
Operational catchment:     -     Impact potential:     Direct     Direct       Designation (and uses):     -     -     -     Direct       Relevant upstream water bodies:     -     -     -     -       Downstream water bodies:     -     -     -     -	
Designation (and uses):     -     -     -       Relevant upstream water bodies:     -     -     -       Downstream water bodies:     -     -     -	
Relevant upstream water bodies:     -     -     -       Downstream water bodies:     -     -     -	
Downstream water bodies:     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -	
Alternation Alternation When	
WFD Element (Receptor)         Status         RBMP objective         Aremate Objective rises And Good         Confidence	Confidence
Phytobenthos -	
Macrophytes -	
Macrophytes and · · · · · · · · · · · · · · · · · · ·	
phytoperthos	
Image: station water treatment works     Use of new transfer pipe line, pumping station water treatment works       Image: station water treatment works     Image: station water treatment works       Image: station water treatment works     Image: station water treatment works       Image: station water treatment works     Image: station water treatment works       Image: station water treatment works     Image: station water treatment works       Image: station water treatment works     Image: station water treatment works       Image: station water treatment works     Image: station water treatment works       Image: station water treatment works     Image: station water treatment works       Image: station water treatment works     Image: station water treatment works       Image: station water treatment works     Image: station water treatment works       Image: station water treatment works     Image: station water treatment works       Image: station water treatment works     Image: station water treatment works       Image: station water treatment water treatment works     Image: station water treatment works       Image: station water treatment water t	and surface water
o Transier pipe line on land.	
iii     Fish     -     Increased surface water abstraction quantity.       Image: Control of the state of th	pleton reservoir, near
Yes   Percent and the second	
y b ≥ River continuity - The ALS states that the catchment in which Appleton Reservoir is located he	
Image: Section of the section of t	tream of the reservoir
B     Minor level of impact.     Reinstating the abstraction has the potential to reduce flows in the downstration has th	use as emergency fire
Specific pollutants:	e surface water body, sation flows from the
Description     Priority hazardous     -       Priority hazardous     -       substances     -	to be prolonged or
Q resister     substances       Priority substances     Priority substances	
Bedonation         Ecological         -         -           Chemical         -         -         -	
Čhemical	
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 we

4 New pipe line water course crossings would be installed via a trench and cover technique within a dy working area. New pipe line vater course crossing 5- A ground investigation will be carried out and will dentify any contaminated land and any mitigation that may be required.
5- A ground investigation will be carried out and will dentify any contaminated land and any mitigation that may be required.
6- Extensions, modifications, modifications, attent readment works, et c. 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:\\\\WRAF51.global.amec.com\shared\Projects\38671.UU.WRMP.Support\5 Design\Feasible Options\IRZ\\WR079abcd\\WR079 Apple EA Abstraction Licence Strategy (Lower Mersey & Alt): https://www.gov.uk/government/uploads/stystem/uploads/attachment\_data/file/300490

		Water body ID:			Scheme:		APPLETON RES	ERVOIR, WARRINGTON	
		Water body Name:		Weaver and Dane Quaternary Sand and Gravel Aquifers	Reference		,	WR079b	
		RBMP:			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 boo	dies:	-					
		Downstream water bodies:		-					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
WFD elements for Groundwater: Quantitive	Status It	Quantitative Dependent Surface Water Body Status	Good						
ments r: Qué	itative St Element	Quantitative GWDTEs test	Good						
D elei dwate	ž –	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	Qua	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	
ater:	tatu	Surface Water Body Status	Poor			No or minimal impact. Modified surface water intake.	High	reservoir, near Warrington of 12 M/d.	Medium
wpung	ical St lement	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	
alg	Ξ		Poor			New pumping station.		proposed abstraction is from a reservoir, is equal to the current abstraction licence (12	
nts for Gro Chemical		Chemical Saline Intrusion	Good			No or minimal impact.		MI/d), and downstream surface water bodies have water available at all flows, changes are	
s fo	-	General Chemical Test	Poor					unlikely to be widespread or prolonged. There is no groundwater management unit defined	
lement: Ch	ents water)	Prevent and Limit Objective	-					for this area.	
WFD e	Elem Buppo	Trend Assessment	Upward trend						
l antial		Quantitative	Good	Good by 2015	N/A				
Overall		Chemical (GW)	Poor	Good by 2027	N/A				
Ctati		Overall	Poor	Good by 2027	N/A				

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

Population of statistic constructions and postcorpresentation recommendation.
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 tench and course technique within a dry working area. New pipe line crossings of (

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

6 - Extensions, or new pumping stations, water treatment works, etc. would not be a 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.

		Water body ID:		GB102076073740	Scheme:		Ba	bughton Gill	
		Water body iD: Water body name:		Whelpo (Cald) Beck	Scheme: Reference			WR095	
		RBMP:		Solway Tweed	Scheme Phase	Construction		Operational	
		Operational catchment:		Caldew		Direct		Direct	
					Impact potential	Direct	r	Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bod	lies:	N\A					
		Downstream water bodies:		Caldew d/s Calderbeck					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
_	gy	Macrophytes	-						
logica	Biolo	Macrophytes and phytobenthos	-						
S: Eco	-	Benthic invertebrates	Good			- and a start and a start		New groundwater abstraction quantity.	
Rivers	pholog	Fish	Good			Transfer pipe line on land. No or minimal impact. Transfer pipe line with water course crossings. Minor level of impact.		Minor level of impact. Reinstatement of abstraction at Roughton Gill Mine. Maximum output of 1.5 MI/d.	
its for		Hydrological regime	High				High	The ALS does not define a groundwater management unit for this secondary aquifer. There is water availabe in the surface water body at all flows other than at Q95 when there is limited water	Medium
elemer		River continuity	-			New surface water intake. Minor level of impact.		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 suraface water body are not anticipated.	inculain
WFD	Hydr	Morphological conditions	Supports good			New water treatment works.		annupated. Use of new transfer pipe line, water treatment works and surface water intake.	
	'sico- mical	General physico-chemical	All high			Minor level of impact.		No or minimal impact.	
		Specific pollutants:	Copper and Zinc- high						
WFD elements for Divere-	mical	Priority hazardous substances	Good						
		Priority substances	Good						
Overall		Ecological	Good	Good by 2015	N\A				
Overa		Chemical	Good	Good by 2015	NA				
Ctot	i i	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.

4 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.

4 Year pipe line value outside clossing would be instance via a tench and cover technique winin a ury would gate. Year pipe line outsings of estatines of clossing would be instance via a tench induce that does not involve usual 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 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\Feasible Options\North Eden\\WR095\WR095 Roughton Gill.xlsm Aquifer designation map: http://www.natureonthemap.naturalengland.org.uk/MagicNap.aspx

EA Abstraction Licence Strategy (Eden & Esk): https://www.gov.uk/government/u hment data/file/300486/LIT 7889 1384b1.pdf

		Water body ID:		GB40201G102300	Scheme:		Roug	hton Gill	
		Water Body Name:		Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Reference		w	R095	
		RBMP:		Solway Tweed	Scheme Phase	Construction		Operational	
		Operational catchmen		Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Impact potential	Direct	Direct		
		Designation (and uses		No designation					
		Relevant upstream wa		N\A					
		Downstream water bo	dies:	N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ts for ter: ve	Status	Water Body Status	Good						
WFD elements for Groundwater: Quantitative	itative S	Quantitative GWDTEs	Good						
NFD e Grou Qua	Quantit	Intrusion	Good						
-	0	Quantitative Water 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. Maximum outout of 1.5 M/d.	
hemical	hemical Element	Chemical Drinking Water Protected Area				Transfer pipe line with water course crossings. No or minimal impact.		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	
ater: C	Status	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
mdw:	mical	Intrusion	Good			New / modified water treatment works.		not anticipated. Use of new transfer pipe line.	
or Gro	Che	Test	Good			No or minimal impact.		No or minimal impact.	
ints fo	6 s 1	Prevent and Limit Objective	-						
WFD eleme	Element	Trend Assessment	Upward Trend						
al I Isi		Quantitative	Good	Good by 2015	N\A				
Overall Status\ otential		Chemical (GW)	Good	Good by 2015	N\A				
		Overall	Good	Good by 2015	N\A				

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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.

3 Construction, refurbitment, and testing of groundwate astruction wells will be undertaken under constructed, and will be designed, constructed, and way as to prevent groundwate astruction.

# Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ Engineers Proforma: <u>WWAR-E51.gbbal.amec.com/shared/Project/S8871/UU WRMP Support/5 Design/Feasible Options/North Eden/WR095/WR095 Roughton Gill x/sm</u> Aquifer designation map: http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx

EA Abstraction Licence Strategy (Eden & Esk): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300486/LIT\_7889\_1384b1.pdf

	ſ	Water body ID:		GB112071065090	Scheme:	Worsthorne Br	orehole (Compensati	on)	
		Water body ib.			Reference			5.7	
		Water body Name:		conf Don	i conorionado		WR099a		
		RBMP:		Ribble	Scheme Phase	Construction		Operational	
		Operational catchment:		Calder	Impact potential	Direct		Direct	
		Designation (and uses):		Heavily modified					
		Relevant upstream water bo	dies:	None					
		Downstream water bodies:	1	Brun- conf Don to conf					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Not provided						
< al		Macrophytes	Not provided						
sologica Biology		Macrophytes and phytobenthos	Good					Changed groundwater abstraction quantity.	
Bi Solo		Benthic invertebrates	Moderate					Minor level of impact. Reinstatement of Worsthorne borehole. Maximum output of 4 MI/d based on exisiting abstraction licence, discharged to	
ш.	H							River Brun as compesation flow.	
ers	_	Fish	Good			Abstraction well refurbishment.			
Tai Riv	gy	Hydrological regime	Not provided			No or Minimal Impact Expected.		The ALS shows that surface water is available at Q95 flows only, whilst	
dro lo	bo	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	
Hy	ā	Morphological conditions	Not provided			No or minimal impact.	High	abstraction, that there are unlikely to be strong dependencies between	Medium
FD elemei /sico-	mical	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 prolonged effect on the hydrological regime of this water body.	
WF	che	Specific pollutants:	Not provided						
WFD elements for Rivers:	nıcaı	Priority hazardous substances	Does not require assessment					Use of new transfer pipe line. No or minimal impact.	
elerr fo Rive	Cuer	Priority substances	Does not require assessment						
Overall Status\ otential	Ļ	Ecological	Moderate		N\A				
Stat		Chemical	Good		N\A				
000		Overall	Moderate	Good by 2027	N\A				

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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-51\_idebal.ame.com\u00e9k2051UUWRMP\_Support\S Design\Feasible Options\RZ\WR075\u00e5VR075Stor conce Strategy (Rbbie). Douglas and Crossens): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/fle300484/LT7

		Water body ID:		GB41202G100300	Scheme:		Worsthorne Boreh	ole (Compensation)	I
		Water body ib.		Douglas, Darwen and	Reference		Troiotaionio Boroni		
				Calder Carboniferous			WR	099a	
		Water body Name:		Aquifers					
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
				Douglas Darwen and	Impact potential				
				Calder Carboniferous		Direct		Direct	
		Operational catchment:		Aq					
		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: /e	Quantitative Quantitative Status Element	Quantitative Dependent Surface Water Body Status	Good						
WFD elements for Groundwater: Quantitative		Quantitative GWDTEs test	Good						
FD el Grou Qua		Quantitative Saline Intrusion	Good					Changed groundwater abstraction quantity. Minor level of impact. Reinstatement of Worsthome borehole. Maximum output of 4	
8		Quantitative Water Balance	Good			Abstraction well refurbishment. Minor level of impact. Transfer pipe line on land. No or minimal impact.		Ml/d based on exisiting abstraction licence, discharged to River Brun as compesation flow.	
/ater:	ement	Chemical Dependent Surface Water Body Status	Poor				High	The ALS does not identify a GWMU for this area, but does show that surface water is available at QS5 flows only, whilst limited at Q70 and not available at QS0 and Q30. Given there is already an abstraction licence in place, the abstraction is of moderate	Medium
nts for Groundwater: Chemical	us El	Chemical Drinking Water Protected Area	Good			Transfer pipe line with water course crossings.		size, and that the abstracted water is to be used as a compensation flow, there is unlikely to be a widespread or prolonged effect on the quantitative water balance of the	
or Gro	I Stat	Chemical GWDTEs test	Good			No or minimal impact.		aquifer or on the quantitative dependent surface water body status.	
ents fo Chen	emica	Chemical Saline Intrusion	Good					Use of new transfer pipe line. No or minimal impact.	
elem	ъ	General Chemical Test	Good						
WFD	ting	Prevent and Limit Objective	Not provided						
	su ri	Trend Assessment	Upward trend		X/////////////////////////////////////				
all /sr	ıtial	Quantitative	Good	Good by 2015	N\A				
Overall Status\	oten	Chemical (GW)	Poor	Good by 2027	N\A				
0 0	e.	Overall	Poor	Good by 2027	N\A				

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

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 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 and any mitigation that may be required. 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small loopint 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 Water. 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 poluted, and in line with best practice.

Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ 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\\RZWR075\WR075 Stocks Reservior.xlsx EA Abstraction Licence Strategy (Ribble, Douglas and Crossens): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300484/L17919V3\_f88164.pdf

		Water body ID:		GB112071065090	Scheme:	Worsthorn	ne Borehole (Hurstwo	pod 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	dies:	Not identified					
		Downstream water bodies:		Brun- conf Don to cor	nf Calder				
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Not provided						
<u> </u>	~	Macrophytes	Not provided						
logic	Biology	Macrophytes and phytobenthos	Good					Changed groundwater abstraction quantity. Minor level of impact. Reinstatement of Worsthorne borehole. Maximum	
Si Si	8	Benthic invertebrates	Moderate					output of 4 MI/d based on existing abstraction licence. For transfer to	
ŝ		Fish	Good			Abstraction well refurbishment.		Hurstwood Impounding reservoir.	
Rive	mor ogy	Hydrological regime	Not provided			No or Minimal Impact Expected.		The ALS shows that surface water is available at Q95 flows only whilst	
Į	of of	River continuity	Not provided			Transfer pipe line on land.		limited at Q70 and not available at Q50 and Q30. Given that there is	
nts	ξą	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,	Medium
D 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	Physi chem	Specific pollutants:	Not provided					regime of this water body. Use of new transfer pipe line.	
elements for	ers: nical	Priority hazardous substances	Does not require assessment					No or minimal impact.	
elem	Cher	Priority substances	Does not require assessment						
= 10	a	Ecological	Moderate	Good by 2027	N\A				
Overall Status/	tent	Chemical	Good	Good by 2015	N\A				
0 %	ĩ	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.
 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 action 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. 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small lociprint 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 Vales. 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.

		Water has to ID		00400000000	O a h a ma a		Nerotherne Decition	(lurature ed ID)	
		Water body ID:		GB41202G100300	Scheme:		Norsthorne Borehol	e (Hurstwood IK)	
		Water body Name:		Douglas, Darwen and Calder Carboniferous Aquifers	Reference		WR09	9b	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
	Operational catchment:		Douglas Darwen and Calder Carboniferous Aq		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: Quantitative	status	Status	Good						
ement ndwat ntitati		test	Good					Changed groundwater abstraction quantity.	
FD el Grou Qual		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.		For transfer to Hurstwood Impounding Reservoir.	
ter:	ant	Status	Poor			Minor level of impact.		The ALS does not identify a GWMU for this area, but does show that surface water is available at Q95 flows only, whilst limited at Q70 and not available at Q50 and Q30. Pressures on baseflow	
elements for Groundwater: Chemical	tus El	Chemical Drinking Water Protected Area	Good			No or minimal impact.	High	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 abstraction licence in place, the abstraction is of moderate size,	Medium
Grou	I Stat		Good			Transfer pipe line with water course crossings. No or minimal impact.		abstraction licence in place, the abstraction is or moderate size, and the water body is a secondary aquifer, widespread and prolonged effects on the quantitative water balance of the	
ts for hemid	emica	Chemical Saline Intrusion	Good					groundwater body are unlikely.	
CC	ъ	General Chemical Test	Good					Use of new transfer pipe line. No or minimal impact.	
WFD ele		Prevent and Limit Objective	Not provided						
8	Eleme		Upward trend						
ral us	t .		Good		N\A				
Overa I Statu	Poter		Poor		N\A				
0 0	٩.	Overall	Poor	Good by 2027	N\A				

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 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 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-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\\RZ\WR075\WR075 Stocks Reservior.xtsx EA Abstraction Licence Strategy (Ribble, Douglas and Crossens): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300484/LIT7919v3\_f881c4.pdf

	Water body ID:		GB112071065090	Scheme:	Worsthorne	Borehole (Worsthorne	e WTW)	
	Water body Name:		Brun- headwaters to conf Don	Reference		WR0	199c	
	RBMP:		Ribble	Scheme Phase	Construction		Operational	
	Operational catchment:		Calder	Impact potential	Direct		Direct	
	Designation (and uses):		Heavily modified					
	Relevant upstream water b							
	Downstream water bodies:		Brun- conf Don to cor					
	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						
8	Benthic invertebrates	Moderate					Changed groundwater abstraction quantity.	
	Fish	Good					Minor level of impact. Reinstatement of Worsthorne borehole. Maximum output of 4 MI/d based on exisiting abstraction licence.	
mor	Hydrological regime	Not provided			Reinstate and refurbish abstraction boreholes.		For transfer to Worsthorne WTW. The ALS shows that surface water is available at Q95 flows only whilst limited at Q70 and not available at Q50 and Q30 (Note: this need clarifying with the 2A). 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	
re l	River continuity	Not provided			No or Minimal Impact Expected.			
÷	The Morphological conditions	Not provided				High		Medium
hysico-		All high/good			Modified water treatment works. No or minimal impact.			
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.	
for Rivers: Chemical	Priority hazardous substances	Does not require assessment						
ft Rive Cher	Priority substances	Does not require assessment						
s\ tial	Ecological	Moderate	Good by 2027	N\A				
Status\ Potential	Chemical	Good	Good by 2015	N\A				
۳ n	Overall	II 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.

# Evidence

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

		Water body ID:		GB41202G100300	Scheme:	Wa	orsthorne Borehole	(Worsthorne WTW)		
		Water body Name:			Reference	WR099c				
		RBMP:			Scheme Phase	Construction		Operational		
		Operational catchment:		Douglas Darwen and Calder Carboniferous Aq	Impact potential	Direct		Direct		
		Designation (and uses):		No designation						
		Relevant upstream water		Not identified						
		Downstream water bodies	s:	Not identified						
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
WFD elements for Groundwater: Quantitative	Status t	Status	Good							
emen ndwa ntitati	ative :	test	Good							
FD el Grou Qua	Quantitative V	Intrusion	Good					Changed groundwater abstraction quantity. Minor level of impact. Reinstatement of Worsthome boreholes.		
\$	đ	Balance	Good					Maximum output of 4 Ml/d based on exisiting abstraction licence. For transfer to Worsthorne WTW.		
:er:	ement	Status	Poor			Abstraction well refurbishment. Minor level of impact.		The ALS does not identify a GWMU for this area, but does show that surface water is available at Q95 flows only, whilst limited at		
nts for Groundwater: Chemical	tus Ele	Chemical Drinking Water Protected Area	Good			Modified water treatment works.	High	Q70 and not available at Q50 and Q30. Pressures on baseflow from the aquifer would likely show up as a water restriction at low	Medium	
Grou	I Stat		Good			No or minimal impact.		flows (i.e. Q95) rather than higher flows. As there is already an abstraction licence in place, the abstraction is of moderate size,		
ts for themi	emica	Chemical Saline Intrusion	Good					and the water body is a secondary aquifer, widespread and prolongued effects on the quantitative water balance of the		
emen	ъ		Good					groundwater body are unlikely.		
FD el	ents	Prevent and Limit Objective	Not provided							
3	Elem	Trend Assessment	Upward trend							
all Is\	ILIAI		Good	Good by 2015	N\A			·		
Overall Status\	oten		Poor		N\A					
0.07	Ĺ	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 cooptrint 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 H Resources Wales. Dewatering discharge of sufficient magnitude, duration, or sensitivity to require a permit from a sessed. 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: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a> Engineers Protormas: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment.planning/</a> Engineers Protormas: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment/uplanning/</a> EA Abstraction Licence Strategy (Ribble, Douglas and Crossens); <a href="http://environment/uplands/system/uplands/system/uplands/stata.hment\_data/file/300484/LIT/919v3-fi81c4.pdf">http://environment/uplands/system/uplands/system/uplands/stata.hment\_data/file/300484/LIT/919v3-fi81c4.pdf</a>

	Water body ID:		344	Scheme:	THORN	CLIFFE ROAD BORE	HOLE, BARROW-IN-FURNESS	
	Water body Name:		Non reportable WB at the River Duddon Estuaryu	Reference		WR	100	
	RBMP:		N/A	Scheme Phase	Construction		Operational	
	Operational catchment:		N/A	Impact potential	Direct		Direct	
	Designation (and uses):		N/A					
	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
_	Phytobenthos	N/A						
WFD elements for Rivers: Ecological Physico Hyaro Biology	Macrophytes         N/           Macrophytes and phytobenthos         N/           Benthic invertebrates         N/           Fish         N/           Hydrological regime         N/           River continuity         N/           Morphological conditions         N/           General physico-chemical         N/	N/A N/A N/A N/A N/A N/A N/A N/A		New water treatment works. No or minimal impact. New abstraction well drilling. No or minimal impact. New abstraction well headworks / surface structures. No or minimal impact.	High	Increased groundwater abstraction quantity to 4.5 MId. Minor level of impact. Increased groundwater abstraction from the Thornolifie Road site due to construction of new borehole. Increase in abstraction from 4.5 MId to 9.0 MId. Current licenced rate is 4.5 MId. The Abstraction Licensing Strategy (ALS) indicates that there is no surface water available at low flows (O95 and 070), and limited water available at medium and high flows (G50 and O30). However, as the increase in groundwater abstraction at Thornolifie Road will be matched by a reduction in abstraction from Schneider Road (occided approx. 600 m to the east and within the same groundwater body), any impacts on the surface water body are likely to be localised. Use of water treatement works and pumping station.	Medium	
WFD elements for Rivers: Chemical	Priority hazardous substances Priority substances	N/A N/A					No or minimal impact.	
= ~ [0	Ecological	N/A	N/A	N\A				
Overall Status\ Potential	Chemical	N/A	N/A	N\A				
· ·	Overall	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.

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

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: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a> Engineers Proformas: <a href="http://www.gov.uk/catchment-planning/">\www.gov.uk/catchment-planning/</a> Engineers Proformas: <a href="http://www.gov.uk/catchment-planning/">\www.gov.uk/catchment-planning/</a> Engineers Proformas: <a href="http://www.gov.uk/catchment-planning/">\www.gov.uk/catchment-planning/</a> Engineers Proformas: <a href="http://www.gov.uk/catchment-planning/">\www.gov.uk/catchment-planning/</a> Abstraction license strategy (South Cumbria): <a href="http://www.gov.uk/catchment/publications/south-cumbria-abstraction-licensing-strategy">http://www.gov.uk/catchment/publications/south-cumbria-abstraction-licensing-strategy</a>

		Water body ID:		GB41201G101900	Scheme:	THORNCL	IFFE 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		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	Status ht	Quantitative Dependent Surface Water Body Status	Good	Good by 2015					
ement ndwat ntitativ	tive S ment	Quantitative GWDTEs test	Good	Good by 2015				Increased groundwater abstraction quantity to 4.5 MI/d.	
FD el Groui Quar	Quantitative Elemer	Quantitative Saline Intrusion	Good	Good by 2015				Minor level of impact. Increased groundwater abstraction from the Thorncliffe Road site due to construction of new borehole.	
3	ğ	Quantitative Water Balance	Good	Good by 2015		New water treatment works.		Increase in abstraction from 4.5 Ml/d to 9.0 Ml/d. Current licenced tate is 4.5 Ml/d.	
Chemical	ement	Chemical Dependent Surface Water Body Status	Good	Good by 2015		New water treatment works. 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
Groundwater:	ttus El	Chemical Drinking Water Protected Area	Good	Good by 2015		Minor level of impact.	, ngn	unit). However, as part of this option a reduction in abstraction from the Schneider Road boreholes (located approx. 600 m to the east and within the same groundwater body) would be	. ngn
vbnu	al Sta	Chemical GWDTEs test	Good	Good by 2015		New abstraction well headworks / surface structures. No or minimal impact.		implemented to avoid negative impacts on the quantitative water balance of the groundwater body. Therfore any impacts on the	
for Gro	Chemic	Chemical Saline Intrusion	Good	Good by 2015				groundwater body. Therfore any impacts on the groundwater body would be localised.	
	ပ	General Chemical Test	Good	Good by 2015				Use of water treatement works and pumping station. No or minimal impact.	
) elements	supportin g Elemente	Prevent and Limit Objective	-						
-		Trend Assessment	No trend						
ll ential		Quantitative	Good	Good by 2015	N\A				
Overall us/Poter		Chemical (GW)	Good	Good by 2015	N\A				
Statu		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

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 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\WR100\WR100\_Thorncliffe Road Borehole, Barrow.docx Abstraction license strategy (South Cumbria): https://www.gov.uk/government/publications/south-cumbria-abstraction-licensing-strategy

	Water hash D		GB112072065822	Scheme:	5343		ASED FRANKLAW WTW TREATMENT CAPACITY	
	Water body ID:		Wyre DS Grizedale Brook	Reference	FRAN	WALAW Z SITE PLUS INCRE		
	Water body Name:		confl				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	-						
-	Macrophytes	-					Increased groundwater abstraction quantity Medium level of impact. Increased abstraction of 30 MI/d (from approximately 98 MI/d recent use, to	
cological	Macrophytes and phytobenthos	Moderate					approx. 128 Ml/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 Ml/d).	
rs: Ec	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	
its 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
elemei	> River continuity	-			Modified abstraction well headworks / surface structures. No or minimal impact.	J	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.	
-	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	
i	Specific pollutants:	High					MI/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:	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	Priority substances	Good						
all s\ tial	Ecological	Good	Good by 2027	N\A	-			
Overall Status\ otential	Chemical	Good	Good by 2027	N\A	-			
000	Overall	Good	Good by 2027	N\A				

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. 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: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a> Engineers Proforma: <a href="http://environment.data.gov.uk/catchment-planning/">WKMP SupportS Design/Feasible Options/IRZWR101/WR101</a> Franklaw Z site increased WTW capacity.docx</a> Abstraction license strategy (Lune and Wyre): <a href="http://www.gov.uk/government/uploads/system/

		Water body ID:		GB112072065810	Scheme:	FRANKLAW	Z SITE PLUS INCREASED F	RANKLAW WTW TREATMENT CAPACITY	
		Water body Name:		Brock	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 Downstream water bodies: WFD Element (Receptor)	dies: Status	New Draught Brook Wyre - conf R Brock to tidal RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos							
al	AE.	Macrophytes						Increased groundwater abstraction quantity Minor level of impact. Increased abstraction of 30 Ml/d (from approximately 98 Ml/d recent use, to approx.	
cologic	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).	
ars: E		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	
Sive		Fish				No or minimal impact.		recent amounts than the amount available. In this surface water body there is no surface water available at	
ts for F	holog	Hydrological regime	Does not support good	Supports good by 2027		Modified abstraction well headworks / surface structures. No or minimal impact.	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	Medium
elemei	romorp y	River continuity				Modified water treatment works. 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.	
WFD	Hydi	Morphological conditions	Supports good.	-		No or minimai impact.		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 from any one locations are some usatice from the mapped where course, and the increase in abstraction from 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: cher	Specific pollutants:	Copper: high	High by 2015				Modified water treatment works.	
WFD elements	mical	Priority hazardous substances	Does not require assessment	Does not require assessment				No or minimal impact.	
elen dir D	Che	Priority substances	Does not require assessment	Does not require assessment					
all s/	tial	Ecological	Good	Good by 2015	N\A				
Overall Status\	oten	Chemical	Good	Good by 2015	N\A				
	<b>a</b>	Overall	Good	Good by 2015	NI\A				

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

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.

N\A

A Devatering 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: \W/AR-FS1.global.amec.com/shared/Projects/38671.UU WRMP Support/5 Design/Feasible Options\\RZ\WR101\\WR101 Franklaw Z site\_increased WTW capacity.docx Engineers Proforma: \W/AR-FS1.global.amec.com/shared/Projects/38671.UU WRMP Support/5 Design/Feasible Options\\RZ\WR101\\WR101 Franklaw Z site\_increased WTW capacity.docx

		Water body ID:		GB112072066220	Scheme:	ED ANKI AW		FRANKLAW WTW TREATMENT CAPACITY	
		Water body ID: Water body Name:		Calder (Wyre)	Reference	FRANKLAW	2 SHE FLUS INGREASED	WR101	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Wyre and Calder	Impact potential	Direct		Direct	
		Designation (and uses):		Heavily Modified	impact potential	Billor		5000	
		Designation (and uses).		rieavily woullied					
		Relevant upstream water bo	dias.	-					
		Downstream water bodies:	-uioa.	Wyre DS Grizedale Brook cor	nfi				
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos							
	ΛĒ	Macrophytes	-	-				Increased groundwater abstraction quantity	
logical	Bioloç	Macrophytes and phytobenthos	Good	Good by 2015				Medium level of impact. Increased abstraction of 30 Mid (from approximately 98 Mid recent use, to approx. 128 Mid), 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	
Eco		Benthic invertebrates	Good	Good by 2015				$\frac{1}{M/d}.$	
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	r
for Ri	holog	Hydrological regime	Not assessed			Abstraction well refurbishment. No or minimal impact.		In which the abstraction boreholes are located. In its 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 any flow.	
ements	omorp y	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.	
5	hysico- nemical	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	
	<u>د</u> ت	Specific pollutants:	Not assessed					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						
W elerr for R	Chei	Priority substances	Does not require assessment						
all s/	tial	Ecological	Moderate	Good by 2027	N\A				
Overall Status\	oten	Chemical	Good	Good by 2015	N\A				
	1	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 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 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.gbbal.amec.com/shared/Projects/38671 UU WRMP SupportS DesignlFeasible Options\\RZWR101\WR101 Franklaw Z site increased WTW capacity.docx Astraction litenes strategy (Line and Wre): http://www.gov.uk/government/uploads/system/uploads/attachment\_data/lite/300455/L17917x1\_161231.gdf

	Water body ID:		GB112072065790	Scheme:	FRANKLAW	7 SITE PLUS INCREASED	FRANKLAW WTW TREATMENT CAPACITY	
	Water body ID: 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			1		
	Relevant upstream water b	odies:	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							
	Macrophytes	-	-				Increased groundwater abstraction quantity	
ological	Macrophytes and phytobenthos	Poor	Good by 2027				Medium level of impact. Increased abstraction of 30 M/d (from approximately 98 M/d recent use, to approx. 128 M/d), split across several Franklaw and Broughton borehole sites. The increased abstraction quantity is within the current leonce quantity for the borehole group (maximum aggregated daily peak of 190).	
s: Ecc	Benthic invertebrates						Ml/d).	
River:	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 I	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.	
lement	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 lecence 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. Based on the evidence above, hat 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	Low
VFDe	Morphological conditions	Supports good	-					
	General physico-chemical	All good or high apart from dissolved oxygen and phosphate which are poor.	Good by 2027.					
	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 uncertainting for the surface water body. Brock the Complex for the surface water body and the surface water body.	
FD nents ivers:	Priority hazardous substances	Does not require assessment	Does not require assessment				uncertainties (such as if abstraction will increase at the Franklaw K and J sites).	
WFD element for River	Priority substances	Does not require assessment	Does not require assessment					
all Is /s	Ecological	Poor	Good by 2027	N\A				
Overall Status\	Chemical	Good	Good by 2015	N\A				
	Overall	Poor	Good by 2027	N\A				

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. 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/uploads/system/uploads/attachment\_data/file/300485/LIT7917v1\_161231.pdf

	Water body ID:		GB112072065800	Scheme:	FRANKLAW	V Z SITE PLUS INCREASED	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 b	odies:	-					
	Downstream water bodies:		New Draught Brook					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos							
2	Macrophytes							
gical	Macrophytes and phytobenthos	Poor	Good by 2027				Increased groundwater abstraction quantity Medium level of impact. Increased abstraction of 30 M/d (from approximately 98 M/d recent use, to approx. 128 M/d), split across several Franklaw and Broughton borehole sites. The increased abstraction	
Ecolo	Benthic invertebrates	Moderate	Good by 2027				quantity is within the current licence quantity for the borehole group (maximum aggregated daily peak of 190 MI/d).	
ers: I	Fish	Poor	Good by 2027				The Abstraction Licensing Strategy (ALS) indicates that there is no water available for the groundwater body	
or Riv	Hydrological regime	Does not support good	Supports good by 2027		Abstraction well refurbishment. No or minimal impact. Modified abstraction well headworks / surface structures.		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					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 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. 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	Low
D eler	Morphological conditions	Supports good	-		No or minimal impact.			
WFD	General physico-chemical	All high or good apart from biochemical oxygen demand which is moderate and phosphate which is poor	Good by 2027					
	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: Chemical	Priority hazardous substances	Does not require assessment	Does not require assessment					
elerr for R	Priority substances	Does not require assessment	Does not require assessment					
s) ial	Ecological	Poor	Good by 2027	N\A				
Overall Status\ otential	Chemical	Good	Good by 2015	N\A				
0 2	Overall	Poor	Good by 2027	N\A				

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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://knvironment.data.gov.uk/catchment-planning/ Engliners Proforma: \\\\VRAFS1global.amec.com\yhined\Projects\38571UUWRMP Support\5 Design\Feasible Options\RT\\\WR101\Franklaw Z+ite\_increased WTW capacity.docx Abstraction license strategy (Lune and Wrre): http://www.gov.uk/government/uploads/system/uploads/strachment\_data/file/300485/L17317v1\_151231.pdf

	W	/ater body ID:		GB112072065760	Scheme:	FRANKLAW	V Z SITE PLUS INCREASED	FRANKLAW WTW TREATMENT CAPACITY	
	W	ater body Name:		Woodplumpton Brook	Reference			WR101	
	RE	BMP:		North West	Scheme Phase	Construction		Operational	
	Op	perational catchment:		Brock and Trib	Impact potential	Direct		Direct	
	De	esignation (and uses):		No designation					
	Re	elevant upstream water bo	dies:	-					
	Do	ownstream water bodies:		New Draught Brook					
	v	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Ph	hytobenthos							
	Ma Sa Ma	lacrophytes	-	-					
gical		lacrophytes and hytobenthos	Moderate	Good by 2027				Increased groundwater abstraction quantity 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	
Ecolo	Be	enthic invertebrates	Moderate	Good by 2027				quantity is within the current licence quantity for the borehole group (maximum aggregated daily peak of 190 Ml/d).	
	Fis	ish							
for River	BOIDUG Hy	ydrological regime	Does not support good	Supports good by 2027		Abstraction well refurbishment.		The Abstraction Licensing Strategy (ALS) indicates that there is no water available for the groundwater body in which the abstraction boreholds 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 QBS, Q70 and G50 but limited water available at QBS.	
ments		iver continuity				No or minimal impact. Modified abstraction well headworks / surface structures.	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 causing deterioration. It is not clear at which abstraction rate between recent actual and fully licenced deterioration would statu 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 the hydrological status of the hydrological status of the hydrological status of the hydrological sandstone aquifer and water courses, and that the Broughton A site is within 200 m of the Woodplumpton Brook, its considered that there is the potential for widespread or prolonged effects on the hydrological sandstone aquifer and water courses and the time between the principal sandstone aquifer and water courses, and that the principal sandstone actual actions between the principal sandstone aquifer and water courses, and the principal sandstone actual actual the hydrological sandstone aquifer and water courses, and the time is the potential for widespread or prolonged effects on the hydrological sandstone aquifer sandstone actual actual the same strates are actual actual to actual the same strates are actual the same strates are actual to actual the same strates a	Low
Dele	Ě Mo	lorphological conditions	Supports good	-		No or minimal impact.			
WFD	sico-chemical	eneral physico-chemical	All high apart from amonia which is moderate, and biochemical oxygen demand and phosphate which are poor	Good by 2027					
		pecific 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 elements for Rivers:	Pr su	riority hazardous ubstances	Does not require assessment	Does not require assessment					
W elerr for R	P Chem	riority substances	Does not require assessment	Does not require assessment					
s\ tial	Ec	cological	Moderate	Good by 2027	N\A				
Overall Status\ Potential	Cł	hemical	Good	Good by 2015	N\A				
	0	verall	Moderate	Good by 2027	N\A				

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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

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

	Water body ID:		GB41201G100500	Scheme:	FRANKLAW Z SITE PLUS IN	ICREASED FRANK	LAW 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	
								1
	Designation (and uses):		No designation					
	Relevant upstream water Downstream water bodie		N\A N\A					
		s:	N/A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
WFD elements for Groundwater: Quantitative	Status	Good					Increased groundwater abstraction quantity Medium level of impact. Increased abstraction of 30 MI/d (from approximately 98 MI/d	
lemer undwa antitat	Quantitative GWDTEs	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 Grot Qua	Quantitative Saline	Good					borehole group (maximum aggregated daily peak of 190 Ml/d).	
> (	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	
themical	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	Chemical Drinking Water	Good			Minor level of impact.	<u>g</u>	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 the standard tradition of the strategiest deterioration is likely after 2027.	2011
mdwa	Chemical GWDTEs test	Good			New abstraction well headworks / surface structures. No or minimal impact.		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.	
or Groi	Chemical Saline	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 fe	General Chemical Test	Good					uncertainties (such as the exact location of abstraction increases, and the abstraction rates at which deterioration would occur)	
) elem	Prevent and Limit	-					Use of water treatment works. No or minimal impact.	
WFD	Trend Assessment	No trend						
Overall us\Potential	Quantitative	Good	Good by 2027	N\A				
Overa us/Pot	Chemical (GW)	Good	Good by 2027	N\A				
Statu	Overall	Good	Good by 2027	N\A				

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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\IR2\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

		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	-							
ical	Biology	Macrophytes and phytobenthos	Moderate			Transfer pipe line on land.		Increased groundwater abstraction quantity.		
	8	Benthic invertebrates	Moderate			No or minimal impact.		Minor level of impact. Increase in daily peak abstraction rates at		
	E-	Fish	-			New / modified water treatment works.		Eccleston Hill borehole, but no change to overall annual licence		
Ecolog	or V	Hydrological regime	Does not support good			No or minimal impact.		quantity or other conditions. There may short term localised		
20	m og	River continuity	-			No or minimal impact.		impacts on the hydrological regime of surface water courses due to		
	Hydr pho	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	
	Physic o- chemic	General physico-chemical	All high except Phosphate- moderate			New / modified abstraction well headworks / surface		the status of the water body as a whole.		
	4 5	Specific pollutants:	Triclosan is high			structures.		Use of pipelines.		
	rs: ical	Priority hazardous substances	Does not require assessment			No or minimal impact.		No or minimal impact.		
elem fo	Rive Chem	Priority substances	Does not require assessment							
Overall tatus\Pot	a	Ecological	Moderate	Good by 2027	N/A			· · · · · · · · · · · · · · · · · · ·		
atus	ent	Chemical	Good	Good by 2015	N/A					
Star C		Overall	Moderate	Good by 2027	N/A	1				

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### Evidence

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

	Water body ID:		GB41201G101700	Scheme:	EC	CLESTON HILL BO	REHOLE TO PRESCOT WTW	
	Water body Name:			Reference			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 bo	dies:	N\A					
	Downstream water bodies:		N\A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Quantitative Dependent Surface Water Body Status	Good						
ative	Quantitative GWDTEs test	Good					Increased groundwater abstraction quantity.	
uantit El	Quantitative Saline Intrusion				Transfer pipe line on land.		Minor level of impact. Increase in daily peak abstraction rates at Eccleston Hill borehole, but no change to overall annual licence quantity or other conditions. The abstraction licensing	
ð	Quantitative Water Balance	Good			No or minimal impact.		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	
Statu	Chemical Dependent Surface Water Body Status	Poor			Abstraction well refurbishment. Minor level of impact	High	overall abstraction quantify is unchanged these should not have a long term impact on the status of the water body as a whole. Use of pipeline. No or minimal impact.	Medium
	Chemical Drinking Water Protected Area	Poor			Abstraction well headworks / surface structures. No or minimal impact.			
	Chemical GWDTEs test	Good						
		Poor						
	General Chemical Test	Good						
ting	Prevent and Limit Objective	-						
	Trend Assessment	Upward trend						
	Quantitative	Poor		N/A				
	Chemical (GW)	Poor		N/A				
	Overall	Poor	Good by 2027	N/A				

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### Evidence

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Catchment Data Explorer: <a href="http://environment.data.gov.uk/catchment.planning/">http://environment.data.gov.uk/catchment.planning/</a>
Catchment Data Explorer: <a href="http://maps.environment.data.gov.uk/catchment.planning/">http://maps.environment.data.gov.uk/catchment.planning/</a>
Enginees Proforma: <a href="http://washeestrukticateous/washeest

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

	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		Confidence
		N/A						
Physico- Hydromo Biology chemical rphology	Phytobenthos Macrophytes and phytobenthos Benthic invertebrates Fish Hydrological regime River continuity Morphological conditions General physico-chemica Specific pollutants:	N/A N/A N/A N/A N/A N/A N/A N/A			Transfer pipe line on land. No or minimal impact. Transfer pipe line with water course crossings. Minor level of impact. Abstraction well refurbishment. No or minimal impact. Abstraction well headworks / surface structures. No or minimal impact.	High	New groundwater abstraction quantity. Minor level of impact. New groundwater abstraction of 1.35 MId annual average and 9 MId peak capacity from the Bold Heath boreholes. A new abstraction licence would be required from the Environment Agency. The Abstraction Licensing Strategy (ALS) for Lower Mersey and At indicates that there is restricted water available in the groundwater body, but there is water available at all flows in the surface water body. Impacts on the hydrological regime of the surface water body are likely to be localised and temporary. Transfer pipe line. No or minimal impact.	High
for Rivers: Chemical	Priority hazardous substances Priority substances	N/A N/A					re or mains appec.	
s/ ial	Ecological	N/A	N/A	N\A			• • • •	
Status/ otential	Chemical	N/A	N/A	N\A				
Po So	Overall	N/A	N/A	N\A				

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## Evidence

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ Engineers Proformas: JWMAF51.gbbal.amec.com/shared/vnijetx38571 UU WRMP Support\S Design\Feasible Options\IR2\WR075\WR075 Stocks Reservior.stsx EA Food Maps (WYBY): http://maps.environment-agency.gov.uk/why/whivbyController?x=357683.0&y=355134.0&scale=1&layerGroups=defaul&ep=map&textonly=off&lang=\_e&topic=floodmap#x=344705&y=511476&lg

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

	Water body ID:		GB41201G101700	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	
	Designation (and uses):		Mersey Basin Lower and Merseyside North Permo- Triassic Sandstone Aq	Impact potential	Direct		Direct	
			No designation					
			N\A					
			N\A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidenc
	Quantitative Dependent Surface Water Body Status	Good					New groundwater abstraction quantity.	
tati	Quantitative GWDTEs test	Good					Minor level of impact. New groundwater abstraction of 1.35 Ml/d annual average and 9 Ml/d peak capacity from the Bold Heath boreholes. A new abstraction licence would be required	
	Quantitative Saline Intrusion				Transfer pipe line on land. No or minimal impact.		from the Environment Agency. The Abstraction Licensing Strategy (ALS) for the Lower Mersey and Alt indicates that there	
ø	Quantitative Water Balance Chemical Dependent	Good Poor			Transfer pipe line with water course crossings. No or minimal impact.		The Abaraction Elements of all effects (AE-2) on the Content Mendoy and Attributed states that unlet is restricted water available in the groundwater body. Communication from the Environment Agency to UU indicates that there is 3 M/d of available resource in the Groundwater Management Unit (annual daily average volume) and that a peak abstraction	
# #	Surface Water Body Status Chemical Drinking Water	Poor			Abstraction well refurbishment. Minor level of impact.	High	rate of 9 MI/d may be possible.	High
	Protected Area	Good			Minor level or impact.		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	
Che		Poor			No or minimal impact.		the groundwater body.	
	General Chemical Test	Good					Transfer pipe line.	
-	Prevent and Limit Objective	_					No or minimal impact.	
supp g Elem	Trend Assessment	Upward trend						
lial	Quantitative	Poor	Good by 2027	N/A				
otential	Chemical (GW)	Poor	Good by 2027	N/A				
2	Overall	Poor	Good by 2027	N/A				

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Catchment Data Explorer: <a href="http://environment.data.gov.uk/catchment.planning/">http://environment.data.gov.uk/catchment.planning/</a> Engineers Proforms: <a href="http://environment.data.gov.uk/why/why/by.controller?x=357683.0&y=355134.0&scale=1&layerGroups:default&ep=map&textonly=off&lang=\_e&topix=floodmap#x=344705&y=511476&lig=1.2.10.&scale=7.</a> EA Flood Maps (WIVBY): <a href="http://maps.environment.agency.gov.uk/why/why/why/controller?x=357683.0&y=355134.0&scale=1&layerGroups:default&ep=map&textonly=off&lang=\_e&topix=floodmap#x=344705&y=511476&lig=1.2.10.&scale=7.</a> EA Historicas Landfilt: <a href="http://maps.environment.agency.gov.uk/why/why/why/controller?topic=wate&layerGroups:default&lang=\_e&ep=map&scale=1&x=357682.9999999994&y=355133.9999999994#x=325374&y=497910&lig=1.2.3.10.&scale=7.</a>

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.

Water body name:     Keckwick Brook     Reference     WR106       RBMP:     North West     Scheme Phase     Construction     Operational       Perational catchment:     Weaver Lower     Impact Detential     Direct     Direct       Designation (and uses):     heavily modified     Impact Detential     Impact Detential     Impact Detential       Designation (and uses):     heavily modified     Impact Detential     Impact Detential     Impact Detential       Downstream water bodies:     Narsey     Impact Detential     Impact Detential     Impact Detential       WFD Element (Receptor)     Status     RBMP objective if less than Good     Impact Detential     Impact Detential       Phytobenthos     Macrophytes and     Impact Detential     Impact Detential     Impact Detential     Impact Detential			Water body ID:		GB112068060520	Scheme:	WALTON AND DARE		e	
BBBP:         Noth Weid         Scheme Preside         Contraction         Operational ( $n \rightarrow mathema Preside)         (n \rightarrow mathma Preside)         (n \rightarrow mathema Presid$							WALTON AND DARE		3	
Verte         Operational content         Maxe Lever         Mape 1 point         Operational content         Intent         Intent           Province content topics and a low of the second content topic low of the low of the second content topic and topic low of th							Construction		Operational	
Perigenation (point uses):         Newly modified         Image: control of the contr				<b>*</b> -						
Result								1		
Vertex         Marga         <										
WTD Element Receptory         Statu         RBMP objective less han Good         Afernate Objective less han Good         Afernate Objective less han Good         Afernate Objective less han Good         Confidence         Confidence         Confidence         Confidence           VP 01/2 bennings         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A <th></th>										
Note         No         Note         Note         N			WFD Element					Confidence		Confidence
<ul> <li>No constraints</li> <li>No constraint</li> <li>No constraint</li> <li>No constraint</li></ul>	cal	db	Macrophytes Macrophytes and							
New Poor         Good by 2027         NA           New Poor         Good by 2027         NA         Name         Nam         Name<		Biol	Benthic invertebrates	Bad	Good by 2027	NVA				
Verticity       Supports Good	ers: Ec		Fish	Poor	Good by 2027	NVA			New/increased groundwater abstraction quantity.	
No       New continuity       Image: Second	or Rive	pholog	Hydrological regime	Supports Good	Supports Good by 2015	NVA			MI/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	
No         No<	ţs	y Norl	River continuity				Transfer nine line on land		there is already an abstraction licence in place, the moderate size of the abstraction, the	
Image: Section of the section of t	elemen	Hydron		Supports Good	Supports Good by 2015	N/A	No or minimal impact.	High	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 this wate	Medium
Image: Comparise of the pollutants:       High M       High My 2015       NA         Image: Comparise of the pollutants:       High My 2015       NA       MA         Image: Comparise of the pollutants:       High My 2015       NA       MA         Image: Comparise of the pollutants:       High My 2015       NA       MA         Image: Comparise of the pollutants:       Sectific pollutants:       High My 2015       NA         Image: Comparise of the pollutants:       Sectific pollutants:       Good My 2015       NA         Image: Comparise of the pollutants:       Good My 2015       NA       MA         Image: Comparise of the pollutants:       Good My 2015       NA       MA         Image: Comparise of the pollutants:       Good My 2015       NA       MA         Image: Comparise of the pollutants:       Moderate       Good My 2015       NA         Image: Comparise of the pollutants:       Moderate       Good My 2015       NA         Image: Comparise of the pollutants:       Moderate       Good My 2015       NA         Image: Comparise of the pollutants:       Moderate       Good My 2015       NA	WFD			Moderate	Good by 2027	NVA			Use of new transfer pipe line.	
Ecological     Moderate     Good by 2027     NA		Phi che	Specific pollutants:	High	High by 2015	NVA			No or minimal impact.	
Ecological     Moderate     Good by 2027     NA	elements Rivers:	mical		Good	Good by 2015	NVA				
	WFD 6 for F	č.	Priority substances	Good	Good by 2015	N/A				
Chemical Good by 2015 NA	Intial		Ecological	Moderate	Good by 2027	N\A				
	Overal. us/Pote		Chemical	Good	Good by 2015	N\A				

Overall

Moderate

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.

N\A

2 - Lye mines wind coulses what coulses wind example coulses to bin use anious of new water coulse with example coulses of the pipeline across water coulses will lake 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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## Evidence

Catchment Data Explorer. http://environment.data.gov.uk/catchment-planning/ Engineers Proforma: <u>WWRR-51.jobal.amec.com/shared/Projectis36971UU WRMP.Support5 Design/Feasible Options/IRZIWR106</u> Abstraction Licence Strategy (Lower Mersey and All). <u>http://www.gov.uk/government/uploads/system/uploads/sutachment\_data/file/300490/LIT\_781\_35d3ed.pdf</u>

Good by 2027

	V	Vater body ID:		GB169	Scheme:	WALTO	N AND DARESBURY	BOREHOLES	
		Vater body Name:		Non-reportable water I				WR106	
		RBMP:		North West	Scheme Phase:	Construction		Operational	
	C	Operational catchment:		Weaver Lower	Impact potential:	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo	dies:	-					
	0	Downstream water bodies:		-					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
_	~ r	Macrophytes and phytobenthos	-						
cologica	Biology	Benthic invertebrates	-						
ivers: Ec	F	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 M/d based on existing abstraction licence. The ALS does not identify a GWMU for this	
for Ri	<u>a</u>	lydrological 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	
ts	lou AG	River continuity	-					availability of surface water, and that there are unlikely to be strong dependencies	
elemen	Hydror lo	Norphological 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	/sico- mical	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.	
	Che che	Specific pollutants:	-						
D ts for rs:		Priority hazardous substances	-						
WFD elements Rivers:	0	Priority substances	-						
Overall tatus\Po	E	Ecological	-	-					
tatt Ove		Chemical		-					
	C	Overall	-	-					

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Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300490/LIT\_7881\_35d3ed.pdf

		Water body ID:		GB41202G991700	Scheme:			SBURY BOREHOLES	
		water body iD:		Weaver and Dane	Reference		WALTON AND DAKE	SBORT BOREHOLES	
				Quaternary Sand and	Reference		WR	106	
		Water Body Name:		Gravel Aquifers					
		RBMP:			Scheme Phase	Construction		Operational	
		-		Weaver and Dane	Impact potential				
				Quaternary Sand and		Direct		Direct	
		<b>Operational catchme</b>		Gravel Aquifers					
		Designation (and use		No designation					
		Relevant upstream w		N\A					
		Downstream water bo	dies:	N\A					
		WFD Element	Status	RBMP objective	Alternate Objective if less than		Confidence		Confidence
<b>-</b>		(Receptor)	Good	-	Good N/A				
÷	a t	Quantitative	Good	Good by 2015					
nts ate	me	GWDTEs test	Good	Good by 2015	N/A				
d w.	Ele	Quantitative Saline	Good						
an	us	Intrusion	0000	Good by 2015	N/A				
WFD eleme Groundw Quantita	ta o	Quantitative Water	Good						
2 ×	5	Balance		Good by 2015	N/A				
	Ŧ	Chemical Dependent						New/increased groundwater abstraction quantity.	
<del></del>	ner	Chemical Drinking	Good			New abstraction well drilling / refurbishment.		Minor level of impact. Reinstatement of boreholes at Whalton and Daresbury.	
nic	ller	Water Protected Area		Good by 2015	N/A	Minor level of impact.		Maximum output of 8.45 MI/d based on existing abstraction licence. The ALS	
her	S S		D		does not identify a GWMU for this area, but does show that surface water is				
ö	atu	Chemical GWDTEs	Poor	Good by 2027	N/A	Transfer pipe line on land.		available across the full flow regime. Given that there is already an abstraction	
ter	- S	test	0			No or minimal impact.	High	licence in place, the moderate size of the abstraction, and the availability of	Medium
łws	ica	Chemical Saline Intrusion	Good	Good by 2015	N/A			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.	
ŭ	e		Poor			Transfer pipe line with water course crossings.		and temporary effect on the quantitative status of the groundwater body.	
D.	5	General Chemical Test	1001	Good by 2027	N/A	No or minimal impact.		Use of new transfer pipe line.	
L O	-	1651						No or minimal impact.	
sfc		Prevent and Limit							
ant	Б, s	objective							
ŭ	lements	Ma	Upward trend						
ele	a do	our contraction of the second s	Upward trend						
WFD	Ш	o Trend Assessment							
>	ŗ,	9							
tia	_	Quantitative	Good	Good by 2015	N/A				
Overall tus/Potentia		audinitative	0000	GOOU by 2015	NA				
era Pot	-	Chemical (GW)	Poor	Good by 2027	N/A				
vo No									
Stati		Overall	Poor	Good by 2027	N/A				
ů.									

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 dentify any contaminated land and any mitigation that may be required. 6- Extensions, modifications, or new pumping stations, water treatment works, etc. would hivelve 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 Wates. 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: WWAR-Est jobala.amec.com/shared/Projects/38671.UU WRMP. Support/S Design/Feasible Options/IRZWR106 Abstraction Licence Strategy (Lover Mersey and Alt): https://www.gov.uk/government/upbadd/stystem/upbadd/attrachment\_data/fe/300490.LT\_7881\_35d3ed.pdf

	Water body ID:		GB112069060640	Scheme:	Aughton Park &	Moss End Boreholes	(Roval Oak WTW)	
	Water body Name:		Downholland (Lydiate/Cheshires Lines) Brook	Reference			R107a	
	RBMP:		Alt and Crossens	Scheme Phase	Construction		Operational	
	Operational catchment:		Alt	Impact potential	Direct		Direct	
	Designation (and uses):		Heavily modified					
	Relevant upstream water bodies: Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
	Macrophytes	Not provided						
Biology	Macrophytes and phytobenthos	Moderate			Transfer pipe line on land.			
	Benthic invertebrates	Poor			No or minimal impact.		Increased groundwater abstraction quantity to (44MI/d to	
	Fish	Good			Transfer pipe line with water course crossings. Minor level of impact.		54MI/d). Medium level of impact. New abstraction of 10 MI/d from two	
norp gy	Hydrological regime	Does not support good			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	
e t	River continuity	Not provided			No or minimal impact.	High	abstraction licensing strategy (ALS) indicates that there is restricted	Medium
Hyd	Morphological conditions	Not provided			New abstraction well drilling / refurbishment.	riigii	water available in the groundwater body. There is water available in the surface water body at Q30, Q50 and Q70.	wearum
ico- ical	General physico-chemical	All high/good excep: Phosphate- moderate			No or minimal impact.			
Phys	Specific pollutants:	Not provided			New / modified abstraction well headworks / surface structures.		Use of pipe lines and water treatment works. No or minimal impact.	
nemical	Priority hazardous substances	Does not require assessment			No or minimal impact.			
ΰ	Priority substances	Does not require assessment						
ential	Ecological	Poor	Good by 2027	N/A			·	
en	Chemical	Good	Good by 2015	N/A				
	Overall	Poor	Good by 2027	N/A				

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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 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-FS1.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&layerGroupp=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

		Water body ID:		GB41201G101700	Scheme:	Auahton	Park & Moss End Bo	preholes (Royal Oak WTW)	
		Water body Name:			Reference		WR10		
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment: Designation (and uses):		Mersey Basin Lower and Merseyside North Permo- Triassic Sandstone Aquifers		Direct		Direct	
			<del></del>	No designation					
		Relevant upstream water		N\A					
		Downstream water bodies WFD Element (Receptor)	Status	N\A RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
۲.			Good						
FD elements for Groundwater: Quantitative	tative lement	test	Good						
) elem oundv tuantit	Quantitative tatus Elemei	Intrusion	Poor			Transfer pipe line on land. No or minimal impact.			
WFD Gro Qu	ů "	Balance	Good Poor			Transfer pipe line with water course crossings.		New groundwater abstraction quantity. Medium level of impact. New abstraction of 10 MI/d from two	
/ater:	Status ent	Chemical Drinking Water Protected Area				No or minimal impact. 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	
or	cal Sta ment		Good			No or minimal impact.	High	abstraction licensing strategy (ALS) indicates that there is restricted water available in the groundwater body.	Medium
for Gr emical	Chemic Ele	Chemical Saline Intrusion	Poor			Abstraction well refurbishment. Minor level of impact.		Transfer pipe line and water treatment works. No or minimal impact.	
nents for Chemi	0	General Chemical Test	Good			Abstraction well headworks / surface structures.		no or minima impact.	
D eler	011100 0	Prevent and Limit Objective	Not provided			No or minimal impact.			
WFI	idne i	Trend Assessment	Upward trend						
II ential		Quantitative	Poor		N\A				
Overall Status/Poter		Chemical (GW)	Poor	-	N\A				
Statu		Overall	Poor	Good by 2027	N\A				

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 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=3447 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

	Water body ID:		GB112069060640	Scheme:	Aughton Park & M	loss End Boreholes	(Roval Oak WTW)	
	Water body Name:		Downholland (Lydiate/Cheshires Lines) Brook	Reference	, and the second s		107ai	
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchment:		Alt	Impact potential	Direct		Direct	
	Designation (and uses):		Heavily modified					
	Relevant upstream water		Not identified					
	Downstream water bodie	3:	Downholland Brook					
	WFD Element (Receptor		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
<del>.</del>	Macrophytes	Not provided						
ic ologic Biology	Macrophytes and phytobenthos	Moderate						
Bio	Benthic invertebrates	Poor			Transfer pipe line on land. No or minimal impact.		Increased groundwater abstraction quantity to (44MI/d to 54MI/d). Medium level of impact. New abstraction of 10 MI/d from two refurbished boreholes at Aughton Park and Moss End. There may be effects on the	
vers:	Fish	Good			Transfer pipe line with water course crossings.			
or Ri	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	
ror is f	River continuity	Not provided			Modified water treatment works.		body. There is water available in the surface water body at Q30, Q50 and	
Hyd	Morphological conditions	Not provided			No or minimal impact.	High	Q70.	Medium
FD ele	General physico-chemica	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.	
Physic	Specific pollutants:	Not provided			New / modified abstraction well headworks / surface structures. No or minimal impact.			
FD ents vers: nical	Priority hazardous substances	Does not require assessment			No or minimar impact.			
WFD elements for Rivers: Chemical	Priority substances	Does not require assessment						
Overall Status\Po tential	Ecological	Poor	Good by 2027	N/A				
Dve	Chemical	Good	Good by 2015	N/A				
. w	Overall	Poor	Good by 2027	N/A				

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Evidence Catchment Data Explorer: <u>http://environment.data.gov.uk/catchment-planning/</u> Engineers Proforma: <u>\\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\IRZ\WR107a\WR107a</u>

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

		Water body ID:		GB41201G101700	Scheme:	Aughton Pa	ark & Moss End Bore	holes (Royal Oak WTW)	
				Basin and North	Reference	, taginoi 1 a			
		Water body Name:		Merseyside Permo-			WR107ai		
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
				Lower and	Impact potential	Direct		Direct	
		Operational catchment:		Merseyside North		Direct	-	Direct	
		Designation (and uses):		No designation					
		Relevant upstream water		N\A					
		Downstream water bodies	s:	N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
or	đ	Quantitative Dependent	Good						
ents foi water: ative	titative Element	Quantitative GWDTEs test	Good						
elem und antit	Quantita tatus Ek	Quantitative Saline Intrusion	Poor			Transfer pipe line on land. No or minimal impact.			
WFD Gro Qu	Staf	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	itus	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.	
vpuno	nical Status Element	Chemical GWDTEs test	Good			No or minimal impact.	High		Medium
ਸ਼ੁਰ	Chemic Ele	Chemical Saline Intrusion	Poor			Abstraction well refurbishment. Minor level of impact.		Transfer pipe line and water treatment works.	
ients f Chei	S	General Chemical Test	Good			Abstraction well headworks / surface structures.		No or minimal impact.	
) elen		Prevent and Limit Objective	Not provided			No or minimal impact.			
WFI	5 ddns	Trend Assessment	Upward trend						
l ential	_	Quantitative	Poor	Good by 2027	N\A				•
Overall atus\Potential		Chemical (GW)	Poor	Good by 2027	N\A				
tatus		Overall		Good by 2027	N\A				

Sta

Overall

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.

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- 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.

## 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 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

					-	-			
		Water body ID:		GB112063060610	Scheme:	Randi	es Bridge, Knowsley	/, Primrose Hill	
				Croxteth/ Knowsley	Reference			WR107b	
		Water body Name:		Brook		<b>0</b>		0	
		RBMP:		Alt and Crossens	Scheme Phase	Construction		Operational	
		Operational catchment:		Alt	Impact potential	Direct		Direct	
		Designation (and uses):		Heavily modified					
		Relevant upstream water boo	dies:	Not identified					
		Downstream water bodies:		Alt US Bull Bridge					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
al			Not provided						
ji	>	Macrophytes	Not provided					Reinstated manualmates chatractics monthly	
coloç	Biology	Macrophytes and phytobenthos	Not provided			Abstraction well refurbishment.		Reinstated groundwater abstraction quantity. Minor level of impact. Reinstatement of boreholes at Randles Bridge, and Knowsley (Primrose Hill also reinstated but located	
	-	Benthic invertebrates	Poor			No or minimal impact.		approx. 14 km to the north). Maximum combined output of 8	
ers.		Fish	Not provided					MI/d (at Randles Bridge, and Knowsley) based on exisiting	
Ľ.	2 26		Supports good			Transfer pipe line on land.		abstraction licence.	
5	le le	River continuity	Not provided			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	
ents f	Hydi	Morphological conditions	Not provided			Transfer pipe line with water course crossings.			Medium
Ĕ	1 7		All high/good except:			Minor level of impact.		regime. Given that there is already an abstraction licence in	
ele	lice	General physico-chemical	Phosphate- moderate					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.	
WFD elements for	ers: mical	Priority hazardous substances	Does not require assessment					Use of new transfer pipe line and water treatment works. No or minimal impact.	
		Priority substances	Does not require assessment						
Overall Status\	tial	Ecological	Moderate	Good by 2027	N/A				
vera	ten	Chemical	Good	Good by 2015	N/A				
ر v o	ĭ	Overall	Moderate	Good by 2027	N/A				

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4 Set yields in please barries water boards in the first on non-trans or start and you buy in charter barries and you buy in the first on another barries and you buy in the start and you be start and you be start and you be start and you be start and you buy in the start and you be start and you buy in the start and

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: WVAR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options/IRZ/WR075/W EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300

		Water body ID:		GB112070064830	Scheme:	Randle	es Bridge, Knowsley, I	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	76	Macrophytes	Not provided					Reinstated groundwater abstraction quantity. Minor level of impact. Reinstatement of boreholes at Primrose Hill (Randles Bridge and Knowsley also reinstated but located approx.	
Ecolo	Biolog	Macrophytes and phytobenthos	High			Abstraction well refurbishment.			
:s:		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.	
	٩	Hydrological regime	Supports good			No or minimal impact.			
sfo	Jy Jy					Transfer pipe line with water course crossings.		The ALS indicates that groundwater is limited in this area, but also shows that surface water is available across the full flow regime. Given that there is already an abstraction licence in place, and the	
anti	ē š	River continuity	Not provided				High		Medium
eleme	Hydrom holog	Morphological conditions	Not provided			Minor level of impact.		availability of surface water, the use of the borehole is not expected to have a widespread or prolonged effect on the	
WFD (	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.	
hud	f	Specific pollutants:	All high					Use of new transfer pipe line and water treatment works.	
WFU elements for Rivers:	nical	Priority hazardous substances	Good					No or minimal impact.	
elerr fo Riv	Cher	Priority substances	Does not require assessment						
II 🖓 II		Ecological	Moderate	Good by 2027	N/A				
Overall Status\ Potential		Chemical	Good	Good by 2015	N/A				
O N O		Overall	Moderate	Good by 2027	N/A				

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7 - Devratering of excavations would not require a permit from the Environment Agency/Natural Resources Wales. Devratering and a corresponding discharge of sufficient magnitude, duration, or sensibility to require a permit may have a greater impact than assessed. Devratering 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: \W/AR-ES1.global.armec.com/shared/Projects38671.UU WRMP Support/5 Design/Feasible Options\\RZWR075\\WR075 St EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/uploads/astem/uploads/attachment\_data/file/300490.LT

		Water body ID:		GB41201G101700	Scheme:	Ra	andles Bridge, Know	vsley, Primrose Hill	
		Water body Name:		Lower Mersey Basin and North Merseyside Permo- Triassic Sanstone Aquifers	Reference		WR10	7Б	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment: Designation (and uses):		Mersey Basin Lower and Merseyside North Permo- Triassic Sandstone Aq No designation	Impact potential	Direct		Direct	
		Relevant upstream water	hadias	Not identified					
		Downstream water bodie		Not identified					
		WFD Element (Receptor)	1	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ts for ter: ve	Status	Quantitative Dependent Surface Water Body Status	Good						
WFD elements for Groundwater: Quantitative	ative \$	Quantitative GWDTEs	Good					Reinstated groundwater abstraction quantity.	
VFD el Grou Qua	Quantitative	Quantitative Saline	Poor			Abstraction well refurbishment.		Medium level of impact. Reinstatement of boreholes at Randles Bridge, Knowsley and Primrose Hill. Maximum combined output of	
5	a	Balance	Good			Minor level of impact.		11 Ml/d based on exisiting abstraction licence.	
vater:	ement	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
for Groundwater: smical	Status Ele		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, means that there may be widespread or prolonged impacts on the	
for Gr mical			Good			Modified water treatment works. No or minimal impact.		on the quantitative status of the groundwater body.	
che	Chemical	Chemical Saline Intrusion	Poor			No or minimarimpact.		Use of new transfer pipe line and water treatment works. No or minimal impact.	
) elem	5	General Chemical Test	Good						
WFD	rting	Prevent and Limit	Not provided						
		Trend Assessment	Upward trend						
eral	- e	Quantitative	Poor Poor	Good by 2027	N\A N\A	4			
Stat	a g	Chemical (GW)	Poor Poor	Good by 2027		4			
001		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.
   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

Catchment Data Explorer; http://environment.data.gov.uk/catchment-planning/ Engineers Proformas: \\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support5 Design\Feasible Options\IRZ\WR075\WR075 Stocks Reservior.xtsx

EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300490/LIT\_7881\_35d3ed.pdf

		Water body ID:		GB112069061111	Scheme:			IOLES (BUCKTON CASTLE WTW)	
		Water body name:		Tame (Chew Brook to Swines			W	R109	
		RBMP:		Mersey Upper	Scheme Phase	Construction		Operational	
		Operational catchmen	it:	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	lersey)				
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos Macrophytes							
,	Biology	Macrophytes and phytobenthos							
TOT KIVERS: E		Benthic invertebrates	Moderate	Good by 2027	NVA	New outfall to river. Minor level of impact.			
		Fish						Increased groundwater abstraction quantity.	
	morph	Hydrological regime				Transfer of water via river. Minor level of impact.		Minor level of impact. New abstraction of 4 Ml/d from refurbished boreholes at Swineshaw. Previous abstraction licence revoked in	
	mo o	River continuity						1992. The surface water body has water available across all flows, indicating that any reduction in surface water flow due to this new relatively small abstraction may not cause a deterioration in water body status. The abstracted water is discharged to the surface water system, further limiting any impacts of reduced	Medium
	Hydr o	Morphological conditions			N\A	New abstraction well drilling / refurbishment. No or minimal impact.	High		
	o	General physico- chemical	Good	Good by 2015	N\A	New / modified abstraction well headworks / surface			
	14	Specific pollutants:	High	High by 2015	N\A	structures.		baseflow.	
Rivers:	lical	Priority hazardous substances	Does not require assessment	Does not require assessment	NVA	No or minimal impact.			
for Riv	Chen	Priority substances	Does not require assessment	Does not require assessment	NVA				
_	_	Ecological	Moderate	Moderate by 2015	N\A				
Overall Status\Potential		Chemical	Good	Good by 2015	N\A				
Statu		Overall		Moderate by 2015	N\A				

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

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.

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

	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 Direct	
			Manchester and East Cheshire Carboniferous Aquifers	Impact potential	Direct			
	Operational catchme Designation (and use		No designation					
			No designation					
	Relevant upstream w Downstream water be		N/A N/A					
	WFD Element	bales:	NVA					4
	(Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
+ I	Demondant Surface	Good	Good by 2015	N/A				
tative	GWDTEs test	Good	Good by 2015	N/A				
uantit tus E	Quantitative Saline		Good by 2015	N/A				
Qua Status	Balance	Good	Good by 2015	N/A				
, t	Chemical Dependent						Increased groundwater abstraction quantity.	
s Eleme	Chemical Drinking Water Protected Area	Poor	Good by 2027	N/A	Abstraction well refurbishment. Minor level of impact.		Minor level of impact. New abstraction of 4 Mi/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. Transfer pipe line. No or minimal impact.	Medium
nical	Intrusion	Good	Good by 2015	N/A	No or minimal impact.			
Chen	Test	Good	Good by 2015	N/A				
	Prevent and Limit							
supporting Elements	Trend Assessment	Upward trend						
tial	Quantitative	Good	Good by 2015	N/A				
us/Potent	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.

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.

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: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a> Engineers Proforma: Engineers Proforma: <a href="http://www.gov.uk/covernment/publications/upper-mersey-abstraction-licensing-strategy">http://www.gov.uk/catchment-planning/</a> En Abstraction Licence Strategy (Upper Mersey): <a href="http://www.gov.uk/covernment/publications/upper-mersey-abstraction-licensing-strategy">http://www.gov.uk/covernment/publications/upper-mersey-abstraction-licensing-strategy</a>

	Water body ID:		GB112068060180	Scheme:		Ruston Spence	r Boreholes	
	Water body Name:		Dane (Clough Brook to Cow Brook)	Reference			WR110	
	RBMP:		Weaver Gowy	Scheme Phase	Construction		Operational	
	Operational catchment:		Dane	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water bo	dies:	Clough Brook and Dane (Source to Clough Brook)					
	Downstream water bodies:		Dane (cow Brook to Wheelock	x)				
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
~	Macrophytes	Not provided			No construction activities.			
Biology	Macrophytes and phytobenthos	High						
ä	Benthic invertebrates	Good						
	Fish	Poor						
rph	Hydrological regime	Supports good					Increased groundwater abstraction quantity. Medium level of impact. Increase in groundwater abstraction of 2 Mi/d from Rushton Spencer boreholes. The ALS does not identify a groundwater management unit in this area, but the surface water body has limited water 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 quantity is relatively small.	
og)	River continuity	Not provided						
Hydro	Morphological conditions	Supports good				High		Medium
sico- nical	General physico-chemical	All high/good						
	Specific pollutants:	All high						
vers: nical	Priority hazardous substances	Does not require assessment						
25	Priority substances	Does not require assessment						
	Ecological	Poor	Good by 2027	N/A			·	
ent	Chemical	Good	Good by 2015	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.

 Pewatering 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.
 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=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

		Weter he dy ID:		GB41202G102900	Scheme:		Bucton C	pencer Boreholes	
		Water body ID:					Ruston S	bencer borenoies	
					Reference			WR110	
				Cheshire Carboniferous				WR110	
		Water body Name:		Aquifer	a				
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
					Impact potential	<b>-</b>			
				Manchester and Cheshire		Direct		Direct	
		Operational catchment:		East Carboniferous Aquifer					
		Designation (and uses):		No designation Not identified					
		Relevant upstream water							
		Downstream water bodies	S <b>:</b>	Not identified					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
			Good						
ō	tus	Surface Water Body							
ve Erst	t Sta	Status							
wa		Quantitative GWDTEs	Good						
n d en		test							
WFD elements for Groundwater: Quantitative			Good						
Ĕρα		Intrusion							
5			Good						
		Balance						Increased groundwater abstraction quantity. Medium level of impact. Increase in groundwater abstraction of 2 MI/d from	
	+		Good						
	len	Surface Water Body						Rushton Spencer boreholes. The ALS does not identify a groundwater	
vat	en	Status				No construction activities.	High	management unit in this area, but the surface water body has limited water	Medium
nts for Groundwater: Chemical	Ele	Chemical Drinking Water	Poor					available at Q95 and Q50 (water available at Q70 and Q30), indicating there is	
no	tus	Protected Area						some pressure on water resources in the area. However the new licence	
a d	Stat	Chemical GWDTEs test	Good					quantity is relatively small.	
ja ja	5								
tst	ji ji		Good						
e	Jer	Intrusion							
elem	Che	General Chemical Test	Good						
WFD	<u>6</u> 5		Not provided						
3		Objective							
	0		Upward trend						
Overall Status\ Dotonti	Ĕ		Good		N/A				
tat	a d		Poor		N/A				
0 0 0	L	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.

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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.

Powatering 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.
 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=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

		Water body ID:		GB112069061360	Scheme:	WOODFOR	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 uses		not designated artificial or heavily n		Dirot	1	Billott	
		Relevant upstream wa		Dean (Lamaload to Bollington),Harr	ор вгоок				
		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			X/////////////////////////////////////				
	ogy	Macrophytes and phytobenthos	Poor	Good by 2027	N\A				
gical	Biol	Benthic invertebrates	Moderate	Moderate by 2015	N\A				
Ecolo		Fish	Good	Good by 2015	N\A			New groundwater abstraction quantity.	
Rivers	ology	Hydrological regime	Supports Good	Supports Good by 2015	N\A				
ts for	hdror	River continuity				New abstraction well drilling / refurbishment.		Minor level of impact. Increase in abstraction quantity at Woodford borehole from current licensed quantity of 9 MI/d to 12 MI/d. ALS indicates restricted water available from the	
) element	-	Morphological conditions	Supports Good		N∖A	No or minimal impact. New / modified abstraction well headworks / surface structures. No or minimal impact.	High	GWMU for this area. Surface water is available at high flows (203 and G50, but has limited availability at lower flows (C70 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 la relatively small, and that the ALS indicates there is some water available, it is unlikely that the increased abstraction would have widespraced or prolonged effects on the hydrological regime of surface watercourses. A variation to the abstraction licence would be required from the Environment Agency.	Medium
WFD		General physico- chemical	Moderate	Good by 2027	N\A				
	Phy cher	Specific pollutants:			N\A				
ents for remical		Priority hazardous substances	Does not require assessment	Does not require assessment	N\A				
WFD elements for Rivers: Chemical	ntial	Priority substances	Does not require assessment	Does not require assessment	NVA				
l ential		Ecological	Poor	Moderate by 2027	N\A			•	
Overall us\Pote		Chemical	Good	Good by 2015	N\A				
Statu	Overall	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.

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- 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: <u>http://environment.data.gov.uk/catchment-planning/</u> Engineers Proforma: <u>WVRF-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options/IRZ/WR049b</u> <u>Engineers Proforma: <u>WVRF-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options/IRZ/WR049b</u> <u></u></u></u></u></u></u></u>

		Water body ID:		GB41201G101100	Scheme:		WOODFORD	BOREHOLE		
		Water Body Name:			Reference			111		
		RBMP:			Scheme Phase	Construction		Operational		
		Operational catchmen		Manchester and Cheshire East Permo-Triassic Sandstone Aquifers	Impact potential	Direct		Direct		
		Designation (and uses		No designation						
		Relevant upstream wa		N\A						
		Downstream water bo WFD Element (Receptor) Quantitative	dies: Status	N\A RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
r	+	Quantitative	Poor	Good by 2021	N/A					
WFD elements for Groundwater: Quantitative	titative Elemen	Quantitative GWDTEs test	Good	Good by 2015	N/A					
) elem round	Quantif tatus E	Intrusion	Poor	Good by 2021	N/A					
	Ste C	Quantitative Water Balance Chemical Dependent	Good	Good by 2015	N/A			New groundwater abstraction quantity.		
cal	ent	A						Minor level of impact. Increase in abstraction quantity at Woodford borehole from		
Chemi	us Elem	Water Protected Area	Good	Good by 2015	N/A	New abstraction well drilling / refurbishment. Minor level of impact.		current is repeated untitly of 9 Middle data (LLA) is indicated 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	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	Intrusion	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		
or Gr	Che	General Chemical Test	Good	Good by 2015	N/A			abstraction licence would be required from the Environment Agency.		
ments f	ents	Prevent and Limit Objective								
WFD ele	Suppo	Trend Assessment	Upward Trend							
ntial		Quantitative	Poor	Good by 2021	N/A					
Overall us\Poten		Chemical (GW)	Poor	Good by 2021	N/A					
Stat		Overall	Poor	Good by 2021	N/A					

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

- Pupe 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.

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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: <a href="http://environment.data.opv.uk/catchment-planning/">http://environment.data.opv.uk/catchment-planning/</a> Engineers Proforma: Engineers Proforma: <a href="http://www.avuk/catchment-planning/">www.avuk/catchment-planning/</a> Abstraction Licensing Strategy (Upper Mersey): <a href="http://www.avuk/catchment/ublada/system/ublada/sys

		Water body ID:		GB112069061360	Scheme:	WOODEC	ORD BOREHOLE		
		Water body name:			Reference	10001	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 n	nodified				
		Relevant upstream wa		Dean (Lamaload to Bollington),Harr	op 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			New groundwater abstraction quantity.	
Ecologic		Fish	Good	Good by 2015	NA				
Rivers:	ology	Hydrological regime	Supports Good	Supports Good by 2015	NA				
for I	r ph	River continuity				Transfer pipe line on land. No or minimal impact.		Medium level of impact. New groundwater abstraction from new borehole at	
) elements	Hydromo	Morphological conditions	Supports Good		NVA	New abstraction well drilling. No or minimal impact.	High	Bramhal of 5 Mid. 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 Q50). Given the limited water availability, particularly at low flows, and the moderate size of the proposed abstraction, there may be widespread or prolonged effects on the hydrological regime of the water body it 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.	Medium
WFD	Physico- chemical	General physico- chemical	Moderate	Good by 2027	NVA	New abstraction well headworks / surface structures. No or minimal impact.			
	Phy: cher	Specific pollutants:			NVA				
ents for		Priority hazardous substances	Does not require assessment	Does not require assessment	N\A				
WFD elem Rivers: Cl	WFD element Rivers: Chen	Priority substances	Does not require assessment	Does not require assessment	NVA				
l sofial		Ecological	Poor	Moderate by 2027	N\A				
Overall us\Potential		Chemical	Good	Good by 2015	N\A				
5	Status	Overall	Poor	Moderate by 2027	N\A				

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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: <u>WWAR-F51.gbob.l.amec.com/shared/Projects/38671.UU.WRMP Support5 Design/Feasible Options/IRZWR049b</u> Abstraction Licensing Strategy (Upper Mersey): <u>https://www.opu.uk/goverment/uploads/system/uploads/attachment\_data/lile/300491/LIT\_7883\_7c6011.pdf</u> Aquifer designations: <u>http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx</u>

		Water body ID:		GB41201G101100	Scheme:		WOODFORD	DBOREHOLE		
		Water Body Name:		Manchester and East Cheshire Permo-Triassic Sandstone Aquifers	Reference			R111		
		RBMP:		North West GW	Scheme Phase	Construction		Operational		
		Operational catchmer		Manchester and Cheshire East Permo-Triassic Sandstone Aquifers	Impact potential	Direct		Direct		
		Designation (and uses		No designation						
		Relevant upstream wa Downstream water bo		N\A N\A						
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
nts for tuantitative	titative Status Element	Quantitative Dependent Surface Water Body Status	Poor	Good by 2021	N/A					
elements 1 ater: Quan	tative	Quantitative GWDTEs test	Good	Good by 2015	N/A					
WFD e	WFD el. Groun dwate Quantita Elé	Quantitative Saline Intrusion	Poor	Good by 2021	N/A	Transfer pipe line on land.				
ē	Ŭ	Quantitative Water Balance Chemical Dependent	Good	Good by 2015	N/A	No or minimal impact.		New groundwater abstraction quantity. Medium level of impact. New groundwater abstraction from new borehole at Bramhall of 5 Mt/d. ALS indicates restricted water available from the GWMU for		
Chemical	s Element	Chemical Drinking Water Protected Area	Good	Good by 2015	N/A	Transfer pipe line with water course crossings. No or minimal impact. New abstraction well drilling.	High	this area. Surface water is available at high flows (Q30 and Q50, but has limited availability at lower flows (Q70 and Q55). Given the limited water availability particularly at low flows, and the moderate size of the proposed abstraction, there 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 connections between the principal Permo-Triassic aquifer and surface water and the surface water body or on the principal Permo-Triassic aquifer and surface water and the surface water body or be and the principal Permo-Triassic aquifer and surface water and the surface water body or be and the principal Permo-Triassic aquifer and surface water and the surface water body or be and the principal Permo-Triassic aquifer and surface water body and the surface water body or be and the principal Permo-Triassic aquifer and surface water body and the surface water body or both the surface b	Medium	
vater:	Statu	Chemical GWDTEs test	Good	Good by 2015	N/A	Minor level of impact.				
Apuno	mical	Chemical Saline Intrusion	Poor	Good by 2021	N/A	New abstraction well headworks / surface structures. No or minimal impact.		bodies. A new abstraction licence would be required from the Environment Agency.		
or Gre	Che	General Chemical Test	Good	Good by 2015	N/A					
ements f	WFD elements for ( supporting Elements (aroundwater)	Prevent and Limit Objective								
WFD eld		Trend Assessment	Upward Trend							
ntial		Quantitative	Poor	Good by 2021	N/A		1			
Overall Status/Potential		Chemical (GW)	Poor	Good by 2021	N/A					
Statu		Overall	Poor	Good by 2021	N/A					

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2 \* per lines with courses water courses water courses with example course per person of the person

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# Evidence

Catchment Data Explorer; http://environment.data.gov.uk/catchment-planning/ Catchment Data Explorers: Engineers Proforma:: WAR-F51.gbbal.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options/IRZ/WR049b Abstraction Licensing Strategy (Upper Mersey): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300491/LIT\_7683\_7c6011.pdf Aquifer designations: http://www.natureonthemap.naturalengland.org.uk/MagcMap.aspx

TYI	THERINGTON BOREH		
	N	VR113	
Construction		Operational	
Direct		Direct	
	Confidence		Confidence
Transfer pipe line on land. No or minimal impact.		Increased groundwater abstraction quantity. Minor level of impact. Increased peak abstraction quantity of 3	
No or minimal impact.		MI/d at refurbished Tytherington Boreholes. No changes to existing abstraction licence required.	
Modified water treatment works. 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	
Abstraction well refurbishment. No or minimal impact.	Medium	annual abstraction and the peak daily increase is relatively small. The abstraction licensing strategy (ALS) indicates that there is restricted water available in the groundwater body, but water is available in the surface water body across all flows.	Medium
ostraction well headworks / surface structures.			
No or minimal impact.		· ·	
		Use of pipelines and water treatment works. No or minimal impact.	

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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-FS1.global.amec.com\shared\Projects\38671 UU WRMP\_Support\5 Design\Feasible Options\\RZ\WR049b EA Abstraction Licence Strategy (Upper Mersey): https://www.gov.uk/government/publications/upper-mersey-abstraction-licensing-strategy

		Water body ID:		GB41201G101100	Scheme:		TYTHERINGTO	ON BOREHOLES		
		Water Body Name:		Manchester and East Cheshire Permo-Triassic Sandstone Aquifers				2113		
		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						
		Relevant upstream wa		N\A						
		Downstream water boo	dies:	N\A						
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
5	÷	Demonstration Countries	Poor	Good by 2027	N/A					
ents f vater: ative	ative emen	Quantitative GWDTEs test		Good by 2027	N/A	Transfer pipe line on land.				
WFD elements Groundwater Quantitative	uantit tus El	Intrusion	Poor	Good by 2027	N/A					
WFD Gr Q	t Sta	Quantitative Water Balance Chemical Dependent	Good	Good by 2027	N/A			Increased groundwater abstraction quantity. Minor level of impact. Increased peak abstraction quantity of 3 MI/d at		
	Ħ	Chemical Dependent				No or minimal impact.		refurbished Tytherington Boreholes. No changes to existing abstraction licence		
vater:	s Eleme	Chemical Drinking Water Protected Area	Good	Good by 2027	N/A	Modified water treatment works. No or minimal impact.		required. The abstraction licensing strategy (ALS) indicates that there is restricted water available in the groundwater body. However, any impacts of the status of the groundwater body are likely to be temporary and localized as there is no increase in the average annual abstraction and the peak daily increase is relatively small.		
vbnuo	Statu	test	Good	Good by 2027	N/A	Abstraction well refurbishment. Minor level of impact.	High		Medium	
for Gr mical	mical	Intrusion	Poor	Good by 2027	N/A	Abstraction well headworks / surface structures.				
Che	Che	Test	Good	Good by 2027	N/A	No or minimal impact.		Transfer pipe line and treatment works. No or minimal impact.		
len	5 g 1	Prevent and Limit								
WFD e	Elements	Trend Assessment	Upward Trend	N/A						
otential		Quantitative	Poor	Good by 2027	N/A					
Status/Po		Chemical (GW)	Poor	Good by 2027	N/A					
			Poor							

õ

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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

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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

Overall

Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ Engineers Proforma: Engineers Proforma: \\WAR-FS1.global.amec.com\sharedProjects\38671 UU WRMP Support\5 Design\Feasible Options\\RZ\WR049b EA Abstraction Licence Strategy (Upper Mersey): https://www.gov.uk/government/publications/upper-mersey-abstraction-licensing-strategy

	Water body ID:		GB112069064720	Scheme:	PY	THON MILL BOREH	DLE	
	Water body name:		Roch (Source to Spodden)	Reference		N	/R114	
	RBMP:		Irwell	Scheme Phase	Construction		Operational	
	<b>Operational catchmen</b>	t:	Roch Irk Medlock	Impact potential	Direct		Direct	
	Designation (and uses	s):	Heavily modified					
	Relevant upstream wa	ter bodies:	Beal					
	Downstream water bo	dies:	Roch (Spodden to Irwell)					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos				Transfer pipe line on land.		Increased groundwater abstraction quantity. Medium level of impact. New abstraction of up to 3 Ml/d from refurbished borehole at Python Mill. A new abstraction licence would be required from the Environment Agency.	
	Macrophytes							
Biology	Macrophytes and phytobenthos	Moderate	Good by 2027	N\A				
	Benthic invertebrates	Good	Good by 2027	N\A				
	Fish	Moderate	Good by 2027	N\A	No or minimal impact.			
morph	Hydrological regime				Abstraction well refurbishment. No or minimal impact. Modified abstraction well headworks / surface structures. 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	Low
00	River continuity					nign	flows, indicating there is pressure on water resources. The lack of water availability and the proximity of the borehole to the River Roch (approx. 150 m) means that there could be prolonged and widespread impacts on the surface water body.	LOW
Hydr	Morphological conditions		Not assesed	N\A				
nysic o-	General physico-	High	Good by 2027	N\A				
5	Specific pollutants:		High by 2027	High by 2027			Use of pipe line.	
ts for Rivers: Chemi cal	Priority hazardous substances	Good	Good by 2027	NVA			No or minimal impact.	
\$ 5 S		Good	Good by 2027	N\A				
ntial	Ecological	Moderate	Good by 2027	N\A				
Overall Status\Potential	Chemical	Good	Good by 2027	N\A				
Status	Overall	Moderate	Good by 2027	N\A				

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9 - A discharge license would need to be saught to meet environmental regulations for WFD for New discharge scour into Rochdale Canal

# Evidence

Catchment Data Explorer: <u>http://environment.data.gov.uk/catchment-planning/</u> Engineers Proforma: <u>\\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\IRZ\WR049b</u> EA Abstraction Licence Strategy (Northern Manchester): https://www.gov.uk/government/publications/northern-manchester-abstraction-licens

		Water body ID:		GB41202G101800	Scheme:		PYTHON M	ILL BOREHOLE	
		Water Body Name:		Northern Manchester Carboniferous Aquifers	Reference			IR114	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchmen	t:	Manchester Northern Carboniferous Aquifers	Impact potential	Direct	Direct		
		Designation (and uses	):	No designation					
		Relevant upstream wa		N\A					
		Downstream water bo	dies:	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	Good by 2027	N/A				
ement odwat ntitativ	trive S	Quantitative GWDTEs test	Good	Good by 2027	N/A				
WFD elem Groundv Quantit	antita Ele	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	
3	σ	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.	
ater:	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 pressure on water resources. Transfer pipe line.	Low
roundwa	atus Eler	Chemical Drinking Water Protected Area	Good	Good by 2027	N/A	Abstraction well refurbishment. Minor level of impact	nigii		LOW
for G	al Sta	Chemical GWDTEs test	Good	Good by 2027	N/A	Abstraction well headworks / surface structures. No or minimal impact		No or minimal impact.	
nents Che	hemic	Intrusion	Good	Good by 2027	N/A			Transfer of water via Rochdale Canal. Minor level of impact.	
D eler	0	Test	Good	Good by 2027	N/A				
WFI	uppo ting	Prevent and Limit Objective							
	5		Upward Trend	N/A					
erall us/Po		Quantitative	Good	Good by 2027	N/A				
Ove			Poor	Good by 2027	N/A				
2 S		Overall	Poor	Good by 2027	N/A				

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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\5 Design\Feasible Options\IRZ\WR049b EA Abstraction Licence Strategy (Northern Manchester): https://www.gov.uk/government/publications/northern-manchester-abstraction-licensing-strategy

	ſ	Water body ID:		GB112074069980	Scheme:	E	Egremont Borehole	s (Existing)	
		Water body Name:			Reference		WR119a		
		RBMP:			Scheme Phase	Construction		Operational	
	ľ	Operational catchment:		Ehen-Calder	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
	Relevant upstream water bodies: Downstream water bodies: WFD Element (Receptor) Status		Ehen (upper including Liza), Keekle (lower) and Kirk Beck (Ehen) Cumbria Coastal Waters RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
		Phytobenthos	Not provided		GOOd				
		Macrophytes	Not provided						
	6	Macrophytes and phytobenthos	Good						
cal	20	Benthic invertebrates	High						
	-	Benthic invertebrates							
ö		Fish	High					New groundwater abstraction.	
ů	~	Hydrological regime D						Minor level of impact. Continuation of abstraction of 11 MI/d from four existing boreholes at Merry	
:: :2	gy		Does not support good					Hill, Kellhead, Gully Flatts and Black Ling (only the Merry HIll and Gully Flatts boreholes are within	
Å.	÷.							this surface water body). The boreholes are planned for decommissioning in 2022 but this option	
Ω.	-d	River continuity	Not provided					would see abstraction continuing at current rates.	
<u>ē</u>	ē	River continuity	Not provided						
tt	2					No construction activities planned in this water body.		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	
Jer	yd	Morphological conditions	Supports good			Management Unit, but no water available across the flow re	ALS will take into account the effects of the current abstraction licence, so a continuation of	Low	
len	I		- 11 - 3				rign	abstraction is unlikely to reduce the availability of water further.	LOW
WFDe	50	General physico-chemical	All high/good					abstraction is unikely to reduce the availability of water further. It is assumed that the current abstraction would not have been recently licensed if it would cause deterioration in WFD status, therefore it is unlikely that an extension to the licence would cause	
i	Physi	Specific pollutants:	All high					deterioration, however this cannot be guaranteed as the water 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 onwards.	
WFD elements for Rivers: Chemical	_	Priority hazardous substances	All good						
WFD for CI		Priority substances	All good						
all us\ tial		Ecological	Good	Good by 2015	N/A				
Overall Status\ otential		Chemical	Good	Good by 2015	N/A				
E		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.

2 - Projentes will columble will result to construct the state of the

Evidence
Catchment Data Explorer, <u>http://environment.data.gov.uk/catchment.planning/</u>
Engineers Potra Explorer, <u>http://environment.data.gov.uk/catchment.planning/</u>
Engineers Potra Strategies (CAMS process); <u>https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process</u>

	Water body ID:		GB353	Scheme:		Egremor	nt Boreholes (Existing)	
	Water body Name:		Non reportable water bodies on St Bees Coast				WR119a	
	RBMP:		South West Lakes	Scheme Phase	Construction		Operational	
	Operational catchment:		-	Impact potential	Direct		Direct	
	Designation (and uses):		-					
	Relevant upstream water be	odies:	-					
	Downstream water bodies:		-					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	N/A						
	Macrophytes	N/A						
<u>ő</u>	Macrophytes and phytobenthos	N/A						
ä	Benthic invertebrates	N/A					New groundwater abstraction.	
-	Fish	N/A					Minor level of impact. Continuation of abstraction of 11 M/4 from four existing boreholes 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	
logy	Hydrological regime	N/A					decommissioning in 2022 but this option would see abstraction continuing at current rates.	
orpho	River continuity	N/A					The ALS states that there is groundwater available from the West Cumbria Groundwater	
Hydrom	Morphological conditions	N/A			No construction activities planned in this water body. No or minimal impact.	High	Management Unit, and surface water available across the full flow regime in the surface water body. The 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
ico- ical	General physico-chemical	N/A					It is assumed that the current abstraction would not have been recently licensed if it would cause a deterioration in WFD status, therefore it is unlikely that an extension to	
Phys	Specific pollutants:	N/A					the licence would cause deterioration, however this cannot be guaranteed as the water environment may change between the recent licensing of the boreholes and 2022. A	
	Priority hazardous substances	N/A					new abstraction licence would be required from the Environment Agency from 2022 onwards.	
	Priority substances	N/A						
	Ecological	N/A	N/A	N/A				
a	Chemical	N/A		N/A				
	Overall	N/A	N/A	N/A				

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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: <u>http://environment.data.gov.uk/catchment-planning/</u> Engineers Proforma: <u>\\WAR-F51.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\\RZ\WR119b\WR119b Egremont Borehol</u> Abstraction Licensing Strategies (CAMS process): <u>https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process</u>

		Water body ID:		GB41201G102000	Scheme:		Egremont Boreh	oles (Existing)	
		Water body Name:		West Cumbria Permo- Triassic Sandstone Aquifers	Reference		WR1	19a	
		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		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: Quantitative	Status It	Quantitative Dependent Surface Water Body Status Quantitative GWDTEs	Good					New groundwater abstraction. Minor level of impact. Continuation of abstraction of 11 MI/d from four existing	
lemer Indwa Intitat	ative emer	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	
Grou	Lantit	Quantitative Saline Intrusion	Good					at current rates.	
\$	ă	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.		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 Guiley Flatts boreholes (River Eleno). The ALS will take into account the	
ndwa	us El	Chemical Drinking Water Protected Area	Good			No or minimal impact.	High	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	
nts for Grou Chemical	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	
me	ъ	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 ele	nents 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.	
	Supp	Trend Assessment	No trend						
s/ tia		Quantitative	Good	Good by 2015	N/A				
Overall Status\ Potentia	-	Chemical (GW)	Good	Good by 2015	N/A				
Pot St		Overall	Good	Good by 2015	N/A				
000		Overall	G000	Good by 2015	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.

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### Evidence

Catchment Data Explorer: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a> Engineers Proforma: <a href="http://www.fsi.global.amec.com/shared/Projects/38671">www.fsi.global.amec.com/shared/Projects/38671</a> UU WRMP Support/S Design/Feasible Options/IRZ/WR119b/WR119b Egremont Boreholes (New) xism

Abstraction Licensing Strategies (CAMS process): https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process

	Water body ID:		GB112074069980	Scheme:	Egremoi	nt Boreholes (New)		
	Water body Name:		Ehen (lower)	Reference		WR119b		
	RBMP:			Scheme Phase	Construction		Operational	
	Operational catchment:		Ehen-Calder	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	Relevant upstream water b Downstream water bodies:	odies:	Ehen (upper including Liza), Keekle (lower) and Kirk Beck (Ehen) Cumbria Coastal Waters					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
	Macrophytes	Not provided						
ology	Macrophytes and phytobenthos	Good						
Biol	Benthic invertebrates	High						
	Fish	High			Transfer pipe line on land. No or minimal impact.		Use of new transfer pipe line, and pumping station. No or minimal impact.	
logy	Hydrological regime	Does not support good					New groundwater abstraction.	
morpho	River continuity	Not provided			Transfer pipe line with water course crossings. Minor level of impact.		High level of impact. New abstraction of 2.5 MI/d from a refurbished borehole at Catgli (plus a further 7.5 MI/d from three new boreholes in other surface water bodies). The ALS states that there is groundwater available from the West	
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
sico-	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 Catgill 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.		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	
for Rivers: Chemical	Priority hazardous substances	All good					licence would be required from the Environment Agency.	
Į Į	Priority substances	All good						
us/ Is/ tial	Ecological	Good	Good by 2015	N/A				
Status/ Potential	Chemical	Good	Good by 2015	N/A				
, , <u>,</u>	Overall	Good	Good by 2015	N/A				

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Evidence Catchment Data Explorer\_http://environment.data.gov.uk/catchment.planning/ Engineers Proforma: \W/AR-FS1.gibbal.amec.com/sharedProjects\38671.UU WRMP Support/5 Design\Feasible Options\IRZ\WR119b\WR1

Abstraction Licensing Strategies (CAMS process): https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-pro

١	Water body ID:		GB353	Scheme:	Eg	remont Boreholes (	(New)	
	Water body Name:		Non reportable water bodies on St Bees Coast	Reference		v	VR119b	
F	RBMP:		South West Lakes	Scheme Phase	Construction		Operational	
C	Operational catchment:		-	Impact potential	Direct		Direct	
	Designation (and uses):		-					
	Relevant upstream water bo	odies:	-					
0	Downstream water bodies:		-					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
F	Phytobenthos	N/A						
1	Macrophytes	N/A						1
F	Macrophytes and phytobenthos	N/A						
E	Benthic invertebrates	N/A						
F	Fish	N/A					New groundwater abstraction.	
н	Hydrological regime	N/A					Medium level of impact. New abstraction of 7.5 M/d from three new boreholes at Sandwith, Rottington and Moor Platts. The ALS states that there is groundwater	
> F	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	
ошо - ^ _	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					be required from the Environment Agency.	
	Priority hazardous substances	N/A						
	Priority substances	N/A						
	Ecological	N/A	N/A	N/A				
	Chemical	N/A N/A	N/A N/A	N/A				
	Overall	N/A	N/A	N/A				

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Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \\\WAR F51.global amec.com\shared\Projects\38571 UU WRMP Suppor\S Design\Feasible Options\RZ\WR119b\WR119b Egremont Boreholic

Abstraction Licensing Strategies (CAMS process): https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process

		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		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: /e	tatus	Quantitative Dependent Surface Water Body Status	Good			Transfer pipe line on land. No or minimal impact.		New groundwater abstraction.	
WFD elements for Groundwater: Quantitative	ative S ement	Quantitative GWDTEs test	Good					Medium level of impact. New abstraction of 10 M/d from three new boreholes at Sandwith, Rottington and Moor Platts, plus a refurbished borehole at Catgill (2,5 M/d	
FD el Grou Qua	El	Quantitative Saline Intrusion	Good					per borehole). The ALS states that there is groundwater available from the West Cumbria	
3	Qua	Quantitative Water Balance	Good			Transfer pipe line with water course crossings.		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 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	
/ater:	ement	Chemical Dependent Surface Water Body Status	Good			No or minimal impact. New pumping station.	High		Medium
wpung	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	
or Grour nical	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 for Chemic	emica	Chemical Saline Intrusion	Good			New / modified abstraction well headworks / surface structures.		intrusion into the aquifer. A new abstraction licence would be required from the Environment Agency.	
eleme	ບິ	General Chemical Test	Good			No or minimal impact.		Use of new transfer pipe line, and pumping station. No or minimal impact.	
WFD	ting ting	Prevent and Limit Objective	Not provided					No or minimarimpact.	
	5-1	Trend Assessment	No trend						
i s i		Quantitative	Good	Good by 2015	N/A				
era	-	Chemical (GW)	Good	Good by 2015	N/A				
Overall Status\ Potentia		Overall	Good	Good by 2015	N/A				

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Evidence
Catchmert Data Explorer: <u>http://environment.data.gov.uk/catchment.planning/</u>
Engineers Proforma: <u>\WAR-F51\_global.amec.com\thared\Project\38671 UU WRNP Support\5 Design\Feasible Options\RZ\WR119b\WR119b Egremont Boreholes (New).xsm
Abstraction Licensing Strategies (CAMS process): https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process</u>

		Water body ID:		GB112068060530	Scheme:	Cro	ss Hill Boreholes, W	irral	
		Water body Name:		The Birket including Ar	Reference		WR	120	
		RBMP:		Mersey Lower	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 ( <i>Receptor</i> )		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	Kivers: Ecologi Biol	Macrophytes and phytobenthos	Not provided			New water treatment works. No or minimal impact. New abstraction well drilling.		Medium level of impact. New 15 MI/d abstraction licence from three new boreholes at Cross Hill.	
:: Eco		Benthic invertebrates	Poor					The abstraction licensing strategy (ALS) indicates that there is	
Rivers			Poor					restricted water available in the groundwater body, but water available across all flows in the surface water body. The option includes revocation of existing licences at Hooton, Gorston and	
for	, ph	Hydrological regime	Supports good					Spring Hill which may offset the impacts of the new abstraction.	
nents	drome	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
eler	Нý	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- chemical	General physico-chemical	All high except: Ammonia- moderate, BOD- moderate, Dissolved oxygen- bad and Phosphate- poor			NO OF HIMINIAR IMPACE.		sandstone aquifer, meaning the change in abstraction patterns accross the aquifer may have an impact on the hydrological regime of the surface water body.	
	ш о	Specific pollutants:	All high					Use of water treatment works.	
WFD elements for	mical	Priority hazardous substances	All good					No or minimal impact.	
elen V	Chel	Priority substances	Does not require assessment						
all s/	2	Ecological	Moderate	Good by 2027	N/A				
Overall Status\		Chemical	Good	Good by 2015	N/A				
00,		Overall	Moderate	Good by 2027	N/A				

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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\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& 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

		Water body ID:		GB41101G202600	Scheme:		Cross Hill Bore	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	s:	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						
lemen Indwa Intitati	ative	Quantitative GWDTEs test	Good						
VFD e Grou Qua	Quantitative Elemer	Quantitative Saline Intrusion	Good						
5	a	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. No or minimal impact. New abstraction well drilling. Minor level of impact. New abstraction well headworks / surface structures.		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 amour available). The option includes revocation of existing licences at Hooton, Gorston an Spring Hill. This will offset the impacts of the new abstraction on the quantitative water balance of the groundwater body as a whole. However only one of these licences is within the same groundwater body as the	Ł
vater: Chemica	Status Element	Chemical Drinking Water Protected Area	Poor				High		Medium
Groundv	emical (	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	
ents for G	Che	Chemical Saline Intrusion	Good					GWDTEs test status for example. Water treatment works.	
FD eleme		General Chemical Test	Good					No or minimal impact.	
M	orting nents	Prevent and Limit Objective	Not provided						
	Eleme	Trend Assessment	Upward trend						
Overall Status\Potentia		Quantitative	Good	Good by 2015	N/A				
Overa us\Pot	-	Chemical (GW)	Poor	Good by 2027	N/A				
Stat		Overall	Poor	Good by 2027	N/A				

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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\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&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

		Water body ID:		GB112068060530	Scheme:	CROSS HILL	BOREHOLES, WIRR	AL	
		Water body Name:		The Birket including A	r 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	odies:	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						
	>	Macrophytes and phytobenthos	Not provided						
lical	Biolog	Benthic invertebrates	Poor						
s: Ecolog		Fish	Poor					New groundwater abstraction quantity to 15MI/d. Medium level of impact. New 15 MI/d abstraction licence from three new	
Rivers	pho	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	
ι με Έ		River continuity	Not provided			No or minimal impact.		across all flows in the surface water body. The option includes revocation of	
ments fo	Hydrom		Not provided			New abstraction well drilling. No or minimal impact.	High	existing licences at Hooton, Gorston and Spring Hill which may offset the impacts of the new abstraction. However the exact location and the licenced quantities of these abstractions is unknown and there may be strong connections between	Low
WFD ele	sico-chemical	General physico-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	ical	Priority hazardous substances	All good						
WFD	Chem	Priority substances	Does not require assessment						
Overall Status\Po	ntial	Ecological	Moderate	Good by 2027	N/A				•
ta ti	ter	Chemical	Good	Good by 2015	N/A				
ς Ω		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.

2 - Lyou mich the clock more counses with researcy clockings which possible to minit the antonic of new match counse which and a start of the set which we have a start or counse will take in or more than 30 days, and any in channel works will be undertaken at a time which we 4. New pipe line water courses will be instilled via a trench and cover technique within a dry working area. New pipe line crossings S-A ground investigation will be earded under a start of the start of the

6 - Extensions, or new pumping attacks, 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.globala.mec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options/IRZ/WR120/WR120\_Cross Hill Boreholes, Wirral.docx Abstraction Licensing Strategy (Lower Mersey and Alt): https://www.gov.uk/

		Water body ID:			Scheme:		CROSS HILL B	OREHOLES, WIRRAL		
		Water body Name:		Wirral and West Cheshire Permo- Triassic Sandstone Aquifers	Reference		١	VR120i		
		RBMP:			Scheme Phase	Construction		Operational		
		Operational catchment:		Cheshire Permo-Triassic Sandstone Aquifers	Impact potential	Direct		Direct		
		Designation (and uses):		lo 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		Confidence	
t for antitive	tatus	Quantitative Dependent Surface Water Body Status	Good							
ments er: Qu	ive St nent	Quantitative GWDTEs test	Good							
WFD elements for oundwater: Quantit		Quantitative Saline Intrusion	Good							
Groun		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		
rater:	tatus It	Surface Water Body Status	Good			New abstraction well drilling. Micro level of impact.	High	available in the groundwater body, however the option includes revocation of existing licences at Hooton, Gorston and Spring Pill. This may offset the impacts of the new abstraction, but the exact location and the licenced quantities of these abstractions is unknown.	Low	
wpuno	lemen	Protected Area	Poor			winor level or impact.				
u di	Έ		Good			No or minimal impact.		Water treatment works.		
n in	5		Good					No or minimal impact.		
tsf		General Chemical Test	Good							
lements for Groun Chemical	ents water)	Prevent and Limit Objective	Not provided							
WFD e	Elem	Trend Assessment	Upward trend							
ntial		Quantitative	Good	Good by 2015	N/A					
Overall us\Pote		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 coadways 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 *i*

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 lootprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works. 7- Devatering of exavations would not require a permit from the Environment Agency/Natural Resources Vales. Devatering and acorresponding 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, 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: <u>http://environment.data.gov.uk/satchment.planning/</u> Engineers Proforma: \WAR-FS1.globaLamec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options\IRZ\WR120\WR120\_Cross Hill Boreholes, Wirral.docx

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

Water body ID:		GB112068055440	Scheme:	EATON BOP	REHOLES (Hollins Hi	ill)	
Water body Name:		Wettenhall Brook	Reference		WR12	1a	
RBMP:		North West	Scheme Phase	Construction		Operational	
Operational catchment:		Weaver Upper	Impact potential	Direct		Direct	
Designation (and uses):		No designation					
		no dooignation					
Relevant upstream water boo	dies:	-					
Downstream water bodies:		Ash Brook (Darley Brook to					
WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
Phytobenthos							
Macrophytes	-						
Macrophytes and	Poor						
phytobenthos	Puur		¥/////////////////////////////////////				
priytopontnoo	1		to a construction of the c				
Benthic invertebrates	Good		¥/////////////////////////////////////				
			X				
			¥/////////////////////////////////////	Transfer pipe line on land.			
Fish	Good			No or minimal impact.			
			¥/////////////////////////////////////	No or minimal impact.		New / increased groundwater abstraction quantity	
						Minor level of impact. Restart abstraction from two refurbished boreholes at Eaton. Planned	
Hydrological regime	Supports Good			New water treatment works.		windor level of impact. Restart abstraction from two refurbished boreholes at Eaton. Planned	
			¥	No or minimal impact.		yield is 4.2 - 6.7 Ml/d, within the current abstraction licence of 7.3 Ml/d.	
River continuity	-		¥/////////////////////////////////////	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.		available across the whole flow regime. Given the availability of surface water and that the	
			¥/////////////////////////////////////	No or minimal impact.	High		Medium
				No or minima impact.		boreholes are already licensed a widespread or prolonged impact on WFD status is unlikely.	mountain
General physico-chemical	Moderate		¥/////////////////////////////////////				
General physico-chemical	Moderate		¥/////////////////////////////////////	Abstraction well refurbishment.		New transfer pipe line, pumping station and water treatment works.	
			¥/////////////////////////////////////	No or minimal impact.			
						No or minimal impact.	
Specific pollutants:	-		¥/////////////////////////////////////	Modified abstraction well headworks / surface structures.			
			¥/////////////////////////////////////				
	1		1	No or minimal impact.			
			¥/////////////////////////////////////				
Priority hazardous			¥/////////////////////////////////////				
substances	Does not require assessment						
substances							
			¥/////////////////////////////////////				
	1		1				
			¥/////////////////////////////////////				
			¥/////////////////////////////////////				
Priority substances	Does not require assessment						
,			¥/////////////////////////////////////				
			¥/////////////////////////////////////				
Ecological	Good	Good by 2027	N\A				
		0000 by 2021					
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 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 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 tooptint 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 Records and a significant many 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: <u>WWAR-FS1.global.amec.com/shared/Projects/38671 UU WRMP.Support/5 Design/Feasible Options/IRZ/WR102a/WR102a</u> Abstraction licensing strategy (Weaver and Dane): https://www.gov.uk/government/uploads/system/uploads/attachment\_datafile/319959/it\_7884\_52

		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	bodies:	N\A					
		Downstream water bodie	s:	N\A					
		WFD Element (Receptor)		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
5		Quantitative Dependent	Good						
ents f vater: ative	ative	Quantitative GWDTEs test	Good						
WFD elements fo Groundwater: Quantitative	Quantitative	Quantitative Saline	Good			Transfer pipe line on land. No or minimal impact.		New / increased groundwater abstraction quantity Minor level of impact. Restart abstraction from two refurbished boreholes at Eaton. Planned yield is 4.2 - 6.7 M/d, within the current abstraction licence of 7.3 M/d.	
WFD Gr	a t	Balance	Good			New water treatment works.			
		Chemical Dependent	Poor			No or minimal impact.			
vater:	tus	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 status is unikely. New transfer pipe line, pumping station and water treatment	
vbnuo	mical Status	Chemical GWDTEs test	Poor				High		Medium
nts for Grou Chemical	Chemic	Chemical Saline Intrusion	Good						
nents Ch	Ũ	General Chemical Test	Poor			Modified abstraction well headworks / surface structures. No or minimal impact.		works. No or minimal impact.	
D eler	portin g	g Prevent and Limit Objective	-						
WFD	3 ddns	Trend Assessment	Upward trend						
_	ential	Quantitative	Good	Good by 2027	N\A				
Overall	Status/Potential	Chemical (GW)	Good	Good by 2027	N\A				
	Statu	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.

Construction, multiplication, or new pumping stations, water treatment works, etc. would move the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
 Chartenetic on ensitivity to require a permit may have a present from the Environment Agency Matural Resources would be discharged within the same water body.
 Construction, multiplication, redistributing stations, and the single optimization wells will be undertaken under consent from the EANRW. Wells will be designed, orstructed, and in single budget and in line with best practice.

# Evidence

Catchment Data Explorer; <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a> Engineers Proforma: <a href="http://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/319959/it-7884-52ddf.pdf">http://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/319959/it-7884-52ddf.pdf</a> Abstraction licensing strategy (Weaver and Dane): <a href="https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/319959/it-7884-52ddf.pdf">https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/319959/it-7884-52ddf.pdf</a>

		Water body ID:		GB112068055440	Scheme:	EATON BORE	HOLES (Mid Cheshire I	Main)	
		Water body Name:		Wettenhall Brook	Reference		WR121		
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Weaver Upper	Impact potential	Direct		Direct	
		Designation (and uses):		No designation	inpuot potential	<b>DROO</b>		5 NOOL	
		Designation (and uses):		No designation					
		Relevant upstream water be	odies:						
		Downstream water bodies:		Ash Brook (Darley Brook to					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
1		Phytobenthos	-		0000				
		Macrophytes	-						
		Macrophytes and							
	-	phytobenthos	Poor						
	Biology	Benthic invertebrates	Good						
Rivers: Ec	_	Fish	Good			Transfer pipe line on land. No or minimal impact.		New / increased groundwater abstraction quantity Minor level of impact. Restart abstraction from two refurbished boreholes at Eaton.	
s for	y orph	Hydrological 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.	
jt.	E D	River continuity	-			No or minimal impact.			
	Hydro	Morphological conditions	Supports Good			New pumping station. No or minimal impact.	High	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	Medium
WFD		General physico-chemical	Moderate			Abstraction well refurbishment. No or minimal impact.		status is unlikely. New transfer pipe line, pumping station and water treatment works.	
	Physi chemi	Specific pollutants:	-			Modified abstraction well headworks / surface structures.		No or minimal impact.	
ents for remical		Priority hazardous substances	Does not require assessment	t		No or minimal impact.			
WFD elements for Rivers: Chemical		Priority substances	Does not require assessment	ı					
lent		Ecological	Good	Good by 2027	N\A				
Overall tus\Pote	ē	Chemical	Good	Good by 2027	N\A				
Statu		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.

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6 - Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small toolprint 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

1

Evidence Catchment Data Explorer: <u>http://environment.data.gov.uk/catchment-planning/</u> Engineers Proforma: <u>WVRFFS1.global.amec.com/shared/Projects/38671\_UU\_WRMP\_Support/S\_Design/Feasible\_Options//RZ/WR102b/WR102</u> Abstraction licensing strategy (Weaver and Dane): <u>https://www.gov.uk/government/uploads/system/uploads/attachment\_data/lile/319959/lit\_7884\_5</u>

		Water body ID:		GB41202G	Scheme:	EA	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			1		1
		Relevant upstream water	hodies:	N\A					
		Downstream water bodie		N\A					
		WFD Element (Receptor)	1	RBMP	Alternate Objective if less than Good		Confidence		Confidence
r		Quantitative Dependent	Good						
WFD elements fo Groundwater: Quantitative	ative	Quantitative GWDTEs test	Good					New / increased groundwater abstraction quantity Minor level of impact. Restart abstraction from two refurbished	
elem oundv uantit	Quantitative atus Elemer	Intrusion	Good			Transfer pipe line on land. No or minimal impact.			
WFD Gr Q	Sta	Balance	Good			New water treatment works.		boreholes at Eaton. Planned yield is 4.2 - 6.7 Ml/d, within the current abstraction licence of 7.3 Ml/d.	
		A CONTRACTOR OF A	Poor			No or minimal impact.			
vater:	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	
ound	mical Sta Element	Chemical GWDTEs test	Poor			No or minimal impact.	High		Medium
nts for Groundwater: Chemical	Chemic	Chemical Saline Intrusion	Good			Abstraction well drilling refurbishment. Minor level of impact.			
nents Chi		General Chemical Test	Poor			Modified abstraction well headworks / surface structures. No or minimal impact.		works. No or minimal impact.	
D eleme	ortin	Prevent and Limit Objective	-						
WFD	idns	Trend Assessment	Upward trend						
_	ential	Quantitative	Good	Good by 2027	N\A				
Overall	ISVEOL	Chemical (GW)	Good	Good by 2027	N\A				
	Status	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.

Construction, multiplication, or new pumping stations, water treatment works, etc. would move the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
 Chartenetic on ensitivity to require a permit may have a present from the Environment Agency Matural Resources would be discharged within the same water body.
 Construction, multiplication, redistributing stations, and the single optimization wells will be undertaken under consent from the EANRW. Wells will be designed, orstructed, and in single budget and in line with best practice.

# Evidence

Catchment Data Explorer; <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a> Engineers Proforma: <a href="http://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/319959/it-7884-52ddf.pdf">http://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/319959/it-7884-52ddf.pdf</a> Abstraction licensing strategy (Weaver and Dane): <a href="https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/319959/it-7884-52ddf.pdf">https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/319959/it-7884-52ddf.pdf</a>

		Water body ID:		GB112068060550	Scheme:	Manat	on Hollows Boreholes		
		Water body ID: Water body Name:		Crowton Brook	Reference	Newto	WR1	22	
		RBMP:		Weaver Gowy	Scheme Phase	Construction	WINI	Operational	
		Operational catchment:		Weaver Lower	Impact potential	Direct		Direct	
		Designation (and uses):		No designation	impact potential	Direct	1	Direct	
		Designation (and uses):							
		Relevant upstream water bo	dies:	(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						
cal	or Rivers: Ecological torp Biology	Macrophytes and phytobenthos	Good						
Ecologi		Benthic invertebrates	Moderate					New / increased groundwater abstraction quantity. Medium level of impact. Restart abstraction from three refurbished boreholes at	
ivers:		Fish	Poor			Abstraction well refurbishment. No or minimal impact.		Newton Hollows. Peak output of 9 M/d in line with existing abstraction licence.	
or Ri		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	
tsf	no lo	River continuity	Not provided				High	available in the globultwater management unit, and subtace water how's not available to foresmig at Q55 and Q50, and restricted at Q30 and Q70. The ALS 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 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 convection with the underlying principal sandstone aquifer.	Medium
amen	Hydr	Morphological conditions	Supports good			New water treatment works.			inculain
WFD el	/sico- mical	General physico-chemical	All high except: Ammonia- moderate and Phosphate- poor			No or minimal impact.			
	Phys	Specific pollutants:	Not provided						
WFD elements for	vers: mical	Priority hazardous substances	All good						
eler	Riv Che	Priority substances	All good						
ll tentia		Ecological	Poor	Moderate by 2027	N/A				
Overall us\Pote	-	Chemical	Good	Good by 2015	N/A				
Statu		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 misgation that may be required.

Construction, retributinent, and testing of groundwater abstraction wells will be undertaken under consent from the EANRW. Wells the testing is obstraction as a so to prevent groundwater abstraction wells will be undertaken under consent from the EANRW. Wells the testing is obstraction as a so to prevent groundwater abstraction wells will be designed.

Evidence Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ Engineers Proforma:\_\WWRr-ESt.global.ames.com/shared/Projects/3867/1 UU WRMP.Support/5 Design/Feasible Options\\RZ\WR122\WR12

Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300490/

		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	s:	N\A					
	_	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
<u>ک</u>	±	Curfore Meter Dedu	Good						
ents 1 vater: ative	ative lemen	Quantitative GWDTEs test	Good						
/FD elements fo Groundwater: Quantitative	uantit tus El	Quantitative Saline Intrusion	Good						
θĞ	Qui	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	
WFD elements for Groundwater: Chemical	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 cal	I 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	
its for Chemi	emica	Chemical Saline Intrusion	Good			No or minimarinipaci.		Environment Agency, restarting the abstraction could have an impact on the quantitative water balance of the aquifer or of dependent surface water bodies.	
lemen	ĉ	General Chemical Test	Good						
VFD e		Prevent and Limit Objective	Not provided						
>	3 3 ddns	Trend Assessment	Upward trend						
I ential		Quantitative	Good	Good by 2015	NA				
Overall is/Potential		Chemical (GW)	Poor	Good by 2027	N\A				

Sta

Overall

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

Poor

N\A

Good by 2027

2 Pipelines 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 pipeline water course crossings would be installed via a tench and cover technique within a dry working area. New pipe line crossings of estuaries or coastial 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.

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.

		Water body ID:		GB109054055150	Scheme:	B	earstone Boreholes		
		Water body Name:		Tern- source to conf Loggerheads Bk	Reference		WR	125	
		RBMP:		Severn Middle Shropshire	Scheme Phase	Construction		Operational	
		Operational catchment:		North Shropshire	Impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo	dies:	Not identified					
		Downstream water bodies:	1	Tern- conf Loggerhead	ds 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.			
ologi		Macrophytes and phytobenthos	Moderate			No or minimal impact.		New / increased groundwater abstraction quantity. Medium level of impact. Restart groundwater abstraction from two	
ш	8	Benthic invertebrates	High			Transfer pipe line with water course crossings.		refurbished boreholes near Bearstone. Abstraction rates of 4.98 - 6.36	
Vers		Fish	Good			No or minimal impact.		MI/d, within the current abstraction licence quantity.	
or Riv	E 8	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)	
tsf	hol	River continuity	Not provided				High	in the surface water body. The ALS will take the current abstraction	Medium
ueu	ЧŢ	Morphological conditions	Supports good			New / modified water treatment works.	nign	licence into account. Given the restricted availability of water, and the	wealum
) elen	ico- 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 hordy.	
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.	
WI elem for Ri	Cher	Priority substances	Does not require assessment						
s/ all		Ecological	Moderate	Good by 2027	N/A				
Overall Status/	otent	Chemical	Good	Good by 2015	N/A				
0 %	ĩ	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 courses crossings would be installed via a tench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a tench induce 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

Catchnent Data Explorer. http://environment.data.gov.uk/catchment-planning/ Engineers Proforma: \_\_WAR-531\_cabal.amea.com/staad/Projects/S367/1 UU WRMP\_Support/S Design/Feasible.Options/JRZWR12S/WR12 EA Astraction.Leonce Strategy (Shropshire and Mddle Severi). http://www.gov.uk/government/uploads/system/uploads/attachment\_data/

		Water body ID:		GB40901G300100	Scheme:		Bearstone B	loreholes	
		Water body Name:		Shropshire Middle Severn- PT Sandstone East Shropshire	Reference		WR12	25	
		RBMP:		Severn England GW	Scheme Phase	Construction		Operational	
		Operational catchment:		Shropshire Middle Severn- PT Sandstone East Shropshire	Impact potential	Direct	1	Direct	
		Designation (and uses): Relevant upstream water		No designation					
		Downstream water bodie		N/A N/A					
		WFD Element (Receptor)	1	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
WFD elements for Groundwater: Quantitative	tus	Status	Poor						
emen ndwat ntitati	ativ	test	Good			Transfer pipe line on land. No or minimal impact.			
/FD el Grou Qua	lan	Intrusion	Good			Transfer pipe line with water course crossings.		New / increased groundwater abstraction quantity. Medium level of impact. Restart groundwater abstraction from two refurbished boreholes	
5		Balance	Poor			Minor level of impact.		near Bearstone. Abstraction rates of 4.98 - 6.36 MI/d, within the current abstraction licence quantity.	
ter:	ent	Status	Good			New pumping station. Minor level of impact.	High	The ALS identifies that water is not available from the groundwater management unit, and is limited at 050, Q70 and Q95 in the overlying surface water body. The ALS will	Medium
ndwa	tus El	Chemical Drinking Water Protected Area	Poor			New / modified water treatment works. No or minimal impact.	nign	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	weatum
nts for Groundw Chemical	al Sta		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 fo Chem	Chemic	Chemical Saline Intrusion	Good			No or minimal impact. New / modified abstraction well headworks / surface structures.		Use of new transfer pipe line, pumping station, and water treatment works. No or minimal impact.	
eleme		General Chemical Test	Poor			New / modified abstraction well neadworks / surface structures. No or minimal impact.			
WFD		Prevent and Limit Objective	Not provided						
-	~ ~	Trend Assessment	Upward trend						
Overall ss/Potential		Quantitative	Poor	Poor by 2015	N\A				
Dvera is/Pot		Chemical (GW)	Poor	Good by 2050	N\A				

# Assumptions

Overall

Poor

Poor by 2015

Application of standard best practice construction and pollution prevention methods.
 Pipe lines will cross water courses with existing coadways 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.

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.

## Evidence

		Water body ID:		GB102076073910	Scheme:	TARN WOO	DD (NORTH EDEN TO	CARLISLE)	
		Water body Name:			Reference			VR128	
		RBMP:			Scheme Phase	Construction		Operational	
		Operational catchment:			Impact potential	Direct		Direct	
		Designation (and uses):		Luciniowen					
		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.			
i.s.	ogi	Macrophytes and	Good			No or minimal impact.			
Ň	or Rive cal Biol	phytobenthos						to a second and a second se	
~ ~		Benthic invertebrates	Good			Transfer pipe line with water course crossings.		Increased groundwater abstraction quantity. Minor level of impact. Increased groundwater abstraction from 2.3	
ajc;		Fish	Poor			Minor level of impact.		Mild to 4 Mild from refurbished boreholes at Tarn Wood. It is	
ements f Ecologic	ν	Hydrological regime	High					unclear if an increase in annual licence quantity is required. The	
Ĕ	E S	River continuity	-			New pumping station.		abstraction licensing strategy (ALS) indicates that there is water	
ek	Hydi	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
WFD	ysic o-	General physico-chemical	Moderate (High for ph)			New abstraction well drilling / refurbishment. No or minimal impact.			
	<u> </u>	Specific pollutants:	-					Use of pipelines and pumping station. No or minimal impact.	
D ents r		Priority hazardous substances	Does not require assessment			New / modified abstraction well headworks / surface structures. No or minimal impact.			
WFD elements for	Chem	Priority substances	Does not require assessment						
verall tus\Pot		Ecological	Good	Good by 2027	N\A			· · · · · · · · · · · · · · · · · · ·	
Ove	ent	Chemical	Good	Good by 2027	N\A				
Sta C	-	Overall	Good		N\A				

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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: \W/AR-FS1.global.amec.com/shared/Projects\38671 UU WRMP Support\5 Design\Feasible Options\Carlisle\WR128\WR128\_Tam Wood (North Eden to Carlisle).docx Abstraction Licensing Strategy (Eden and Esk): https://www.gov.uk/government/publications/eden-and-esk-abstraction-licensing-strategy

		Water body ID:		GB40201G1	Scheme:	TAF	RN WOOD (NORTH I	EDEN TO CARLISLE)	
		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	tion				
		Relevant upstream water		N\A					
		Downstream water bodie	s:	N\A					
		WFD Element (Receptor) Guannative Dependent	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
or	t	Quantitative Dependent	Good						
WFD elements fo Groundwater: Quantitative	ative lemen	Quantitative GWDTEs test	Good						
D elements i ŝroundwater Quantitative	Quantitative atus Elemer	Quantitative Saline Intrusion	Good			Transfer pipe line on land. No or minimal impact.			
WFD Gre Qı	Staf Staf	Quantitative Water 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:	atus	Chemical Drinking Water Protected Area	Good			New pumping station.	111 sets	unclear if an increase in annual licence quantity is required. The abstraction licensing strategy (ALS) indicates that there is water	Medium
Groundw cal	emical Status Element	Chemical GWDTEs test	Good			No or minimal impact.	High	available in the groundwater body and the increases in daily quantity is relatively small.	weatum
nts for Gr Chemical	Chemic Ele	Chemical Saline Intrusion	Good			Abstraction well refurbishment. Minor level of impact.		Transfer pipe line and raw water pumping station.	
ents i Che	ပ	General Chemical Test	Good			Abstraction well headworks / surface structures.		No or minimal impact.	
) elem	upportin g loments	Prevent and Limit Objective	-			No or minimal impact.			
WFD	ה ש	Trend Assessment	Upward Trend						
ntial		Quantitative	Good	Good by 2027	N\A				
Overall Status/Potential		Chemical (GW)	Good	Good by 2027	N\A				
Statu		Overall	Good	Good by 2027	N\A				

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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\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

	Water body ID:		GB102075073410	Scheme:	NORTH CUM	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	dies:	Beck					
	Downstream water bodies:		Pow Beck (Wampool)					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos							
	Macrophytes	-						
- 6	Macrophytes and phytobenthos	High					New / increased groundwater abstraction quantity	
Ecological Biology	Benthic invertebrates	Good					Minor level of impact. New groundwater abstraction quantity borehole at Thursby. This is part of a larger scheme of two new boreholes at Thursby and Waverton (2 M/d each), and continuation of abstraction from	
ivers:	Fish	Poor			Transfer pipe line on land. No or minimal impact.		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.	
for Ri	Hydrological regime	Supports Good			Transfer pipe line with water course crossings. Minor level of impact.		There is no groundwater management unit defined for the secondary aquifer in the ALS. The surface water body for the Thursby borehole has limited water	
elements f Hydromor	River continuity Morphological conditions	- Supports Good			New abstraction well drilling. No or minimal impact.	High	availability at 1395 but water available at makey polehole has initiate water availability at 1395 but water available at makey polehole has initiate water proposed abstraction is relatively small, surface water is generally available, and there may not be good hydraulic connections between the secondary aquifer and surface water courses, it is unlikely that the new abstraction would	Medium
WFD o	General physico-chemical	Moderate (High for ph)			New abstraction well headworks / surface structures. No or minimal impact.		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.	
Physi	Specific pollutants:	-					Use of new transfer pipe line. No or minimal impact.	
D Its for Its: Nical	Priority hazardous substances	Does not require assessment					NO OF MINIMA IMPACE.	
WFD elements fo Rivers: Chemical	Priority substances	Does not require assessment						
Overall Status/Po tential	Ecological	Good	Good by 2027	N\A				
tati	Chemical	Good	Good by 2027	N\A				
s	Overall	Good	Good by 2027	N\A				

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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: <u>http://environment.data.gov.uk/catchment-planning/</u> Engineers Proforma: <u>WVAR-FS1.giobal.amec.com/sharedProjecti/s08211UU WRMP\_Support/SDesign/Feasible Options/IRZ/WR129/WR1</u> EA Abstraction Licence Strategy (Eden and Esk).<u>https://www.ou.uk/government/upbads/system/uploads/attachment\_data/file/300486/LIT\_</u> Aquifer designation map: <u>http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx</u>

		Water body ID:		GB102075073440	Scheme:	NOPTH	CUMBRIA BOREHOLES		
		Water body ID. Water body Name:		Waver	Reference		WR129		
		RBMP:		Solway Tweed	Scheme Phase	Construction	11123	Operational	
		Operational catchmer		Waver-Wampool	Impact potential	Direct		Direct	
		Designation (and use		Not desginated	impact potential	Direct		Dilect	
		Relevant upstream wa		Holme Dub					
		Downstream water bo		Solway					
			ales:	Solway					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes							
	ABC	Macrophytes and phytobenthos	Moderate						
gical	Biolo	Benthic invertebrates	Moderate					New / increased groundwater abstraction quantity Minor level of impact. New groundwater abstraction of 2 MI/d from a new borehole at Waverton. This is part of a larger scheme of two new boreholes at Thursby and	
: Ecologi		Fish	Good					Waverton (2 MI/d each), and continuation of abstraction from existing boreholes at Scales (6 MI/d). Total scheme abstraction of 10 MI/d, 6 MI/d of which is licenced at	
or Rivers	ology	Hydrological regime	Supports Good			Transfer pipe line on land. No or minimal impact. Transfer pipe line with water course crossings.		Scales, but will expire in 2022. There is no groundwater management unit defined for the secondary aquifer in the ALS.	
ments fo	omorph	River continuity	-			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 courses, it is unlikely that the new abstraction would have a widespread or prolonged	Medium
NFD ele	Hydr	Morphological conditions	-			New abstraction well drilling. No or minimal impact.		effect on the hydrological regime of the surface water body. A new abstraction licence will be required from the Environment Agency.	
-	co- ical	General physico- chemical	Good			New abstraction well headworks / surface structures. No or minimal impact.			
	Physi chemi	Specific pollutants:	-					Use of new transfer pipe line. No or minimal impact.	
WFD lements for Pivore:	nical	Priority hazardous substances	Does not require assessment						
e		Priority substances	Does not require assessment						
Overall atus\Poten		Ecological	Good	Good by 2027	N\A				
Dvera tus/Pe	tial	Chemical	Good	Good by 2027	N\A				
Stat		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- 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\Feasible Options\IRZ\WR129\WR129\_North Cumbria Boreholes.docx EA Abstraction Licence Strategy (Eden and Esk): https://www.gov.uk/government/uploads/s stem/uploads/attachment\_data/file/300486/LIT\_7889\_1384b1.pdf
- Aquifer designation map: http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx

	ſ	Water body ID:		GB102075073480	Scheme:		BRIA BOREHOLES		
		Water body ID: Water body Name:		Dub	Reference	NORTH CON	WR129		
		RBMP:		Solway Tweed	Scheme Phase	Construction	11(125	Operational	
		Operational catchment:		Ellen and West Coast	Impact potential	Direct		Direct	
					impact potential	Direct		Direct	
		Designation (and uses):		No designation					
		Relevant upstream water bo	dies:	Holme Dub					
		Downstream water bodies:		Waver					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
,		Macrophytes and phytobenthos	Good						
logical	DIOIO	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	
ers: Eco		Fish	Bad					2022. This is part of a larger scheme of two new borenoies at Inursoy and 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 Scales, but will expire in 2022.	
r Riv		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	
e le	5 >	River continuity	-			No or minima impact.		surface water body has limited water available at Q95, but water available at	
elements	нуагот og	Morphological conditions	Supports Good			Transfer pipe line with water course crossings. Minor level of impact.	High	surrace water body has limited water available at USs, but water available at 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	Medium
WFD	5.5	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.	
đ	chem	Specific pollutants:	-					Use of new transfer pipe line. No or minimal impact.	
D ts for rs: iral	Ical	Priority hazardous substances	Does not require assessment						
WFD elements for Rivers: Chemical	Client	Priority substances	Does not require assessment						
Overall tatus\Po tential		Ecological	Good	Good by 2027	N\A			•	
Ove		Chemical	Good	Good by 2027	N\A				
0 <del>1</del> 2		Overall	Good	Good by 2027	N\A				

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.
 A 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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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: WVAR-F51.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasble Options/RZWR129/WR129\_Nor EA Abstraction Licence Strategy (Eden and Esk).https://www.gov.uk/government/upload/system/upload/statchment\_data/lie/300486/L1T\_7889\_t

		Water body ID:		GB40202G100900	Scheme:		NORTH CU	MBRIA BOREHOLES	
		Water body Name:		Triassic and Jurassic Aquifers	Scheme Phase	Construction		Operational	
		RBMP:		Solway Tweed	Reference			WR129	
				Triassic and	Impact	<b>.</b>			
		Operational catchment:		Jurassic Aquifers	potential	Direct		Direct	
		Designation (and uses):		N\A					
		Relevant upstream water bo	dv(ies)	N\A					
		Downstream water body(ies		N\A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
for intitive	Status t	Quantitative Dependent Surface Water Body Status	Good	Good by 2015					
WFD elements for oundwater: Quantitiv	ive Sta nent	Quantitative GWDTEs test	Good	Good by 2015				New / increased groundwater abstraction quantity Minor level of impact. New groundwater abstraction of 2 MWd from a new borehole at	
D elei dwate	Eler	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	
Groun	Que	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:	al Status ment	Chemical Dependent Surface Water Body Status	Good	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
wpuno	nical S lemen	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	
G	E E		Good	Good by 2015		New abstraction well headworks / surface structures.		or on dependent surface water bodies. A new abstraction licence will be required from the	
ja ja	Ċ	Chemical Saline Intrusion	Good	Good by 2015		No or minimal impact.		Environment Agency.	
ents for Grou Chemical		General Chemical Test	Good	Good by 2015				Environment rigeney.	
Ĕ	ents	Prevent and Limit Objective	n/a					New Transfer Pipe Line No or minimal impact.	
WFD elei	Elem	Trend Assessment	No trend						
		Quantitative	Good	Good by 2015	N/A				
Overall		Chemical (GW)	Good	Good by 2015	N/A				
U .	3			1	1				

Stat

Overall

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

Good

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

N/A

3- Laying or the pipeline across water courses will take no more than su days, and any inchannel works will be
 4- New pipe line water courses crossings would be installed via at athench and cover technique within a dry workin
 5- A ground investigation will be carried out and will identify any contaminated land and any mitigation that may
 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 exavations would not equive 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.
 <u>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 preven
</u>

Evidence Catchment Data Explorer: <u>http://environment.data.gov.uk/catchment-planning/</u> Engineers Proforma: \WAR-FS1.globaLamec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feas EA Abstraction Licence Strategy (xxx):

		Water body ID:		GB40201G100400	Scheme:		NORTH CUMB	RIA BOREHOLES		
				Eden Valley and Carlisle	Reference					
				Basin Permo-Triassic			w	R129		
		Water body Name:		sandstone aquifers				· · · ·		
		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	bodies:	N\A						
		Downstream water bodie	s:	N\A						
		WFD Element (Receptor)		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
ō			Good							
ents 1 vater: ative	ative emen	Quantitative GWDTEs test	Good							
elements oundwater uantitative	uantit tus El	Quantitative Saline Intrusion	Good					Use of new transfer pipe line. No or minimal impact.		
WFD Gro Qu	Star	Quantitative Water Balance	Good					New / increased groundwater abstraction quantity		
Chemical	ement	Chemical Dependent Surface Water Body Status	Good			Transfer pipe line on land.		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 Waverton (2 M/id each), and continuation of abstraction from existing boreholes at Scales (6 M/id). Total scheme abstraction of 10 M/id, 6 M/id of which is licenced at Scales, but will expire in	•	
ater: C	tus El	Chemical Drinking Water Protected Area	Good			No or minimal impact. Transfer pipe line with water course crossings.	High	2022.	Medium	
wpun	al Sta	Chemical GWDTEs test	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		
r Gro	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		
nts fo	Ċ	General Chemical Test	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		
eleme	g ament	Prevent and Limit Objective	-					from the Environment Agency.		
WFD (		Trend Assessment	Upward Trend							
-		Quantitative	Good	Good by 2027	N\A			*		
verall	N-OIE	Chemical (GW)	Good	Good by 2027	N\A					

## Assumptions

Ó S

Overall

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

Good

Good by 2027

N\A

Pipelines in distribution of the product of and policies processor meta-section in the amount of new watercourse crossings.
 Pipelines indicess water courses with existing readways 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.
 How pipe line water course crossings would be installed wat a terch and course 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, or odifications, or new pumping stations, water treatment works, etc. would involve the reatively small tooprint in the context of any WFD water body catchment, and would not involve the requirement for in-channel works. 7 - Dewatering of excavations, or new pumping stations, water treatment works, etc. would involve the reatively small tooprint 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\WR129\_North Cumbria Boreholes.docx EA Abstraction Licence Strategy (Eden and Esk): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300486/LIT\_7889\_1384b1.pdf

	ſ	Water body ID:		GB112070064850	Scheme:		TW - FINAL EFFLUENT RE	EIRE	1
		Water body ID: Water body Name:			Reference:	HORWICH WW	WR140	EUSE	
		RBMP:			Scheme Phase:	Construction	111140	Operational	
		Operational catchment:			Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily modified	impact potential.	Dirott		Billot	
		Relevant upstream water bo	dies:	Not identified					
		Downstream water bodies:	ules.	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						
_	~	Macrophytes and phytobenthos	High						
cologica	Biology	Benthic invertebrates	Moderate			New surface water intake.			
ivers: 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	rpho	Hydrological regime	Not provided			No or minimal impact.		Douglas near Horwich of 5 MI/d. In the ALS water is identified as available at all	
ts	ې ک	River continuity	Not provided			Transfer pipe line with water course crossings.		flows (Q30, Q50, Q70 and Q95) however the abstraction is moderate in size and could have a widespread or prolonged effect on the hydrological regime of	
	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
	l i i si	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 Its for srs:		Priority hazardous substances	All good						
WFD elements Rivers:	Cherr	Priority substances	All good						
Overall Status/Po tential		Ecological	Moderate	Good by 2027	N/A				
tati			Good		N/A				
ů, č		Overall	Moderate	Good by 2027	N/A				

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 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

For the public metabolise clossing wide control in the public metabolise clossing wide control interview and any mitigation. The public metabolise clossing wide control interview public metabolise clossing wide control interview 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 Water. 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.

7 Dewatering of excavations would not require a permit magnitude, duration, or sensitivity to require a permit magnitude, and 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: \WVAR-F51.global.amec.com/shared/Projects/38671 UU WRMP Support5 Design/Feasible Options/IRZ/WR140/WR14 EA Abstraction Licence Strategy (Ribble, Douglas and Crossens): https://www.gov.uk/go de/attachmont\_data/

	Water body ID:		GB41202G100300	Scheme:	H	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: Designation (and uses):		Douglas, Darwen and Calder Caroboniferous Aquifers No designation	Impact potential	Direct		Direct	
	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
Status	Surface Water Body Status	Good					New surface water abstraction quantity	
antitative Status	Quantitative Saline	Good Good			New surface water intake. No or minimal impact.			
no o	Quantitative Water Balance Chemical Dependent				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/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 in leakage from the river to the aquifer, however given the availability of water in the surface water	
I Statu	Surface Water Body Status Chemical Drinking Water	Poor Good			Transfer pipe line with water course crossings. No or minimal impact.	High	body, these would likely be localised, and the secondary Carboniferous aquifer is unlikely to be highly dependent on leakage from surface water courses to maintain its quantitative water balance.	Medium
emica	Chemical GWDTEs test	Good			New pumping station. No or minimal impact.		New transfer pipe line, pumping station and water treatment works.	
<u></u>		Good					No or minimal impact.	
rting nts	General Chemical Test	Good Not provided			Modified water treatment works. No or minimal impact.			
suppo	Trend Assessment	Upward trend						
ntial	Quantitative	Good	Good by 2015	N/A				
overall us\Poter	Chemical (GW)	Poor	Good by 2027	N/A				
- E -								

Sta

Overall

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 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, atc. 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- Determinent and require a permit from the Environment Agency/Natural Resource and Water would be discharged sufficient and any WFD water body catchment, 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/Project/s38671 UU WRMP Support/5 Design/Feasible Options/IRZIWR1401

EA Abstraction Licence Strategy (Ribble, Douglas and Crossens): https://www.gov.uk/govern nent/upl

		Water body ID:		GB112069064641	Scheme:	Rosser	ndale WwTW- Final E	ffluent Reuse	1
		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	dies:	Brook), Limy Water and					
		Downstream water bodies:		Irwell (Rossendale STW to I	Roch)				
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Not provided						
		Macrophytes	Not provided						
	Biology	Macrophytes and phytobenthos	Moderate						
Ecological	Bio	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	
Rivers:	logy	Hydrological regime	Supports good			Transfer pipe line with water course crossings. Minor level of impact.		Use of new transfer pipe line, water treatment works, pumping station and surface water intake. No or minimal impact.	
s for R	norpho	River continuity	Not provided			New surface water intake. Minor level of impact.		New surface water abstraction quantity.	
element	Hydroi	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 M/d. In the ALS water is identified as available at all flows (030, 050, 070 and 095) however the abstraction is moderate in size and could have	Medium
WFD elei	Physico- chemical	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 Invell. A new abstraction licence would be required to be issued by the Environment Agency.	
		Specific pollutants:	Not provided						
WFD elements for Rivers:	nical	Priority hazardous substances	Does not require assessment						
		Priority substances	Does not require assessment						
/erall Status\ Potential	5	Ecological	Moderate	Good by 2027	N/A			•	
rall St otenti		Chemical	Good	Good by 2015	N/A				
Ove	-	Overall	Moderate	Good by 2027	N/A				

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: \WAR-FS1.global.amec.com/shared/Projects38671 UU WRMP SupportS Design/Feasible Options/IRZ/WR141/WR141 Ros Abstraction Licensing Strategies (Northern Manchester): https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-prov

		Water body ID:		GB41202G101800	Scheme:	Ros	ssendale WwTW- Fi	nal Effluent Reuse	
		Water body Name:		Northern Manchester Carboniferous Aquifers	Reference		WR14	и	
		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
nts for nter: ive	Status It	Quantitative Dependent Surface Water Body Status	Good						
emer ndwa ntitat	ative	Quantitative GWDTEs test	Good			New surface water intake.			
/FD elements f Groundwater: Quantitative	antita	Quantitative Saline Intrusion	Good			No or minimal impact.		Use of new transfer pipe line, water treatment works, pumping station and	
×	ő	Quantitative Water Balance	Good			Transfer pipe line on land. No or minimal impact.		surface water intake. No or minimal impact.	
rater:	ement	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 Irwell, downstream of Rossendale WwTW of 10 MI/d. The ALS does not identify a groundwater	Medium
wpung	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 Grou nical	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 fo Chem	emica	Chemical Saline Intrusion	Good			Modified water treatment works. No or minimal impact.		water courses to maintain its quantitative water balance.	
eleme	Ċ	General Chemical Test	Good						
WFD	ppo	Prevent and Limit Objective	Not provided						
		Trend Assessment	Upward trend						
s al	c	Quantitative	Good	Good by 2015	N/A				
Overa I Statu:	ial	Chemical (GW)	Poor	Good by 2027	N/A				
st o	ĕ "	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.

2 - Deverteining of excavations would not require a permit from the Environment Agency/Nature Agency/Nature Agency/Nature agence transporting discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed. Dewatering and water 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: <u>WVAR-FS1.global.amec.com/shared/Projects/38671.UU WRMP Support/5 Design/Feasible/Options/IRZ/WR141/WR141 Rossendale\_EFR.xlsx</u> Abstraction Licensing Strategies (Northern Manchester): https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process

	Water body ID:		GB112071065490	Scheme:	HYNDBURN WwTW -	- FINAL EFFLUEN	NT REUSE		
	Water body Name:		Calder - Pendle Water to conf Ribble	Reference		WR1	42		
	RBMP:		North West	Scheme Phase	Construction		Operational		
	Operational catchment:		Calder	Impact potential	Direct		Direct		
	Designation (and uses):		No designation						
	Relevant upstream water b	odies:	Green Brook, Hyndburn Brook - Lower Pendle Water - Colne Water to						
	Downstream water bodies:		Ribble - conf Calder to tidal						
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
	Phytobenthos								
	Macrophytes								
a	Macrophytes and phytobenthos	Moderate							
cologic	Benthic invertebrates	Good			New surface water intake.				
ers: Ee	Fish	Good			Minor level of impact. Transfer pipe line on land.		Use of new transfer pipe line, pumping station, and water treatment works.		
for Riv	년 Hydrological regime				No or minimal impact.		No or minimal impact.		
s	E River continuity	-			Transfer pipe line with water course crossings.		New surface water abstraction quantity.		
lemen	Morphological conditions	-			Minor level of impact. New pumping station.	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 (030, 050, 070 and 095) however the abstraction is moderate in size and could have a medium	Medium	
WFD	General physico-chemical	Moderate			Minor level of impact. Modified water treatment works.		Impact on the hydrological regime of the River Calder. A new abstraction licence would be required to be issued by the Environment Agency.		
	Specific pollutants:	High			No or minimal impact.				
WFD elements for Rivers:	Priority hazardous substances	Good							
WI elem for Ri	Priority substances	Good							
Overall tatus\Po	Ecological	Good	Good by 2027	N\A					
tati tati	Chemical	Good	Good by 2027	N\A					
S	Overall	Good	Good by 2027	N\A					

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 WEP water body catchment, and would not involve the requirement for in-channel works. 7 Deviating of excavations would not require a permit from the Environment Agency/Natural Resources Wates. Deviating and a corresponding discharge of sufficient magnitude, division, or sensitivity to require a permit may have a greater impact than assessed. Deviatering would be of uncontaminated water, and water would be discharged within the same water body. 8 - Construction, redurbitment, redurbitsment and testing of groundwater abstractions wells will be descharged, constructed, and tested in such a way as to prevent groundwater becaution.

Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proforma: \\WAR-FS1.global.amec.com/sharedProjects/38671 UU WRMP Support5 Design/Feasible Options/RZ\WR142\WR142\_Hyndburn\_EFF
Abstraction Licence Strategy (Aire and Calder): https://www.gov.uk/government/uploads/stystem/uploads/statchment\_data/file/300484/LIT7919v3\_f881cd.pdf

	1	Water body ID:		GB41202G100300	Scheme:		HYNDBURN WwTW	– FINAL EFFLUENT REUSE	
		Water body Name:		Douglas, Darwen and Calder Caroboniferous Aquifers	Reference			WR142	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchment:		Douglas, Darwen and Calder Caroboniferous Aquifers	Impact potential	Direct	T	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
ntitive		Quantitative Dependent Surface Water Body Status	Good						
oundwater: Quantitive	ne i		Good						
dwate	antitat Eler	Quantitative Saline Intrusion	Good			New surface water intake. No or minimal impact.		New surface water abstraction quantity	
Groun	QUI	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 Mi/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	
atet.	tu	Chemical Dependent 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 unlikely to be highly dependent on leakage from surface water courses to maintain its	Medium
	em	Chemical Drinking Water Protected Area	Good			New pumping station.		unikely to be highly dependent on leakage nom sunace water courses to maintain its quantitative water balance.	
g			Good			No or minimal impact.		New transfer pipe line, pumping station and water treatment works.	
i ži i			Good					No or minimal impact.	
Chemic	ng Is Iter)	General Chemical Test Prevent and Limit Objective	Good Not provided			Modified water treatment works. No or minimal impact.			
	Supporti Element (groundwa	Trend Assessment	Upward trend						
ntial		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				

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 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

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, atc. 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- Determinent and require a permit from the Environment Agency/Natural Resource and Water would be discharged sufficient and any WFD water body catchment, 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/Project/s38671 UU WRMP Support/5 Design/Feasible Options\\RZ\WR142 FA Abstraction Licence Strategy (Aire and Calder): https://www.gov.uk/government/upleads/system/upleads/attachment\_data/file/300484/UT791

	Water hade ID:		0044000004444	Scheme:	c	addleworth and Mossley T	Ean Final Efficient Device	
	Water body ID:		GB112069061111		3	addieworth and Mossley I	WR144	
	Water body Name: RBMP:		Tame (Chew Brook to	Scheme Phase				
			Mersey Upper		Construction		Operational	
	Operational catchment:		Goyt Etherow Tame	Impact potential			Direct	1
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	dies:	(Source to Chew					
	Downstream water bodies:	1	Tame (Swineshaw Bro					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
	Macrophytes							
gical	Macrophytes and phytobenthos	Not provided						
: Ecolo	Benthic invertebrates	Moderate			Transfer pipe line on land.			
Rivers	Fish	Not provided			No or minimal impact.		New surface water abstraction quantity.	
ntsfor	Hydrological regime	Not provided			Transfer pipe line with water course crossings. Minor level of impact.	Medium	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) of 5 Mid from the River Tame, downstream of Mossiey Top WWTV, utilising discharges from both Mossiey Top and Saddieworth WwTWs. The ALS	Medium
elemer	River continuity	Not provided			New pumping station. Minor level of impact.	wedium	(Abstraction Licensing Strategy) indicates that there is water available at all flow regimes (Q95, Q70, Q50 and Q30). Use of new pipe line, pumping station and water treatment works.	medium
WFD	Morphological conditions	Not provided			New / modified water treatment works. Minor level of impact.		No or minimal impact.	
ico-	General physico-chemical	All high/good			. типки леченов парасс.			
Physi	Specific pollutants:	All high						
FD ints for ers: mical	Priority hazardous substances	Does not require assessment						
WFD elements f Rivers: Chemica	Priority substances	Good						
atus / al	Ecological	Moderate	Moderate by 2015	N/A				
erall Status \ Potential	Chemical	Good	Good by 2015	N/A				
Over	Overall	Moderate	Moderate by 2015	N/A				

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.

# Evidence

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

Engineers Proforma: \\\\WR#FS1.global.amec.com\shared\Project\38671.UU WRMP Support\5 Design\Feasible Options\\R2\\WR144\WR144 Saddleworth. Mossley Top.xlsx EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/w/by/wi/by/Controller?x=357683.08y=355134.08scale=18\ayerGroups=default8ep=map&textonly=cff&lang=\_e&topic=floodmap#x=3447058y=511476&lg=1,2;10.&scale=7

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

Abstraction Licensing Strategies (Upper Mersey): https://www.gov.uk/government/publications/upper-mersey-abstraction-licensin

	Water body ID:			Scheme:		Saddleworth and M	lossley Top- Final Effluent Reuse		
	Water body Name:		Manchester and East Cheshire Carboniferous Aquifers	Reference			WR144		
	RBMP:		North West GW	Scheme Phase	Construction		Operational		
	NDMF.			Impact potential	Construction		Operational		
	Operational catchment:		Manchester and Cheshire East Carboniferous Aquifers		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	
i Cuanticative Status Element Cuantitative Status Flement Flement	test Quantitative Saline Intrusion Quantitative Water Balance Chemical Dependent Surface Water Body Status Chemical Drinking Water Protocted Area Chemical Saline Intrusion General Chemical Test Prevent and Limit Opicitive Trend Assessment	Good Good Good Good Poor Good Good Good Not provided Upward trend			Transfer pipe line on land. No or minimal impact. Transfer pipe line with water course crossings. No or minimal impact in the second se	High	New surface water abstraction quantity. No or minimal impact. Increased surface water abstraction may result in localised minor reductions in leakage from rivers to the adjurf. However, these mainly secondary aquifers consisting of Coal Measures and Milstone Gri 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 Mid) is unlikely to reduce flows sufficiently to impact on leakage from the River Tame to the groundwater body. Use of new pipe line, pumping station and water treatment works. No or minimal impact.	Medium	
enti	Quantitative Chemical (GW)	Good Poor		N/A N/A					
		POOR	Good by 2027						

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

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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 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.

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

	W		GB112069061452	Scheme:	Devel	hulme- Final Effluen	+ D		
	Water body ID: Water body Name:			Scheme: Reference	Uavyr		1 Keuse		
	RBMP:			Scheme Phase	Construction Operational		Operational		
	Operational catchment:			Impact potential			Direct		
	Designation (and uses):		Heavily modified						
	Relevant upstream water bo	dies:	Folly Brook and Salteye Brook, Irk (Wince to Irwell), Irwell Mersey/Manchester Ship Canal (Irwell/Manchester Ship Ca						
	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							
< 91	Macrophytes	Not assessed							
0 0	Macrophytes and phytobenthos	Not assessed							
Bi	Benthic invertebrates	Not assessed					Use of new transfer pipe line.		
ers:	Fish	Not assessed					No or minimal impact.		
Prp Rive	Hydrological regime	Supports good	Supports good by 2015		Transfer pipe line on land.		Decreased surface water discharge quantity.		
for back	River continuity	Not assessed			No or minimal impact.		Medium level of impact. Reduction of the existing DaryMine WwTV discharge to     the Manchester Ship Canal by up to 100 MVd.     The ALS indicates that there is surface water is available at all flow regimes (Q90,     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.		
nents Hydro ho	Morphological conditions	Not assessed			Transfer pipe line with water course crossings.	High		Medium	
WFD elen Physico-		All high/ good except: Ammonia- poor, Dissolved oxygen- bad and Phosphate- poor.	Vairable		Minor level of impact.				
L 0	Specific pollutants:	All high	High by 2015						
D ints ers: ical	Priority hazardous substances	Good	Good by 2015						
WFD elements for Rivers: Chemical	Priority substances	Good	Good by 2015						
atus\ al	Ecological	Moderate	Moderate by 2015	N/A	•				
erall Status\ Potential	Chemical	Good	Good by 2015	N/A					
o ei	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 waterocurse 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 course 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: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a> Engineers Proforma: <a href="http://www.www.ukatchment-planning/">\www.ukatchment-planning/</a> Engineers Proforma: <a href="http://www.ukatchment-planning/">\www.ukatchment-planning/</a> Abstraction Licensing Strategy (Lower Mersey and Alt): https://www.gov.uk/government/publications/lower-mersey-and-alt-abstraction-licensing-strat

		Water body ID:		GB41201G101100	Scheme:	Da	vyhulme- Final Efflu	ent Reuse	
		Water body ID.		Manchester and East Cheshire Permo-Triassic Sandstone Aquifers	Reference		WR146	un reuse	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment:		Manchester and East Cheshire Permo-Triassic Sandstone 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
WFD elements for Groundwater: Quantitative	Status	Quantitative Dependent Surface Water Body Status	Poor	Good by 2021					
ement ndwat ntitati	ative S ement	Quantitative GWDTEs test	Good	Good by 2015				Use of new transfer pipe line, water treatment works, and storage reservoir.	
/FD el Grou Qua	Lantita	Quantitative Saline Intrusion	Poor	Good by 2021		Transfer pipe line on land. No or minimal impact.		No or minimal impact.	
5	ð	Quantitative Water Balance	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 Ml/d.	
vater:	ement	Chemical Dependent Surface Water Body Status				No or minimal impact.	High	The ALS indicates that there is limited groundwater availability. Given the large decrease in discharge to the canal there is the potential for reductions	Medium
ents for Groundwater: Chemical	tus El	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	
	nemic	Chemical Saline Intrusion	Poor	Good by 2021				or prolonged effects in the quantitative water balance of the aquifer are unlikely.	
WFD elem	ö	General Chemical Test	Good	Good by 2015					
WFD	rting	Prevent and Limit Objective							
	<i>n</i> - L	Trend Assessment	Upward Trend						
s/s	tial	Quantitative	Poor	Good by 2021	N/A				
Overall Status\	otent	Chemical (GW)	Poor	Good by 2021	N/A				
		Overall	Boor	Good by 2021	N/A				

# Assumptions

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

Poor

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.

Good by 2021

4 New pipe line water course crossings would be installed via a trench action 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.

 A ground investigation will be carried out and will identify any contaminated land and any miligation that may be required.
 A ground investigation, will be carried out and will identify any contaminated land and any miligation that may be required.
 Extensions, modifications, or new pumping stations, water treatment works, etc. would involve a relatively small looping in the context of any WFD water body catchment, and would not involve the requirement for in-channel works.
 To Evaktering of excavations would not involve a permit from the Environment Agency/Natural Resources Wates. Devaktering 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\WR146\WR146.Dawhulme\_EFR.xlsx

Overall

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

		Water body ID:		GB102076073910	Scheme:	CUMWHINTON BO	REHOLES PLUS CAST	TLE CARROCK LINK	
		Water body Name:			Reference		v	VR148	
		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.			
rers	olog		Good			No or minimal impact.			
Ri	ts for Rivers: gical r Biology	phytobenthos Benthic invertebrates	Good					New many device shots all a manifest	
		Fish	Poor			New pumping station.		New groundwater abstraction quantity. Minor level of impact. New groundwater abstraction of 6.5 Ml/d	
ogi	Ints for l logical		High			Minor level of impact.		from two new boreholes at Cumwhinton. The abstraction	
colo		River continuity	-					licensing strategy (ALS) indicates that there is water available in	
D elen E	Hydro	Morphological conditions	-			New / modified water treatment works. 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
WFI	ysic o-	General physico-chemical	Moderate (High for ph)			New abstraction well drilling.		Use of pipe lines, pumping station and water treatment works.	
	12 4	Specific pollutants:	-			No or minimal of impact.		No or minimal impact.	
:D ents r	ers: nical	Priority hazardous substances	Does not require assessment			New abstraction well headworks / surface structures.			
WF elem fo	elements for Rivers: Chemical		Does not require assessment			No or minimal impact.			
Overall Status/Pot		Ecological	Good	Good by 2027	N\A				
Dve	ent	Chemical	Good	Good by 2027	N\A				
Sta	-	Overall			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 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-plannir

Engineers Proforma: \\\\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Cartisle\WR148\WR148 Currwhinton BHs\_Carrock link.docx Abstraction Licensing Strategy (Eden and Esk): https://www.gov.uk/government/publications/eden-and-esk-abstraction-licensing-strategy

		Water body ID:		GB40201G1	Scheme:	CUMWHINT	ON BOREHOLES PL	US CASTLE CARROCK LINK	
		Water body Name:		Eden Valley	Reference		WR1	48	
		RBMP:			Scheme Phase	Construction		Operational	
		Operational catchment:		Eden Valley	Impact potential	Direct		Direct	
		Designation (and uses):		No designa	tion				
		Relevant upstream water		N\A					
		Downstream water bodie	s:	N\A					
		WFD Element (Receptor) Guantitative Dependent	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
or	t	Surface Water Bady	Good						
WFD elements fo Groundwater: Quantitative	ative lemen	Quantitative GWDTEs test	Good			Transfer pipe line on land.			
D elements i ŝroundwater Quantitative	Quantitative atus Elemer	Quantitative Saline Intrusion	Good			No or minimal impact.			
WFD Gr	Stat	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	
	atus	Chemical Dependent	Good			New pumping station. No or minimal impact. Higt		from two new boreholes at Cumwhinton. The abstraction	
water:		Chemical Drinking Water Protected Area	Good				llink	licensing strategy (ALS) indicates that there is water available in the groundwater body and the new licence quantity is relatively small. Transfer pipe line, pumping station and water treatment works.	Medium
Groundw	emical Status Element	Chemical GWDTEs test	Good			Modified water treatment works. No or minimal impact	riigii		weatum
nts for Gr Chemical	Chemic Ele	Chemical Saline Intrusion	Good			New abstraction well drilling.			
ents	C	General Chemical Test	Good			Minor level of impact		No or minimal impact	
) elem	ortin I ente	Prevent and Limit Objective	-			New abstraction well headworks / surface structures. No or minimal impact			
WFD	3 3 ddns	Trend Assessment	Upward Trend						
ential		Quantitative	Good	Good by 2027	N\A				
Overall Status/Potential		Chemical (GW)	Good	Good by 2027	N\A				
Statu		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

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-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

	Water body ID:		GB112068060330	Scheme:	Simmono	Is Hill- increased WT	W Capacity	
	Water body Name:		Peckmill Brook, Hoolp	Reference			WR153	
	RBMP:		Weaver Gowy	Scheme Phase	Construction		Operational	
	Operational catchment:		Gowy	Impact potential	Direct		Direct	
	Designation (and uses):		No designation					
	· g. · ( (							
	Relevant upstream water bo	odies:	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						
37 al	Macrophytes and phytobenthos	Poor						
Ecologica Biology	Benthic invertebrates	Not provided						
ivers: E	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	
for Ri norp	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 licensing strategy (ALS) indicates that there is restricted water available in	
ts Its	River continuity	Not provided			No or minimal impact.	High		n Low
emer Hyd	Morphological conditions	Not provided			Modified abstraction well headworks / surface structures.	riigii	the groundwater body and limited water availability in the surface water	LOW
WFD el	General physico-chemical	All high except: Ammoonia- moderate and Phosphate- moderate			No or minimal impact.		body at Q95 and Q70. Water treatment works.	
Phy	Specific pollutants:	All high					No or minimal impact	
:D ents vers: nical	Priority hazardous substances	Does not require assessment						
WFD elements for Rivers: Chemical	Priority substances	Does not require assessment						
Overall Status/Po tential	Ecological	Poor	Poor by 2015	N/A			·	
Ove	Chemical	Good	Good by 2015	N/A				
<u></u>	Overall	Poor	Poor 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- Exensions, 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 n-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: <u>\\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\\RZ\WR153 \\WR153 \\Wr1</u> EA Historical Landfill: http://maps.environment-

Abstraction Licencing Strategy (Lower Mersey and Alt): https://www.gov.uk/go t/nublications/lo

		Water body ID:		GB112068060500	Scheme:	Sim	monds Hill- increase	ed WTW Capacity	
		Water body Name:		Weaver (Dane to Frods				WR153	
		RBMP:		Weaver Gowy	Scheme Phase	Construction		Operational	
		Operational catchment:			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
al		Phytobenthos	Not provided			Modified water treatment works. No or minimal impact.			
gic	>	Macrophytes	Not provided					Increased groundwater abstraction quantity	
Ecolo	iologi	Macrophytes and phytobenthos	Good						
	B	Benthic invertebrates	Bad						
ers		Fish	Not provided					Medium level of impact. Increased abstraction from refurbished boreholes at	
Riv	y V	Hydrological regime	Supports good					Simmonds Hill. Abstraction licences are already in place and it is unclear how much additional quantity is required. There are likely to be moderate effects on water quantity as the abstraction licensing strategy (ALS) indicates that	
o	m o Bo	River continuity	Not provided			Abstraction well refurbishment.			
ents f	Hydro	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
lem	cal c		All high except: Ammonia-			Modified abstraction well headworks / surface structures.		availability in the surface water body at Q95 and Q70.	
De	ni si	General physico-chemical	poor, BOD- poor and			No or minimal impact.		Water treatment works.	
WFD	H a	Specific pollutants:	Phosphate- poor All high					No or minimal impact	
- ··		Priority hazardous	All good						
WFD lemer s for ivers	emi al	substances	All good						
W elei ts Riv	÷ °	Priority substances	All good						
ti l		Ecological	Moderate	Good by 2027	N/A				
rerall atus\ tenti	3	Chemical	Good		N/A				
Pol Ov		Overall	Moderate		N/A				

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proundwater 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\\RZ\WR153\WR153 Simmonds Hill.xlsx EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/wiyby/Controller?x=357683.08y=355134.08scale=1&layerGroups=default&ep=map&textonly=off&lang= e&topic=floodmap#x=344705&

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

		Water body ID:		GB41101G202600	Scheme:	Sir	nmonds Hill- increa	sed WTW Capacity	
		Water body Name:		Wirral and West Cheshire Permo-Triassic Sandstone Aquifers	Reference		WR15		
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment:		Cheshire West 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)		RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
<u>ة</u>	۲	Ounder an Mister De du	Good						
ents vater ative	ntitative s Elemen	Quantitative GWDTEs test	Good						
elemo oundv antit	us El	Quantitative Saline Intrusion	Good						
WFD elements for Groundwater: Quantitative	Qual Status	Quantitative Water Balance	Good			Modified water treatment works. No or minimal impact. Abstraction well refurbishment. 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.	
	ment	Chemical Dependent Surface Water Body Status	Good						
ndwat	us Ele	Chemical Drinking Water Protected Area	Poor				High	There are likely to be moderate effects on water quantity as the abstraction licensing strategy (ALS) indicates that there is restricted	Low
· Groundwater: ical	l Stat	Chemical GWDTEs test	Good			Abstraction well headworks / surface structures.		water available in the groundwater body.	
its for Chemi	emica	Chemical Saline Intrusion	Good			No or minimal impact		Water treatment works. No or minimal impact	
lemen 0	÷	General Chemical Test	Good						
WFD elements for ( Chemic	portin g monte	Prevent and Limit Objective	Not provided						
	dns	Trend Assessment	Upward trend						
l cita		Quantitative	Good	Good by 2015	N\A				
overall overall		Chemical (GW)	Poor	Good by 2027	N\A				
Overall	000	Overall	Poor	Good by 2027	N\A				

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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\WR153\WR153 Simmonds Hill.xlsx

EA Flood Maps (WI/BY): 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

		Water body ID:		GB112068060450	Scheme:	SANDICOD	- INCREASED WTW	CADACITY	
		Water body ID: Water body Name:			Reference	SANDIFOR		R154	
		RBMP:			Scheme Phase	Construction		Operational	
		Operational catchment:			Impact potential	Direct		Direct	
		Designation (and uses):		heavily modified	impact potential	Direct		Direct	
		Relevant upstream water bo	diace	neavily modified					
		Downstream water bodies:	uies.	Ash Brook (Darley Bro	als éa Maayaa)				
			1		Alternate Objective if less				
	_	WFD Element (Receptor)	Status	RBMP objective	than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
	5 A	Macrophytes and	-						
	- S	phytobenthos							
gi	ă	Benthic invertebrates	-						
<u>o</u>									
ŭ		Fish	Bad						
	5							Increased groundwater abstraction quantity.	
/er	e e	Hydrological regime	-					Minor level of impact. Refurbishment of boreholes at Organsdale, Delamere,	
R.	horpholog y							Cotebrook and Sandiford. Maximum combined increase in abstraction of 10 Ml/d	
or	J S A	River continuity	-			Modified water treatment works.		within exisiting abstraction licence constraints.	
ts	E S				No or minimal impact.		The ALS indicates that there is restricted groundwater is available for the groundwater		
en		Morphological conditions	-				High	management unit in which the boreholes are located. Surface water is available at al flows in this surface water body.	Medium
eit	Hyd	inorpriorogical containono				New abstraction well refurbishment.			
0 el						No or minimal impact.			
NFD	6 <u>8</u>	General physico-chemical	Moderate					The size of the current abstraction licence is unknown, but given the availability of	
5	<u> </u>							surface water, there is unlikely to be widespread or prolonged effects on the	
	hys	-						hydrological regime of this water body.	
	E 5	Specific pollutants:	-						
or	_	Priority hazardous							
0,5	ica :	substances	Does not require assessment						
WFD ements for	an a								
> e a	ž Š	Priority substances	Does not require assessment						
e	Ŭ		-						
s/	tial	Ecological	Moderate	Good by 2027					
Overall Status\	otent	Chemical	Good	-					
0 0 0	Å	Overall	Moderate	Good by 2027					

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Projuncial of standard uses practice construction and polarization processing in the mount of new watercourse crossings.
 Projuncial of the pipeline across water courses with 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.
 A New pipe line water course crossings would be installed via a trench and cover technique within a dy 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: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a> Engineers' Proforma: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.gov.uk/catchment-planning/</a> Engineers' Proforma: <a href="http://www.gov.uk/government/uploads/stystem/uploads/attachment\_data/file/31955/fi

	Water body ID:		GB41101G202600	Scheme:		SANDIFORD - INC	REASED WTW CAPACITY	
	Water body Name:		Wirral and West Cheshire Permo-Triassic Sandstone Aquifers	Reference			WR154	
	RBMP:		North West	Scheme Phase	Construction		Operational	
	Operational catchm		Wirral and Cheshire West Permo-Triassic Sandstone Aq	Impact potential	Direct		Direct	
	Designation (and u	es):	No designation					
	Relevant upstream	water bodies:	N\A					
	Downstream water	odies:	N\A					
	WFD Element (Re	eptor) Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
s for antitive atus	Quantitative Depen Surface Water Bod	Status Good						
WFD elements for oundwater: Quantiti Quantitative Status	guantitative GWDT							
) elem water ntitativ	Quantitative Saline	Good					Increased groundwater abstraction quantity.	
Ground	Quantitative Water	Balance Good					Medium level of impact. Refurbishment of boreholes at Organsdale, Delamere, Eddisbury, Cotebrook and Sandford. Maximum combined increase in abstraction of 10 MI/d within exisiting abstraction licence constraints. The ALS indicates that there is restricted groundwater is available for the groundwater management unit in which the boreholes are located. Surface water restricted or not	
L.	Chemical Depende Surface Water Bod	Status			Modified water treatment works. No or minimal impact.	High		Low
dwate	Chemical Drinking Protected Area	Poor			New abstraction well refurbishment. No or minimal impact.	nigii	available accross all flows in the surface water body that includes the Eddisbury BH, but available at all flows in the surface water body that includes the remaining BH.	LOW
no	Chemical GWDTEs Chemical Saline Int						The size of the current abstraction licence is unknown, but given the restricted	
ents for Gr Chemical	General Chemical 1						The size of the current abstraction licence is unknown, but given the restricted groundwater availability and that some surface water bodies have no water available, there maybe widespread or prolonged effects on the quantitative status of the groundwater body if abstractions are increased by 10 MI/d.	
WFD elem	Prevent and Limit C	bjective -						
iM ddns	Trend Assessment	Upper Tren	I					
ll ∕s ial	Quantitative	Good	Good by 2015	N\A				
Overall Status\ otential	Chemical (GW)	Poor	Good by 2027	N\A				
0.00	Overall	Poor	Good by 2027	N\A				

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## 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\WR154\WR154\_{

EA Abstraction Licence Strategy (Weaver and Dane): https://www.gov.uk/government/uploads/stystem/uploads/attachment\_data/file/319959/lit\_7884\_52dcff.pdf EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/uploads/stystem/uploads/attachment\_data/file/300490/LIT\_7881\_35d3ed.pdf

	ĺ	Water body ID:		GB112068060480	Scheme:	SANDIFORD -	- INCREASED WTW C	APACITY	
		Water body Name:		Cuddington Brook (Source to Crowton Brook)	Reference			154	
		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 Macrophytes and	- Moderate						
gical	0	phytobenthos Benthic invertebrates	Good						
Ecological		Fish						Increased groundwater abstraction quantity.	
	log	ydrological regime Supports good					Minor level of impact. Refurbishment of boreholes at Eddisbury. Maximum combined increase in abstraction of 10 MI/d (accross multiple sites) within exisiting abstraction		
for Riv	orpholog y	River continuity	-			Modified water treatment works.		licence constraints. The ALS indicates that there is restricted groundwater is available for the groundwater	
elements for F Hydromorpl	Hydrom	Morphological conditions	Supports good			No or minimal impact. New abstraction well refurbishment.	High	management unit in which the boreholds are located. Surface water is not available at Q95 and Q50, and is restricted at Q30 and Q70.	Low
WFD	δü	General physico-chemical	All high except Ammonia- moderate, Phosphate- poor			No or minimal impact.		The size of the current abstraction ficence is unknown. There is poor water availability of both groundwater and surface water, but as only a small proportion of the additional 10 MId is likely to be sourced from this surfacewater body, and the increase will be	
		Specific pollutants:	-					within existing licence constraints, there is unlikely to be widespread or prolonged effects on the hydrological regime of this water body.	
D ts for rs:	ical	Priority hazardous substances	Does not require assessment						
WFD elements for Rivers:	Chem	Priority substances	Does not require assessment						
all Is\		Ecological	Moderate	Good by 2021				· · · · · · · · · · · · · · · · · · ·	
Overall Status\		Chemical	Good	Good by 2015					
000	•	Overall	Moderate	Good by 2021					

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# 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\WR154\WR1

EA Abstraction Licence Strategy (Weaver and Dane): https://www.gov.uk/government/uploads/stystem/uploads/attachment\_data/file/319959/lit\_7884\_52dcff.pdf EA Abstraction Licence Strategy (Lower Mersey and Alt): https://www.gov.uk/government/uploads/stystem/uploads/attachment\_data/file/300490/LIT\_7881\_35d3ed.pdf

	Water body ID:		GB112071065040	Scheme:	Group 1 - Improved reserv	voir compensation re	lease control – MITCHELLS HOUSE 1 & 2	
	Water body Name:		Hyndburn	Scheme Phase:		WR15		
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Calder	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	odies:	None					
	Downstream water bodies:		Hyndburn Brook - Lower					
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
A	Macrophytes and phytobenthos	-	Not assessed					
gical Bioloç	Benthic invertebrates	Good	Good by 2015					
rs: Ecolo	Fish	Good	Good by 2015				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 Ml/d to 0.3 Ml/d, a reduction of 0.1 Ml/d. (Note	
River	Hydrological regime	Supports Good	Supports Good by 2015				Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
ts for R norphol v	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	
elemen Hydror	Morphological conditions	-			No or minimal impact.	High	has water available at 095 but no water available at medium to high flows (070, 050 and 030). It is likely the compensation flow from the reservoir that maintains the 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, 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	Medium
WFD co-chemical	General physico-chemical	Moderate	Good by 2027					
Physic	Specific pollutants:	-					and temporary.	
D ts for rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements Rivers: Chemici	Priority substances	Does not require assessment	Does not require assessment					
all s\ tial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ otential	Chemical	Good	Good by 2015	N/A				
	Overall	Overall Moderate G	Good by 2027	N/A				

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# 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/stystem/uploads/attachment\_data/file/300484/LIT7919v3\_f881c4.pdf

	Water body ID:		GB112074069790	Scheme:	Group 1 - Improved reservoir com	npensation release co	ontrol – POAKA BECK, PENNINGTON & HARLOCK	
	Water body Name:		Mill Beck (Poaka Beck)	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 Biolog	Benthic invertebrates	Good	Good by 2015					
s: Ecolog	Fish	Bad	Good by 2027					
s for River	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/vd to 2.6 M/vd, a reduction of 0.3 M/vd. (Ndve: Total reduction for	
ts for norph	> River continuity				Installation of new automatic penstock arrangements.		the reservoirs from 2.9 mild to 2.6 mild, a reduction of 0.3 mild. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
ele men Hydror	Morphological conditions	-			No or minimal impact.	High	The ALS shows that the surface water body has no water available at all flows and 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 flows would be maintained, any impacts would be localised and temporary.	
Physic	Specific pollutants:							
D ts for rs: ical	Priority hazardous substances	Good	Good by 2015					
WFI elemen Rive Chem	Priority substances	Good	Good by 2015					
all s\ tial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ otential	Chemical	Good	Good by 2015	N/A				
- ··· 6	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. 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 (South Cumbria): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300489/LIT\_7918\_ccta86.pdf

	Water body ID:		GB112073071160	Scheme:	Group 1 - Improved reservoir com		ntrol – 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	-		less man Good				
	Macrophytes							
	Magrophytos and	-						
	phytobenthos	Moderate	Good by 2027					
Ş.	phytobentitos							
8	Benthic invertebrates	Good	Good by 2015					
ä	benutic invertebrates	6000	0000 by 2015					
	Fish -							
	Fish	-	-				Reduction in compensation flows due to new penstock arrangements.	
							Minor level of impact. Reduction of compensation flow from Pennington reservoir	
ő	Hydrological regime	Does Not Support Good	Supports Good by 2027				from 2.9 Ml/d to 2.6 Ml/d, a reduction of 0.3 Ml/d. (Note: Total reduction for the	
ē	Tiyurological regime	Does Not Support Cood					reservoir Aquator group assumed to take place in this water body.)	
2	River continuity						reservoir Aquator group assumed to take place in this water body.)	
<u>د</u> 5	inter containancy				Installation of new automatic penstock arrangements.		The ALS shows that the surface water body has no water available at high and low	
ē			¥/////////////////////////////////////	No or minimal impact.	High	flows (Q30 and Q95 respectively), and that limited water is available at medium flows	Medium	
Hyd	Morphological conditions	Supports Good			No or minimar impact.		flows (Q30 and Q95 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	
I							hydrological regime of the surface water body and cause a reduction in ecological	
a							status. However given the small reduction in compensation releases, and assuming	
ĭ							low flow compensation flows would be maintained, any impacts would be localised	
he	General physico-chemical	Good	Good by 2015			IOW NOW	and temporary.	
7							and comportary.	
ic								
ys.	Specific pollutants:			\$20000000000000000000000000000000000000				
E.	opecine pondants.	-		¥/////////////////////////////////////				
	Priority hazardous	Does not require						
20	substances	assessment	Does not require assessment					
Ĕ	Jubalancea	ussessment						
Chen		Does not require	<b>_</b>					
ົວ	Priority substances	assessment	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				

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 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/stystem/uploads/attachment\_data/file/300484/LIT7919v3\_f881c4.pdf

	Vater body ID:		GB112073071210	Scheme:	Group 1 - Improved re		on release control – LEVERS WATER	
	Vater body Name:		Yewdale/Church Beck	Scheme Phase:		WR15		
	RBMP:		North West	Reference:	Construction		Operational	
0	Operational catchment:		Crake	Impact potential:	Direct		Direct	
D	Designation (and uses):		not designated artificial or heavily modified					
R	Relevant upstream water bo	dies:						
D	Downstream water bodies:		Crake					
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confid
Р	hytobenthos	-						
	Acrophytes	-						
M	Acconductes and	Good	Good by 2015					
Biolog	Senthic invertebrates	High	Good by 2015					
Fi	ish	Moderate	Good by 2027				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Levers Water reservoir from 2.9 Mild to 2.6 Mild, a reduction of 0.3 Mild. (Note: Total reduction for the	
golor T	lydrological regime	Supports Good	Supports Good by 2015				reservoir Aquator group assumed to take place in this water body.)	
y N	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 M	Norphological 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 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.	Medi
co-chemical D	General physico-chemical	High	Good by 2015					e
Physic	Specific pollutants:	-					ungonay.	
	Priority hazardous substances	Good	Good by 2015					
Chemic Is	Priority substances	Good	Good by 2015					
e E	cological	Moderate	Good by 2027	N/A			•	•
Potential C	Chemical	Good	Good by 2015	N/A				
ĭ	Overall	Moderate	Good by 2027	N/A				

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 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/stystem/uploads/attachment\_data/file/300484/LIT7919v3\_f881c4.pdf

		Water body ID:		GB112071065270	Scheme:	Group 1 - Improved res	ervoir compensatio	n release control – FISHMOOR TOTAL	
		Water body Name:		Darwen - conf Davy Field Bk to conf Blakewater			WR15		
		RBMP:			Reference:	Construction		Operational	
		Operational catchment:		Darwen	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily Modified					
		Relevant upstream water bo	odies:	Field Bk, Davyfield Brook					
		Downstream water bodies:		Darwen- conf Blakewater to conf Ro	ddlesworth				
		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	Moderate	Good by 2027				Reduction in compensation flows due to new penstock arrangements.	
's: Ecolo		Fish	Good	Good by 2015		Installation of new automatic penstock arrangements.			
River	polor	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/d to 1.7 M/d, a reduction of 0.3 M/d, (Note: Total reduction for	
ts for	n orph y	River continuity						the reservoir Aquator group assumed to take place in this water body.)	
elements Hydrom		Morphological conditions	-			No or minimal impact.	High	The ALS shows that all of the surface water body has water available at all flows (OSS, 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.	Medium
WFD	o-chemical	General physico-chemical	Moderate	Good by 2027					
	Physic	Specific pollutants:	-						
D Its for rs .	nical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WF elemen Rive	WFD elements fo Rivers: Chemical	Priority substances	Does not require assessment	Does not require assessment					
III /S	tial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\	otent	Chemical	Good	Good by 2015	N/A				
	<b>a</b> .	Overall Moderate		Good by 2027	N/A				

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.

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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 - Expensions, modifications, concerning out and a statistical way and and a statistical way and way and a statistical way and a statistical way and a statistical way and way and way and way and a statistical way and wa 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

		Water body ID:		GB112069061320	Scheme:	Group 1 - Improved reservo	ir compensation rele	ase control – RIDGEGATE & TRENTABANK	
		Water body ID. Water body Name:		Bollin (Source to Dean)	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:		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				Reduction in compensation flows due to new penstock arrangements.	
gical	Biolog	Benthic invertebrates	Good	Good by 2015					
's: Ecolo		Fish	Moderate	Moderate by 2015					
River	holog	Hydrological regime	-	-				Minor level of impact. Reduction of compensation flow from Ridgegate and Trentabank reservoirs from 2.1 MI/d to 1.8 MI/d, a reduction of 0.3 MI/d. (Note: Total	
ts for	y y	River continuity						reduction for the reservoir Aquator group assumed to take place in this water body.)	
	Hydron	Morphological conditions	-			Installation of new automatic penstock arrangements. No or minimal impact.	High	The ALS shows that the part of the surface water body which contains the reservoirs and their upstream catchements has no water available at any flows. Downstream of the reservoirs, the water body has water available at all flows. Given the small reduction in compensation releases, the water available at all flows. Given the small reservoirs, and assuming low flow compensation flows would be maintained, any impacts would be localised and temporary.	Medium
WFD	co-chemical	General physico-chemical	Moderate	Moderate by 2015					
	Physic	Specific pollutants:	-						
D ts for rs:	ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements fo Rivers:	Rivers Chemic	Priority substances	Does not require assessment	Does not require assessment					
li li li	2	Ecological	Moderate	Moderate by 2015	N/A				
Overall Status\ Potential	IIIAIO	Chemical	Good	Good by 2015	N/A				
0.01	-	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 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

### Evidence

	Water body ID:		GB112069060650	Scheme:	Group 1 - Improved	I reservoir compensa	tion 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	impuot potontium				1
	Relevant upstream water bo	dies.	The arrive and a second se					
	Downstream water bodies:		Dean (Bollinton to Bollin)					
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-		V				
	Macrophytes and			VIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII				
	phytobenthos	-	Not assessed					
(B)	phytobolitiloo			VIIIIIIIIIIIIIIIIIIIIIIIIIIIIII				
- 8	Benthic invertebrates		_					
Bi	Dentine invertebrates	-	-					
20			VIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII					
S	Fish							
Ш. 	rish	-	-					
L S				1			Reduction in compensation flows due to new penstock arrangements.	
loc ive	Hydrological regime	-	-				Minor level of impact. Reduction of compensation flow from Lamaload reservoir from	
hol Ri							2.1 Ml/d to 1.8 Ml/d, a reduction of 0.3 Ml/d. (Note: Total reduction for the reservoir	
<u>5</u> d	River continuity						Aquator group assumed to take place in this water body.)	
v mo					Installation of new automatic penstock arrangements.			
					No or minimal impact.	High	The ALS shows that the part of the surface water body which contains the reservoir	Medium
yd er	Morphological conditions	-			No or minimai impact.		and its upstream catchment has no water available Q30 to Q70, and limited water	
Hy ele							available at Q95. Downstream of the reservoir, the water body has limited water	
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.	
si.								
, fr	Specific pollutants:	-						
al for		Does not require	Does not require assessment					
o st is is	substances	assessment						
WFD elements f Rivers: Chemica		Does not require assessment	Does not require assessment					
s si li	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
00.5	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).

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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

	Water body ID:								
				GB102076070690	Scheme:	Group 1 - Improved re		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 be	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	ogy	Macrophytes and phytobenthos	-	Not assessed					
ologic		Benthic invertebrates	High	Good by 2015		Installation of new automatic penstock arrangements. No or minimal impact.			
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	tor phole	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					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 o	High
WFD elen	Hydro	Morphological conditions	-					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	
8	sico- nical	General physico-chemical	All high	Good by 2015				unlikely to have prolonged or widespread effects of the hydrological regime of the surface water body.	
	Phys	Specific pollutants:	-						
WFD elements for Rivers:	nical	Priority hazardous substances	Does not require assessment	Does not require assessment					
elerr fc	Chei	Priority substances	Does not require assessment	Does not require assessment					
ll /s lei	5	Ecological	Moderate	Good by 2021	N/A				
Overall Status\ Potential		Chemical	Good	Good by 2015	N/A				
O N G	2	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 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).

		Water body ID:		GB112069064580	Scheme:	Group 1 - Improved reservoir (	compensation relea	se control – WAYOH, ENTWISTLE & JUMBLES	
		Water body Name:		Bradshaw Brook	Scheme Phase:		WR1		
		RBMP:		North West	Reference:	Construction		Operational	
		Operational catchment:		Croal Irwell	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily Modified	impact potential.	Billot		Billot	
		Relevant upstream water bo	dies:	riedvily mounied					
		Downstream water bodies:	uies.	Tonge					
					Alternate Objective if				
		WFD Element (Receptor)	Status	RBMP Objective	less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
	~	Macrophytes and phytobenthos	Moderate	Good by 2027					
gical	Biolog	Benthic invertebrates	Good	Good by 2015				Reduction in compensation flows due to new penstock arrangements.	
rs: Ecoloi		Fish	Good	Good by 2015				Minor level of impact. Reduction of compensation flow from Wayoh, Entwistle and Jumbles reservoirs from 24.3 MVd to 23.6 MVd, a reduction of 0.7 MVd. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
River	rpholog	Hydrological regime	-	-				The ALS shows that the part of the surface water body which contains the Turton and	
is for	y	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	
element	elements fo Hydromory Y	Morphological conditions	-			Installation of new automatic penstock arrangements. No or minimal impact.	High	downstream of the Waych reservoir (including the Jumbles reservoir) has water available at low flows (Q95 and Q70), but no water available at high flows (Q95 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 ecologics status. However given the small reduction in compensation releases compared to th	Medium
WFD	co-chemical	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 re:	rs: ical	Priority hazardous substances	Good	Good by 2015					
WF elemen Bive	NFC tent emi	Priority substances	Good	Good by 2015					
II Is	ial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\	otent	Chemical	Good	Good by 2015	N/A				
	Pot St:	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.
 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

	Water body ID:		GB112069064570	Scheme:	Group 1 - Improved re	eservoir compensation re	lease control – DELPH & SPRINGS DINGLE	
	Water body Name:		Eagley Brook	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	dy(ies)						
	Downstream water body(ies	)	Tonge					
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
8	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.	
ological Biolog	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.) 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.	
s: Ec	Fish	Moderate	Moderate by 2015					
for River orpholog	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	
t le l	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 Hydrol	Morphological conditions	-			No or minimal impact.	High	catchment has water available at low flows (Q95 and Q70), and no water available at higher flows (Q50 and Q30). The remaining part of the catchment, downstream of the reservoirs has water	Medium
WFD -	General physico-chemical	Moderate	Good by 2027				available at low 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	
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 total volume, the availability of water at lower flows, and assuming low flow	
D ts for trs: iical	Priority hazardous substances	Does not require assessment	Does not require assessment				compensation flows would be maintained, any impacts would be localised and temporary.	
WFD elements Rivers: Chemici	Priority substances	Does not require assessment	Does not require assessment					
all s\ tial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ otential	Chemical	Good	Good by 2015	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 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

	Water body ID:		GB112069064710	Scheme:	Group 1 - Improved reservoir compensation re		RTH MOOR, GREENBOOTH, LOWER NADEN AND MIDDLE NADEN	
	Water body Name:		Naden Brook	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	odies:	-					
	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	Good	Good by 2015					
Biolog	Benthic invertebrates	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 M/d to 18.0 M/d, a	
	Fish	-	-				reduction of 0.9 M/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.) The ALS shows that:	
lolog	Hydrological regime	-	-				The ALS snows that: The part of the surface water body that contains the Ashworth Moor reservoir and its immediate catchment has no water available at any flows.	
morph	> River continuity				Installation of new automatic penstock arrangements.		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	
Hydro	Morphological conditions	-			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
o-chemical	General physico-chemical	Good	Good by 2015				available at low flows (Q95 and Q70), imited 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	
ts tor rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment				maintained, any impacts would be localised and temporary.	
elemen Rive Chem	Priority substances	Does not require assessment	Does not require assessment					
s\ tial	Ecological	Moderate	Moderate by 2015	N/A				
Status\ otential	Chemical	Good	Good by 2015	N/A				
s S	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. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

### Evidence

	Water body ID:		GB112069064730	Scheme:	Group 1 - Improved re		release control – SPRING MILL & COWM	
	Water body Name:		Spodden	Scheme Phase:		WR1	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	dies:	-					
	Downstream water bodies:		Roch (Spodden to Irwell)					
	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	-	-				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 M/d to 18.0 M/d, a reduction of 0.9 Mild. (Note: Total reduction	
rs: Ecolo	Fish	Moderate	Good by 2027				for the reservoir Aquator group assumed to take in this water body.) The ALS shows that:	
Rive	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 Ri norpholo	River continuity				Installation of new automatic penstock arrangements.		water available at higher flows (Q50 and Q30). The part of the surface water body that contains the Cowm reservoir and its upstream	
elemen Hydror	Morphological conditions	-			No or minimal impact.	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 ers: nical	Priority hazardous substances	Does not require assessment	Does not require assessment				temporary.	
WFD elements Rivers: Chemicá	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				
<u>-</u>	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. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

### Evidence

	Water body ID:		GB112069064720	Scheme:	Group 1 - Improved reservoir co		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 b	odies:	-					
	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 Watergrove Reservoir	
Biolog	Benthic invertebrates	Good	Good by 2015					
	Fish	Moderate	Good by 2027					
olog	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.	
norph	> River continuity				Installation of new automatic penstock arrangements.		(Note: Total reduction for the reservoir Aquator groups assumed to take place in this water body.)	
Hydroi	Morphological conditions	-			No or minimal impact.	High	The ALS shows that the surface water body has no water available at any flow. However, the heavity modified water body (HMWB) investigations undertaken by UL 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
co-chemical	General physico-chemical	High	Good by 2015					
Physic	Specific pollutants:	-						
ts for rs: ical	Priority hazardous substances	Good	Good by 2015					
elements Rivers: Chemica	Priority substances	Good	Good by 2015					
all Is\ 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				

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

	Water body ID:		GB112071065090	Scheme:	Group 1 - Improved reservoir compe	ensation release cont	rol – HURSTWOOD, CANT CLOUGH, SWINDEN 1 & 2	
	Water body Name:		Brun - headwaters to conf Don	Scheme Phase:		WR15	59	
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Calder	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	dies:	-					
	Downstream water bodies:		Brun - conf Don to conf Calder					
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
ß	Macrophytes and	Good	Good by 2015					
gical Biolo	Benthic invertebrates	-	-				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Hurstwood, Cat Clough,	
rs: Ecolo	Fish	Good	Good by 2015				and Swinden 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 water body.)	
r River holog	Hydrological regime	-	-				The ALS states that: The part of the surface water body that contains the Swinden reservoirs and their	
nts fo morp y	River continuity				upstream Installation of new automatic panetock arrangements	upstream catchment has no water available at any flows. The part of the surface water body that contains the Hurstwood and Cant Clough		
elemer	Morphological conditions	-			No or minimal impact.	High	reservoirs and their upstream catchiments has water available at low flows (095 and 070), but no water available at higher flows (050 and 030). The remaining part of the catchment, downstream of the reservoirs has water available at low flows (095), limited water available at medium flows (0270), and no water available at higher flows (050 and 430). It is likely that compensation flows from the reservoirs are supporting the low flow water availability.	Medium
WFD co-chemical	General physico-chemical	High	Good by 2015					
Physic	Specific 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 rs: iical	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					
s s\ tial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
0.0,2	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. 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

	Water body ID:		GB112071065210	Scheme:	Group 1 - Improv		ation release control – LANESHAW	
	Water body Name:		Colne Water (Laneshaw)	Scheme Phase:		WR15		
	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:		Colne Water - Laneshaw to Trawden Bk					
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confiden
	Phytobenthos	-						
	Macrophytes	-						
A.	Macrophytes and phytobenthos	High	Good by 2015					
Bioloç	Benthic invertebrates	Good	Good by 2015				Reduction in compensation flows due to new penstock arrangements.	
	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.)	
holog	Hydrological regime	-	-				The ALS states that: The part of the surface water body that contains the Laneshaw reservoir and its	
morp	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.	
Hydro	Morphological conditions	-			No or minimal impact.	High	The remaining part of the catchment, downstream of the reservoir has no water available at low flows (QSS and Q70), imited water available at medium flows (QS0), and water available at high flows (Q30). The heavity modified water body (HNWB) 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	High
co-chemical	General physico-chemical	Good	Good by 2015					
Physi	Specific pollutants:	-					reduction in flows are unlikely to have prolonged or widespread effects of the hydrological regime of the surface water body.	
ers: nical	Priority hazardous substances	Does not require assessment	Does not require assessment					
Cherr	Priority substances	Does not require assessment	Does not require assessment					
tial	Ecological	Moderate	Good by 2027	N/A				
otential	Chemical	Good	Good by 2015	N/A				
Δ.	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. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

### Evidence

	Water body ID:		GB112071065130	Scheme:	Group 1 - Improved reserve	ir companention role	ase control – COLDWELL UPPER & LOWER	
	Water body Name:		Walverden Water	Scheme Phase:		WR15		
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Colne Water	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified	impuor potontian.				
	Relevant upstream water bo	dies:	-					
	Downstream water bodies:		Calder - Pendle Water to conf Ribble					
		[		Alternate Objective if				
	WFD Element (Receptor)	Status	RBMP Objective	less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
2	Macrophytes and phytobenthos	Moderate	Good by 2027					
gical Biolog	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 Wid to 8.1 Wid, a reduction of 1.0 Wid. (Note: Total eduction for the reservoir Aquator group assumed to take place in this water body.)	
r Rive holog	Hydrological regime	-	-				The ALS states that:	
nts fo morp	River continuity				Installation of new automatic penstock arrangements.		The part of the surface water body that contains the Coldwell Upper reservoir and its upstream catchment has water available at all flows.	
elemer Hydro	Morphological conditions	-			No or minimal impact.	High	The part of the surface water body that contains the Coldwell Lower reservoir and its upstream catchment has water available at low flows (095), but restricted water availability at medium to high flows (070 to 030). The remaining part of the catchment, 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 co-chemical	General physico-chemical	Moderate	Good by 2027					
Physic	Specific pollutants:	-					the water body would be localised and temporary.	
D ts for rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements Rivers: Chemici	Priority substances	Does not require assessment	Does not require assessment					
s) tial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ <sup>5</sup> otential	Chemical	Good	Good by 2015	N/A				
<u>-</u>	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. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

### Evidence

	Water body ID:		GB112071065230	Scheme:	Group 1 - Improved reserv		lease control – OGDEN UPPER & LOWER	
	Water body Name:			Scheme Phase:		WR15		
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Colne Water	Impact potential:	Direct		Direct	
	Designation (and uses):		not designated artificial or heavily modified					
	Relevant upstream water bo	odies:	•					
	Downstream water bodies:		Pendle Water - Colne Water to Walverden Wate	r				
	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 Bioloç	Benthic invertebrates	High	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	
rs: Ecolo	Fish	Good	Good by 2015				reservoirs from 9.1 Mu/a to 8.1 Mu/a, a reduction of 1.0 Mu/a. (Note: 1 of al reduction for the reservoir Aquator group assumed to take place in this water body.) The ALS states that:	
- River	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 foi morpl	> River continuity				Installation of new automatic penstock arrangements.		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	
elemer	Morphological conditions	Supports Good			No or minimal impact.	High	water available at medium flows (Q50), and water available at high flows (Q30). It likely that the compensation flows from the Ogden reservoirs are supporting the wat availability at the lowest flows. In addition there is water available at all flows in area	High
WFD .	General physico-chemical	Good	Good by 2015				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 habitat/morphology, or downstream water quality.	
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 rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment				hydrological regime of the surface water body.	
WFD elements Rivers Chemic	Priority substances	Does not require assessment	Does not require assessment					
all st	Ecological	Good	Good by 2015	N/A				
Overall Status\ otential	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.

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

	Water body ID:		GB112071065140	Scheme:	Group 1 - Improved r		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	dies:						
	Downstream water bodies:	T						
	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		Installation of new automatic penstock arrangements. No or minimal impact.			
rs: Ecolo	Fish	-	-				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Churn Clough reservoir	
s for River orpholog	Hydrological regime	Supports Good	Supports Good by 2015				from 9.1 Ml/d to 8.1 Ml/d, a reduction of compensation now norm characterization for the reservoir Aquator group assumed to take place in this water body.)	
ts for norpt	River continuity						The ALS shows that the surface water body generally has water available at all flows,	
elemen Hydror	Morphological conditions	Supports Good				High	(Q55, Q70, Q50 and Q30). A small part of the wrater body what which is the state the reservoir and its upstream catchment has limited water at high flows (Q30), but water available at low and medium flows. Given the small reduction in compensation	Medium
WFD	General physico-chemical	Good	Good by 2015				available at low and medium hows. 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 fo Rivers: Chemical	Priority substances	Does not require assessment	Does not require assessment					
all st	Ecological	Good	Good by 2015	N/A				
Overall Status\ otential	Chemical	Good	Good by 2015	N/A				
<u>c</u>	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 AgencyNatural 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

		Water body ID:		GB112071065390	Scheme:	Group 1 - Improv	ed reservoir compen	sation release control – STOCKS	
		Water body Name:		Hodder- Stocks Reservoir to conf Croasdale Bk	Scheme Phase:		WR15	9	
		RBMP:			Reference:	Construction		Operational	
		Operational catchment:		Ribble	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily modified					
		Relevant upstream water bo	dies:	Bottoms Beck and Hodder 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
		Phytobenthos	-						
		Macrophytes	-						
Ecological	y Biol	Macrophytes and phytobenthos	High	Good by 2015				Reduction in compensation flows due to new penstock arrangements.	
90		Benthic invertebrates	High	Good by 2015				Minor level of impact. Reduction of compensation flow from Stocks reservoir from	
ů		Fish	-	Not assessed				19.2 Ml/d to 18.1 Ml/d, a reduction of 1.1 Ml/d. (Note: Total reduction for the reservoir	
Rivers:		Hydrological regime	-	Not assessed				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),	
Its for	omorp	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
elemer	Hydr	Morphological conditions	-			No or minimal impact.	, ngn	However, the reduction is relatively small compared to the total compensation	
WFD ele	sico- mical	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.	
		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	
WFD elements for Rivers:	mical	Priority hazardous substances	Good	Good by 2015				hydrological regime of the surface water body.	
W elerr for R	Chei	Priority substances	Good	Good by 2015					
all is/	3	Ecological	Moderate	Good by 2021	N/A				
Overall Status\	Iaio	Chemical	Good	Good by 2015	N/A				
		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 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

	Water body ID:		GB112069064690	Scheme:	Crown 4 Improved receively companyation release cont		DRMAN HILL, KITCLIFFE, OGDEN MILNROW, HANGING LEES & ROODEN	
	Water body ID: Water body Name:		Beal	Scheme Phase:	Group 1 - Improved reservoir compensation release cont	WR15		
	RBMP:		North West	Reference:	Construction	WAR	Operational	
			Roch Irk Medlock	Impact potential:	Direct		Direct	
	Operational catchment:			impact potential:	Direct	1	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	Moderate	Good by 2027					
gical Biology	Benthic invertebrates	Moderate	Moderate by 2015					
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 Piethorne, Norman Hill,	
s for River	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	River continuity				Installation of new automatic penstock arrangements.		assumed to take place in this water body.)	
element Hvdrom	Morphological conditions	-			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	High
	General physico-chemical	Good	Good by 2015				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.	
	Specific pollutants:	-						
D ts for rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFI element River	Priority substances	Does not require assessment	Does not require assessment					
all s\ tial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ otential	Chemical	Good	Good by 2015	N/A				
	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.
 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

	Water body ID:		GB104027062600	Scheme:	Group 1 - Improved reservoir compens	sation release contro	DI – 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 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 2027				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Warland, White Holine and Light Hazzles reservoirs from 16.8 M/d to 15.7 M/d, a reduction of 1.1 M/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
gical Biology	Benthic invertebrates	Good	Good by 2015					
s: Ecolo	Fish	Good	Good by 2015					
River	Hydrological regime	-					The ALS shows that the part of the surface water body that contains the reservoirs	
ts for	River continuity						and their upstream catchments has no water available at lower flows (Q95 and Q70), limited water available at medium flows (Q50), and water available at high flows (Q30). Most of the remaining part of the catchment, downstream of the reservoirs has	
elemen	Morphological conditions	-			Installation of new automatic penstock arrangements. No or minimal impact.	High	exater 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 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 compensator to the overall compensator release,	Medium
WFD	General physico-chemical	All high, except Phosphate which is Moderate	Good by 2027					
	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 Is for rs: fcal	Priority hazardous substances	Good	Good by 2015					
WFD elements Rivers Chemic	Priority substances	Good	Good by 2015					
s / ial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ otential	Chemical	Good	Good by 2015	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 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

	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	
	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 Biolog	Benthic invertebrates	Good	Good by 2015				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, Dowry and New Years Bridge reservoirs from	
's: Ecolog	Fish	Moderate	Good by 2027				16.8 M/d to 15.7 M/d, a reduction of 1.1 M/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
River	Hydrological regime	-	-				The ALS states that: The part of the surface water body that contains the Readycon Dean, Crookgate, Dowry and New Years Bridge reservoirs and their upstream catchment has no water	
ts for norph	River continuity				Installation of new automatic penstock arrangements.		Dowry and new Years bridge reservoirs and meir upstream catchment has no water available at any flows. The part of the surface water body that contains the Castleshaw Upper and Lower	
elemen	Morphological conditions	-			No or minimal impact.	High	reservoirs and their upstream catchment has water available at low flows (Q95 and Q70), but no water available at medium to high flows (Q50 to Q30).	Medium
WFD .	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 (QBS. CO7, and CS0) 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	
D ts for rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment				impacts would be localised and temporary.	
WFD elements f Rivers: Chemica	Priority substances	Does not require assessment	Does not require assessment					
s\ ial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
0.0.5	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 AgencyNatural 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

		Water body ID:		GB112069061300	Scheme:	Group 1 - Improved reservoir compensation	tion release control	- GREENFIELD, YEOMAN HEY, DOVESTONE & CHEW	
		Water body Name:		Chew Brook	Scheme Phase:		WR15		
		RBMP:		North West	Reference:	Construction		Operational	
		Operational catchment:		Govt Etherow Tame	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily Modified					
		Relevant upstream water be	odies:						
		Downstream water bodies:	54100.						
		WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
	~	Macrophytes and phytobenthos	-	-					
gical	Biolog	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,	
s: Ecolo		Fish	Moderate	Good by 2027				Dovestone, and Chew reservoirs from 20.7 Ml/d to 19.5 Ml/d, a reduction of 1.2 Ml/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
River	lolog	Hydrological regime	-	-				The ALS shows that the at medium and high flows (Q70, Q50 and Q30), there is no	
ts for	nts for Rive morpholog v	River continuity						water available across the surface water body. At Q95 there is no water available in the part of the catchment that includes the Greenfield and Yeoman Hay reservoirs	
elemen	Hydrom	Morphological conditions				Installation of new automatic penstock arrangements. No or minimal impact.	High	and their upstream catchment, but water is available in the downstream part of the 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	o-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 videspread 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					
WFI	iver emi	Priority substances	Does not require assessment	Does not require assessment					
= 7	ial	Ecological	Moderate	Good by 2027	N/A				
Overa	otent	Chemical	Good	Good by 2015	N/A				
0 0.	ှင် လို လိ	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. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

### Evidence

		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		
		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	-			Installation of new automatic penstock arrangements. No or minimal impact.			
		Macrophytes and phytobenthos	-	-					
gical	Biology	Benthic invertebrates	Moderate	Good by 2027					
rs: Ecological		Fish	-	-				Reduction in compensation flows due to new penstock arrangements.	
Rive	pholog	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	y y	River continuity						<ol> <li>MI/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)</li> </ol>	
elemen	Hydroi	Morphological conditions	-				High	The ALS shows that the surface water body has water available at all flows (O95, 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	co-chemical	General physico-chemical	Good	Good by 2015					
	Physic	Specific pollutants:	-						
D ts for	rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements for	Chem	Priority substances	Does not require assessment	Does not require assessment					
all s/	tial	Ecological	Moderate	Moderate by 2015	N/A				
Overall Status\	oten	Chemical	Good	Good by 2015	N/A				
		Overall	Moderate	Moderate by 2015	N/A				

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

Propension of advances 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, and out allocations water treatment works, each 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. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

#### Evidence

	Water body ID:		GB112069060970	Scheme:	Group 1 - Improv	ed reservoir compen	sation release control – KINDER	
	Water body Name:		Sett	Scheme Phase:		WR15		
	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 bo	dies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
A	Macrophytes and phytobenthos	Moderate	Good by 2027					
gical Biolo	Benthic invertebrates	High	Good by 2015				Reduction in compensation flows due to new penstock arrangements.	
rs: Ecolo	Fish	-	-				Neofuetof in compensation nows use to new persistors an angements. 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. (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
r River	Hydrological regime	Does Not Support Good	Supports Good by 2027					
nts for morpl	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	
elemer	Morphological conditions	-			No or minimal impact.	High	remainder of the water body has water available at high and medium flows (Q30 and Q50), but no water available at low flows (Q95 and Q70).	High
WFD .	General physico-chemical	High	Good by 2015				However, the heavily modified water body (HMWB) investigations undertaken by U 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	
Physic	Specific pollutants:	-					hydrological regime of the surface water body.	
D ts for rs: iical	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					
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				

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

	Water body ID:		GB112069060850	Scheme:	Group 1 - Improved reservo	oir compensation re	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	dies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
A.	Macrophytes and phytobenthos	Good	Good by 2015					
gical Bioloç	Benthic invertebrates	Good	Good by 2015					
rs: Ecolo	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 M/d to 15.5 M/d, a reduction of 1.4 M/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 Errwood	
ts for norpt	River continuity				Installation of new automatic penstock arrangements.		Reservoir and its upstream catchment has no water available at any flows. The remainder of the water body (which includes the Femilee Reservoir) has water	
elemen Hydror	Morphological conditions	-			No or minimal impact.	High	available at low flows (QB5 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 overail Compensation release, and that water is available at low flows, effects of the	Medium
WFD co-chemical	General physico-chemical	High	Good by 2015					
Physi	Specific pollutants:	-					hydrological regime are not expected to be prolonged or widespread.	
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 s\ tial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
τ <i>"</i> "	Overall Modera	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. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

### Evidence

	Water body ID:		GB112069060920	Scheme:	Group 1 - Improved reservoir	compensation release	control – BOLLINHURST & HORSE COPPICE	
	Water body Name:		Micker (Norbury) Brook	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:							
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
A	Macrophytes and phytobenthos	-	Not assessed					
gical Bioloç	Benthic invertebrates	Good	Good by 2015					
rs: Ecolo	Fish	Bad	Good by 2027				Reduction in compensation flows due to new penstock arrangements.	
or Rive pholog	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.)	
tts for morpt	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 Hydrol	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 co-chemical	General physico-chemical	Moderate	Good by 2027				any problems with fish passage, downstream flow, downstream habitat/morphology, or downstream water quality, kaing 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.	
Physi	Specific pollutants:	-						
D ts for rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements fo Rivers: Chemical	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				
L	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. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

### Evidence

		Water body ID:		GB112069064650	Scheme:	Group 1 - Improved reservoir co	monestion roloseo	control – CALF HEY, OGDEN & HOLDEN WOOD	
		Water body ID. Water body Name:		Ogden	Scheme Phase:		WR15		
		RBMP:		North West	Reference:	Construction		Operational	
		Operational catchment:		Croal Irwell	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily Modified	impact potential.	Billot		Direct	
		Relevant upstream water bo	dies:	Ticavity mounted					
		Downstream water bodies:	Jule3.						
		WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-		¥/////////////////////////////////////				
	A6	Macrophytes and phytobenthos	-	-					
gical	Biolog	Benthic invertebrates	Good	Good by 2015					
s: Ecolo		Fish	Good	Good by 2015				Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Call Hey, Ogden and Holden Wood reservoirs from 11.3 MUId to 9.8 MU/d, a reduction of 1.5 MU/d. (Note:	
River	rpholog	Hydrological regime	-	-				Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
ts for	8 62	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	Hydron	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 proincinged or widespread.	Medium
WFD	o-chemical	General physico-chemical	Moderate	Good by 2027					
	Physic	Specific pollutants:	-					enecis un me nyalongical regime ale noi expecteu to be protonigeu or widespreau.	
D ts for rs:	lical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WF elemen Rive	iver emi	Priority substances	Does not require assessment	Does not require assessment					
s l	la	Ecological	Moderate	Good by 2027	N/A				
Overall Status\	oteni	Chemical	Good	Good by 2015	N/A				
0 0	Pot St	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.
 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

	Water body ID:		GB112069064660	Scheme:	Group 1 - Improved reserv	voir compensation re	lease control – COWPE & CRAGG HOLES	
	Water body Name:		Irwell (Source to Whitewell Brook)	Scheme Phase:		WR15	59	
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Croal Irwell	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	-						
A6	Macrophytes and phytobenthos	Good	Good by 2015					
gical Bioloç	Benthic invertebrates	Moderate	Good by 2027					
rs: Ecolo	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 reservoirs from 11.3 Mi/d to 9.8 Mi/d, a reduction of 1.5 Mi/d. (Note: Total reduction	
for Rive	Hydrological regime	-	•				for the reservoir Aquator group assumed to take place in this water body.)	
norp1	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 Hydroi	Morphological conditions	-			No or minimal impact.	High	Course of the calculate Course Reservoir and its upstream calchment which has wate available at low flows, but not at high and medium flows (Q30 and Q50). Given the location of the reservoir of a small downstream tributary of the Invell, that water is available across most of the surface water body at all flows, and the relativel small reduction compared to the total compensation release, effects of the hydrological regime of the water body would be localised and temporary.	Medium
WFD co-chemical	General physico-chemical	Moderate	Good by 2027					
Physia	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					
s\ ial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ otential	Chemical	Good	Good by 2015	N/A				
L	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 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

### Evidence

	Water body ID: Water body Name:		GB112069064620	Scheme:	Group 1 - Improved	reservoir compensat	tion release control – SCOUT MOOR	
			Irwell (Rossendale STW to Roch)	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	-						
ß	Macrophytes and phytobenthos	Moderate	Moderate by 2015					
ogical Biolog	Benthic invertebrates	Good	Good by 2015				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.)	
rs: Ecolo	Fish	-	-					
for Rive	Hydrological regime	Supports Good	Supports Good by 2015				reservoir Aquator group assumed to take place in this water body.) The ALS shows that the surface water body generally has water available at all flows	
ts fo norp	River continuity				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	
elemen Hydror	Morphological conditions	-			No or minimal impact.	High	water available at low and medium flows, but limited water available at high flows (Q30). 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	Medium
WFD co-chemical	General physico-chemical	Moderate	Moderate by 2015					
Physid	Specific pollutants:	-					would be localised and temporary.	
D ts for rs: ical	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFI elemen Rive Chem	Priority substances	Does not require assessment	Does not require assessment					
s) tial	Ecological	Moderate	Moderate by 2015	N/A				
Overall Status\ otential	Chemical	Good	Good by 2015	N/A				
<u>-</u>	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 too 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

### Evidence

			GB112069064670	Scheme:	Group 1 - Improved res	servoir compensatio	n release control – CLOUGH BOTTOM	
	Water body Name:		Whitewell Brook	Scheme Phase:		WR15	i9	
	RBMP:		North West	Reference:	Construction		Operational	
	Operational catchment:		Croal Irwell	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	-		¥/////////////////////////////////////				
2	Macrophytes and phytobenthos	-	-					
gical Biolog	Benthic invertebrates	Moderate	Good by 2027					
s: Ecolo	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	
for River	Hydrological regime	-	-				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.)	
mor ts 1	River continuity				Installation of new automatic penstock arrangements.		The ALS states that the part of the surface water body that contains the Clough Bottom Reservoir and its upstream catchment has no water available at any flows.	
elemen Hydrol	Morphological conditions	-			No or minimal impact.	High	The remainder of the water body downstream of the reservoir has water available at all flows.	Medium
WFD o-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:	-						
D ts for rs: ical	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					
ill ial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
C C	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.
 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

	Water body ID:			Scheme:	Group 1 - Improved		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	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	-	-					
rs: Ecolo	Fish	-	-		Installation of new automatic penstock arrangements. No or minimal impact.		Reduction in compensation flows due to new penstock arrangements. Minor level of impact. Reduction of compensation flow from Clowbridge reservoir	
River	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 R	> River continuity						The ALS states that the part of the surface water body that contains the Clow Bridge	
elemen	Morphological conditions	-				High	Reservoir and its upstream catchment has water available at low flows (Q45), but no 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.	Medium
WFD	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.	
	Specific pollutants:							
s for s: cal	Priority hazardous substances	Does not require assessment	Does not require assessment					
WFD elements for Rivers: Chemical	Priority substances	Does not require assessment	Does not require assessment					
s lial	Ecological	Moderate	Good by 2027	N/A			•	•
Overall Status\ Potential	Chemical	Good	Good by 2015	N/A				
C 00 G	Overall	Moderate	Good by 2027	N/A				

Overall

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

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 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- 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

	Water body ID:		GB112069060780	Scheme:	Group 1 - Improved reservoir compensation release control – LON	NDENDALE (WO	ODHEAD, TORSIDE, RHODESWOOD, VALEHOUSE, BOTTOMS & ARNFIELD)	
	Water body Name:		Etherow (Woodhead Res. to Glossop Bk.)	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	dies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good	c	Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
2	Macrophytes and phytobenthos	Good	Good by 2015					
gical Bioloç	Benthic invertebrates	Good	Good by 2015					
rs: Ecolo	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,	
r River	Hydrological regime	-	-				Torside, Rhodeswood, Valehouse, Bottoms and Arnfield) 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	
nts for morph	River continuity				Installation of new automatic penstock arrangements.		group assumed to take place in this water body.)	
elemen Hydrol	Morphological conditions	-			No or minimal impact.	High	The ALS shows that the surface water body has no water available at all flows (Q85, 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 passing, 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 unikely to have prolonged or widespread effects of the hydrological regime of the surface water body.	Medium
WFD co-chemical	General physico-chemical	High	Good by 2015					
Physic	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 s\ tial	Ecological	Moderate	Good by 2027	N/A			· · · · · · · · · · · · · · · · · · ·	
Overall Status\ otential	Chemical	Good	Good by 2015	N/A				
L	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. 8- Licensed compensation flows have been set to maintain flows at or above the environmental flow index (EFI).

### Evidence

	Water body ID:		GB112069061060	Scheme:	Group 1 - Improved res	ervoir compensation	release control - AUDENSHAW 1, 2 & 3	
	Water body Name:		Platt Brook (Source to Fallowfield Bk)	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	rsev)				
	WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
ß	Macrophytes and phytobenthos	Good	Good by 2015					
gical Biolo	Benthic invertebrates	Bad	Good by 2027					
s: Ecolo	Fish						Reduction in compensation flows due to new penstock arrangements.	
r River holog	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 Mi/d to 45.4 Mi/d, a reduction of 3.2 Mi/d. It is not clear which WFD water body would be effected by the release (this water body or Tame	
morp .	River continuity				Installation of new automatic penstock arrangements.		(Swineshaw Brook to Mersey). (Note: Total reduction for the reservoir Aquator group assumed to take place in this water body.)	
elemer	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 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.	Medium
WFD co-chemical	General physico-chemical	All high apart from phosphate which is poor and ammonia which is moderate	#REF!					
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: Chemici	Priority substances	Does not require assessment	Does not require assessment					
all s\ tial	Ecological	Moderate	Good by 2027	N/A				,
Overall Status\ otential	Chemical	Good	Good by 2015	N/A				
<u>-</u>	Overall	Moderate	Good by 2027	N/A				

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 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

	Water body ID:		GB112069061112	Scheme:	Group 1 - Improved res		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	-						
£	Macrophytes and phytobenthos	Moderate	Moderate by 2015					
òioia	Benthic invertebrates	Moderate	Moderate by 2015					
holog	Fish	Poor	Good by 2027				Reduction in compensation flows due to new penstock arrangements.	
	Hydrological regime	-	-				Minor level of impact. Reduction of compensation flow from Audenshaw 1, 2 and 3 reservoirs from 48.6 Mi/d to 45.4 Mi/d, a reduction of 3.2 Mi/d. It is not clear which WFD water body would be effected by the release (this water body or Platt Brook	
	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.)	
in yar or	Morphological conditions	-			No or minimal impact.	High	The ALS shows that the surface water body has water available at all flows (Q95,	Medium
co-chemical	General physico-chemical	Moderate	Moderate by 2015				Q70, Q50 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:	-						
	Priority hazardous substances	Good	Good by 2015					
	Priority substances	Good	Good by 2015					
	Ecological	Moderate	Moderate by 2015	N/A				
	Chemical	Good	Good by 2015	N/A				
c	Overall	Moderate	Moderate by 2015	N/A				

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 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

	Water body ID:		GB112075070430	Scheme:	Group 2 - Improve	ad reservoir compon	sation release control – Thirlmere	
	Water body Name:		St John's Beck	Scheme Phase:		WR15		
	RBMP:		North West	Reference:	Construction	WI(15	Operational	
	Operational catchment:		Derwent	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified	impact potential.	Direct	1	Direct	
	Relevant upstream water bo	dioci	rieavily woullieu					
	Downstream water bodies:	ules.						
	Downstream water boules.	T		Alternate Objective if				
	WFD Element (Receptor)	Status	RBMP Objective	less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
~	Macrophytes and phytobenthos	High	Good by 2015					
gical Biology	Benthic invertebrates	High	Good by 2015					
s: Ecolog	Fish	High	Good by 2015				Reduction in compensation flows due to new penstock arrangements.	
for River	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	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	-			No or minimal impact.	High	OP A set of the set of a se	High
WFD	General physico-chemical	High	Good by 2015					
Physic	Specific pollutants:	-						
D ts for rs: ical	Priority hazardous substances	Good	Good by 2015					
WFI element River	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				
4	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.
 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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### Evidence

		Water body ID:		GB112070064850	Scheme:	Group 2 - Improve	d reservoir compens	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 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	High	Good by 2015					
gical	Biolog	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.)	
River	rpholog	Hydrological regime	-	-				The ALS states that:	
ts for	y v	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 (Q95), water available at 070, and no water available at	
elemen	Hydror	Morphological conditions	-			No or minimal impact.	High	medium and high flows (050 ad 030). 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	WFD elem o-chemical Hydr	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	ical	Priority hazardous substances	Good	Good by 2015					
WF. elemen Rive	elements Rivers Chemic	Priority substances	Good	Good by 2015					
all	tial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\	oten	Chemical	Good	Good by 2015	N/A				
	-	Overall	Moderate	Good by 2027	N/A				

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

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 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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### Evidence

	Water body ID:		GB102076070720	Scheme:	Group 2 - Improved		ion release control – HAWESWATER	
	Water body Name:		Haweswater Beck	Scheme Phase:	<b>A</b>	WR15		
	RBMP:		Solway Tweed	Reference:	Construction		Operational	
	Operational catchment:		Eamont	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water bo	dies:	-					
	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 Biolog	Benthic invertebrates	Good	Good by 2015					
rs: Ecolo	Fish	-					Reduction in compensation flows due to new penstock arrangements.	
for River	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	
ts for norph	> River continuity				Installation of new automatic penstock arrangements.		reservoir 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	-			No or minimal impact.	High	(37) GS0 and C30. However, the heavity modified water body (HMWB) investigations undertaken by UL and the EA on this water body (HMWB) investigations undertaken by UL and the EA on this water body (HMWB) any problems with fish passage, downstream flow, downstream hoating hours provide the subscience of the subsci	High
WFD	General physico-chemical	All high, except Phosphate which is Moderate	Good by 2027					
- Circuit	Specific pollutants:	High						
D tts for rrs: rical	Priority hazardous substances	Good	Good by 2015					
WFD element River Chemi	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				
<u>م</u>	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.
 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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### Evidence

		Water body ID:			Scheme:	Group 2 - Improv	ved reservoir compens	sation release control – VYRNWY	
		Water body Name:		Vrynwy - Lake Vrynwy to conf Afon Cownwy	Scheme Phase:		WR15	9	
		RBMP:		Severn	Reference:	Construction		Operational	
		Operational catchment:		Severn Uplands	Impact potential:	Direct		Direct	
		Designation (and uses):		Heavily Modified					
		Relevant upstream water bo	dies:	Afon Nadroedd - source	e to Lake Vyrnwy, Afor	Cedig - source to Lake Vyrnwy, Eunant - source to Lake Vyrnwy (Pont Eunant)			
		Downstream water bodies:		Afon Vyrnwy - conf Afo	n Cownwy to conf Afor	n Banwy			
		WFD Element (Receptor)	Status	RBMP Objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos							
	>	Macrophytes							
-	6	Macrophytes and							
ic	Biolo	phytobenthos			XIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Installation of new automatic penstock arrangements. No or minimal impact.			
bol	-	Benthic invertebrates							
3		Fish	High					Reduction in compensation flows due to new penstock arrangements.	
Rivers: Ec	ology	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	
ts for R	morph	River continuity					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 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	Medium
elemen	Hydro	Morphological conditions					riigii		
WFD	sico- nical	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.	
FD ients or ers:	VF D ments for vers: emical	Priority hazardous substances							
elen fu Riv		Priority substances	Good						
all us/ tial		Ecological	Moderate	Good by 2021					
Over Statu oten	2 # 6	Chemical	Good	Good by 2015					
	•	Overall	Moderate	Good by 2021					

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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, 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-{s1.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\_7848\_c0b50e.pdf

		Water body ID:		GB112073071070	Scheme:		River Bela to Thirl	mara Aqueduct	
		Water body ID. Water body Name:		Bela	Reference		Kiver Dela to Thin	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	dies:	Holme Beck, Peasey	Beck and Stainton Beck				
		Downstream water bodies:		Kent					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
al		Phytobenthos	Not provided						
36	>	Macrophytes	Not provided						
ECOIO	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.	
Le la		Fish	High			No or minimal impact.		No or minimal impact.	
z		Hydrological regime	Not provided			Transfer pipe line with water course crossings. Minor level of impact.			
ē	5 S	River continuity	Not provided					New surface water abstraction quantity. Minor level of impact. New surface water abstraction from the River	
eurs	Hyd	Morphological conditions	Not provided				High	Bela near Minthore of 4.5 Mi/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	Low
lie	sico- nical	General physico-chemical	All high/good			New surface water intake. Minor level of impact.			
	Phy: chen	Specific pollutants:	All high			New pumping station.		obtained through abstraction licence trading. It is assumed that the	
ents vers:	lical	Priority hazardous substances	All good			Minor level of impact.		trading licence is located on the same reach of river, minimising any changes to the hyrological regime of the surface water body.	
elements for Rivers:	Cherr	Priority substances	All good						
all s∖ tial	9	Ecological	Good	Good by 2015	N/A		· · · · · ·		
Overall Status\ Potential		Chemical	Good	Good by 2015	N/A				
Sog	2	Overall	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.
 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: \\\\WAR-F51.global.amec.com\shared\Projects\38671.UU WRMP Support\5 Design\Feasible Options\IR2\\\WR075\WR075 Stocch EA Abstraction Licence Strategy (South Cumbria): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300489/L1

		Water body ID:		GB41202G102100	Scheme:		River Bela to Thirlr	nere Aqueduct	
		Water body ID.		Palaeozoic and Carboniferous Aquifers	Reference		WR80	· · ·	
		RBMP:		North West GW	Scheme Phase	Construction		Operational	
		Operational catchment: Designation (and uses):		Cumbria South Lower Palaeozoic and Carboniferous Aq No designation	Impact potential	Direct	Γ	Direct	
		Relevant upstream water	hadiaci	Not identified					
		Downstream water bodies		Not identified					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
ts for ter: ve	Status It	Status	Good						
emen ndwat ntitati		test	Good					Use of new transfer pipe line, pumping station and surface	
WFD elements for Groundwater: Quantitative	Quantitative Elemer	Intrusion	Good					water intake No or minimal impact.	
	ð	Balance	Good			New surface water intake. No or minimal impact.		New surface water abstraction quantity.	
ter:	ement	Status	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.	
Groundwate cal	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
	al 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	
nts for Chemi	emica	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 (	Ċ		Good					water body, no or minimal impact is expected for the groundwater body.	
WFD e		Prevent and Limit Objective	Not provided						
>	j j j j	Trend Assessment	No trend						
lle /s	<u> </u>	Quantitative	Good	Good by 2015	N/A				
Overall Status\	Uato	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.

- 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.
- 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 Stransion, or sensitivity or equirement of a law with a constraint and constraint and a constraint and constr

## Evidence

EA Abstraction Licence Strategy (South Cumbria): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300489/LIT\_7918\_ccfa86.pdf

		Water body ID:		GB30328860	Scheme:		u Creen IB to Houseou	vater via Heltondale aqueduct	
		Water body ID. 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	impuot potonium				
		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	-						
5		Phytobenthos	-						
cologica	Biology	Macrophytes and phytobenthos	-						
rvoirs: E	ä	Chironomids (CPET)	-						
Resei		Fish	-					New surface water abstraction quantity. No or minimal impact. New abstraction of 40 MI/d from Cow Green Reservoir,	
lse	e y	Hydrological regime	-					transfer via pipeline to Haweswater Reservoir via Heltondale Aqueduct. It is	
for Lak	Hydron	Hydrological regime River continuity	-			New surface water intake. Minor level of impact.	High	sumed 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
ements	emical	Morphological conditions	-					licence would be required to be granted by the Environment Agency.	
WFD e	sico-ch	General physico-chemical	Salinity - High Total Phosphorus - Good						
	Phy	Specific pollutants:	Copper - High						
	elements for Lakes\ Reservoirs: Chemical	Priority hazardous substances	Does not require assessment						
•		Priority substances	Does not require assessment						
atus\	B	Ecological	Moderate	Good by 2027	N/A				
rall St	otent	Chemical	Good	Good by 2015	N/A				
I O Vel	Pot	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 dentify any containniated land and any mitigation that may be required.
 6- Extensions, modifications, modifications, rower pumping stations, water treatment works, etc. would novice a relatively small footignini 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: <u>http://environment.data.gov.uk/catchment-planning/</u>
Engineers Proforma: \\\WAR-F51.global.amec.com\shared\Projects\38671 UU WRMP Support\S Design\Feasible Options\Third Party Options\WR810\WR81 EA Abstraction Licence Strategy (Tees): https://www.gov.uk/government/publications/tees-abstraction-licensing-strategy

Water	ter body ID:		GB103025076080	Scheme:	THIRD PARTY OPTION: Cow Green I	R to Haweswater via	Heltondale aqueduct	
Water	ter body Name:		Tees from Trout Beck	Reference:		WR810		
RBMF	MP:		Northumbria	Scheme Phase:	Construction		Operational	
Opera	erational catchment:		Tees Upper	Impact potential:	Direct		Direct	
Desig	ignation (and uses):		Heavily modified					
Relev	evant upstream water bo	dies:						
	wnstream water bodies:							
WFE	FD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
Phyto	rtobenthos							
	crophytes							
Macro phyto	crophytes and tobenthos							
Benth	thic invertebrates				Transfer pipe line on land.			
Fish					No or minimal impact.		New surface water abstraction quantity. No or minimal impact. New abstraction of 40 MI/d from Cow Green Reservoir, transfer via	
<u>a</u> .	Irological regime				Transfer pipe line with water course crossings. Minor level of impact.		pipeline to Haweswater Reservoir via Heltondale Aqueduct.	
no oo	er continuity phological conditions				New surface water intake. Minor level of impact.	High	Abstraction is from the reservoir, rather than a water course in the surface water body. 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	Low
/sico- mical	neral physico-chemical				New pumping station. Minor level of impact.		flows will be maintained to the River Tees. A new abstraction licence would be required to be granted by the Environment Agency.	
	cific pollutants:							
	ority hazardous stances							
S Since Sinc	ority substances							
ti iz	ological	Moderate	Good by 2027	N/A				
E D Chem		Good	Good by 2015	N/A				
o Overa	all	Moderate	Good by 2027	N/A				

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 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 Proforma: \\\\VARAF51.global.amec.com\\shared\\trojects\38671.UU.WRMP Support\S Design\Feasible Options\Third Party Options\\WR810\\
EA Abstraction Licence Strategy (Tess): https://www.gov.uk/government/publications/tee-abstraction-licensing-strategy

	Water body ID:		GB40302G700300	Scheme:	THIRD PARTY (	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	dies:	no ucoignation					
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
e Status int	Quantitative Dependent Surface Water Body Status Quantitative GWDTEs test	Good						
ntitative Eleme	Quantitative Saline Intrusion	Good			New surface water intake.		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			No or minimal impact. Transfer pipe line on land.		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 it	Surface water Body Status	Poor			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 S lemer	Chemical Drinking Water 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.	
шe		Good			New pumping station.			
5		Good			No or minimal impact.		New Transfer Direct line and Demoise Oration	
- 1		Good					New Transfer Pipe Line and Pumping Station No or minimal impact.	
ents	Prevent and Limit Objective	-						
mela Elem	Trend Assessment	No trend						
	Quantitative	Good	Good by 2015	N/A				
	Chemical (GW)	Poor	Poor by 2015	N/A				
	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 New pipe line water consists will be installed with a thrench and cover technique will will be installed with a thrench and cover technique will will be installed with any mitigation that are the mitter work will be installed will be insta 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

		Water body ID:		GB30327698	Scheme:	THIRD PARTY	OPTION: Kielder Wa	ter IR transfer	
		Water body Name:		Kielder Water	Reference:		W	R812	
		RBMP:		Northumbria	Scheme Phase:	Construction		Operational	
		Operational catchment:		North Tyne Upper	Impact potential:	Direct		Direct	
		Designation (and uses):		(reservoir)					
		Relevant upstream water bo	dies:	-					
		Downstream water bodies:		-					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytoplankton	Not assessed						
		Macrophytes	Not assessed						
5		Phytobenthos	Not assessed						
cologic	Biology	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	ä	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.	
est	S S	Hydrological regime	Not assessed			New surface water intake.		required to be granted by the Environment Agency.	
for Lak	Hydron	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 i anticipated on river surface water bodies, assuming that Kielder Water has capacity fi	
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.	
	Ph)	Specific pollutants:	Not assessed						
VFD ents for skes\	emical	Expert Judgement	Moderate	Good by 2027					
elemo	Che	Mitigation Measures Assessment	Moderate or less	Good by 2027					
= 10	5	Ecological	Moderate	Good by 2027	N/A				
Overall Status	OIGHT	Chemical	Good	Good by 2015	N/A				
	-	Overall	Moderate	Good by 2027	N/A				

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

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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: \\\WAR-F51.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Third Party Options\WR812\\\ EA Abstraction Licence Strategy (Tyne): https://www.gov.uk/government/uploads/system/uploads/attachment\_datafile/307287/lit\_7873\_84be79.pdf

		Water body ID:		GB40302G702700	Scheme:	TF	HIRD PARTY OPTIC	DN: Kielder Water IR transfer	
		Water body Name:		Tyne Carboniferous Limestone	Reference			WR812	
		RBMP:		Northumbria	Scheme Phase	Construction		Operational	
		Operational catchment:		Tyne Carboniferous Limestone	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
for ntitive	itus	Quantitative Dependent Surface Water Body Status	Good						
WFD elements for Groundwater: Quantitiv	ive Sta nent	Quantitative GWDTEs test	Good						
D eler dwate	antitati Elen	Quantitative Saline Intrusion	Good			Transfer pipe line on land.		New surface water abstraction quantity No or minimal impact. New abstraction of 100 MVd from Kielder Water. Transfer via pipe	
Groun	Qui	Quantitative Water Balance	Good			No or minimal impact. Transfer pipe line with water course crossings.		line to Haweswater Reservoir via Heltondale Aqueduct. The abstraction is from the reservoir, not a natural water course within the water body. It is	
rater:	tatus t	Surface Water Body Status	Good			No or minimal impact.	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
wpung	lemen	Protected Area	Good			New /monified 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	
alg	БШ		Good			New pumping station.		would be required to be granted by the Environment Agency.	
r ie	5		Good			No or minimal impact.			
sfo	-	General Chemical Test	Good			No or minimar impact.		Use of new transfer pipe line and pumping station	
lements for Grou Chemical	rting ents water)	Prevent and Limit Objective	-					No or minimal impact.	
WFD e	Elemen	Trend Assessment	No trend						
_	antial	Quantitative	Good	Good by 2015	N/A				
Overall	nsvPote	Chemical (GW)	Good	Good by 2015	N/A				
i	01810	Overall	Good	Good by 2015	N/A				

Assumptions
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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, 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: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a>
Engineers Proforma: \\WAR-F51.global.amec.com\shared\Projects\38671 UU WRMP Support\S Design\Feasible Options\Third Party Options\WR812\WI EA Abstraction Licence Strategy (Tyne): https://www.gov.uk/government/publications/tyne-abstraction-licensing-strategy

	Water body ID:		GB30431243 - GB112073071100	Scheme:	THIRD PARTY OPTION: Scam		le via Huddersfield Narrows Canal	
	Water body Name:		Scammonden Water	Reference:		WR		
	RBMP:		Humber	Scheme Phase:	Construction		Operational	
	Operational catchment:		Calder Middle	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		Confidenc
	Phytoplankton	-						
	Macrophytes	-						
	Phytobenthos	-						
ology	Macrophytes and phytobenthos	-						
ä	Chironomids (CPET)	-					New surface water abstraction quantity	
	Fish	-					No or minimal impact. New abstraction of 5 MI/d from Scammonden Reservoir,	
2 2	Hydrological regime	-					transfer via the Huddersfield Narrow Canal for re-abstraction at Buckton Castle	
n og		-			New surface water intake. Minor level of impact.	High	WTW. It is assumed that Scammonden Reservoir has capacity for the new rela- small abstraction, the volume and surface area of the reservoir will not be significantly changed, and that compensation flows will be maintained to the BI	Low
emical	Morphological conditions	-					Brook. A new abstraction licence would be required to be granted by the Environment Agency.	
sico-ch	General physico-chemical	-						
Phy	Specific pollutants:	-						
s\Reser birs: mical	Priority hazardous substances	Does not require assessment						
Lakes vo Che	Priority substances	Does not require assessment						
iti k	Ecological	Moderate	Good by 2027	N/A				
al	Chemical	Good	Good by 2015	N/A				
	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.
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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, safer 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 Wakes. 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-strat

		Water body ID:		GB104027062570	Scheme:	THIRD PARTY OPTION: Scammonden	IR to Buckton Castle	via Huddersfield Narrows Canal	
		Water body Name:		Black Brook from Source to River Calder	Reference:		WR81	3	
		RBMP:			Scheme Phase:	Construction		Operational	
		Operational catchment:		Calder Middle	Impact potential:	Direct		Direct	
		Designation (and uses):		heavily modified					
		Relevant upstream water bo		None.					
		Downstream water bodies:		Calder from Ryburn Confluenc	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					
cologica	Biology	Benthic invertebrates	Good	Good by 2015					
ivers: Ec		Fish	Good	Good by 2015		Transfer pipe line on land. No or minimal impact.		Use of new transfer pipe line and pumping station. No or minimal impact. New surface water abstraction quantity	
for R	pho		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 M/d from Scammonden Reservoir, transfer via the Huddersfield Narrow Canal for re-abstraction at Buckton Castle	
ş	Jor Jo	River continuity	Not assessed					WTW. The abstraction is from the reservoir within this surface water body, not a	
elemen	Hydron loi	Morphological conditions	Not assessed			New /modified surface water intake. Minor level of impact.	High	wirw. The abstraction is norm the reservoir within this surface water body, hor a natural water course within the water body. It is 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	Low
WFD	rsico- mical		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 brock as water available for abstraction licencing across all nows), 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 che	Specific pollutants:	Not assessed						
D ts for	rs: lical	Priority hazardous substances	Does not require assessment						
WFD elements	Cherr	Priority substances	Does not require assessment						
Overall tatus\Po	itial		Moderate		N/A				
Ove	ten	Chemical	Good	Good by 2015	N/A				
ŝ		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 containated 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: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a> 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

				Scheme:			castle via Huddersfield Narrow Canal	
	Water body ID:		GB71210268 Huddersfield Narrow Canal		THIRD PARTY OPTION: Scammon	iden IR to Buckton C	castle via Huddersfield Narrow Canal	
	Water body Name:		west section	Reference:		v	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	-						
g al	phytosonanoo							
logica Biolog	Benthic invertebrates							
<u>e</u> 18	Dentric invertebrates	-					Transfer of water via canal.	
Ecol							Minor level of impact.	
	Fish						winor level of impact.	
ers	risn	-					New sector contract the state of the second term	
ž							New surface water abstraction quantity.	
8 9	Hydrological regime	-					Minor level of impact. New abstraction of 5 MI/d from Huddersfield Narrow Canal near	
f d v	River continuity						Buckton WTW (water is abstracted from Scammonden Reservoir, and transferred via the Huddersfield Narrow Canal for re-abstraction at Buckton Castle WTW).	
a di	River continuity	-			New surface water intake.		the Huddersfield Narrow Canal for re-abstraction at Buckton Castle WTW).	
e lo y					Minor level of impact.	High	The shares for the first state that have been determined as the state of the state	Low
Hyd	Morphological conditions	-					The abstraction is of water that has been discharged upstream in the canal. It is	
a +							assumed the canal will be managed to maintain flows which support the hydrological	
							regime, so no long term or widespread impacts on the status of the canal are	
	General physico-chemical	-					anticipated. A new abstraction licence would be required to be granted by the	
ni și							Environment Agency.	
L Ph								
ш о	Specific pollutants:	-						
.b _	Priority hazardous	Does not require assessment						
ica is	substances	Boos not require assessment						
WFD ements for Rivers: Chemical								
> g iz g	Priority substances	Does not require assessment						
ele								
_ 0								
s\P sial	Ecological	Moderate	Good by 2027	N/A				
Overall Status\Po tential	Chemical	Good	Good by 2015	N/A				
Sta C	Overall	Good	Good by 2013	N/A				
	Overall		0000 09 2021	11/5				

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 New pipe line water courses will accurate to informate a courses will accurate the informate and accurate a course will accurate a courses will accurate a course a course a courses will accurate a courses will accur

### Evidence

Catchment Data Explorer: <a href="http://environment.data.gov.uk/catchment.planning/">http://environment.data.gov.uk/catchment.planning/</a> Engineers Proforma: \\WAR-F51.global.amec.com\shared\Projects\38671 UU WRMP Support\5 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

	[	Water body ID:		GB112069061111	Scheme:	THIRD PARTY OPTION: Scammonden IR	to Buckton Castle vi	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	dies:	Chew Brook, Tame (Sourc					
		Downstream water bodies:		Tame (Swineshaw Brook to					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	-						
		Macrophytes	-						
		Macrophytes and							
_ 2	>	phytobenthos	-						
ologica	Biology	Benthic invertebrates	Moderate	Good by 2017				Use of new transfer pipe line and pumping station. No or minimal impact.	
Rivers: Ec		Fish	-					Transfer of water via canal. No or minimal impact.	
for F	8	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	
ts ut	e ve	River continuity	-					Narrow Canal near Buckton WTW (water is abstracted from Scammonden	
	elements Hydromor logy	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	/sico- mical	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	
i i i i i i i i i i i i i i i i i i i	che che	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 Its for ers:	-	Priority hazardous substances	Does not require assessment						
WFD elements Rivers: Chamics		Priority substances	Does not require assessment						
Overall tatus\Po tential		Ecological	Moderate	Moderate by 2015	N/A				
tatı tem		Chemical	Good	Good by 2015	N/A				
ů.		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 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 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.

### Evidence

Catchment Data Explorer: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a> Engineers Proforma: \\WAR-FS1.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Third Party Options\WR813\WR813 EA Abstraction Licence Strategy (Upper Mersey): https://www.gov.uk/government/publications/upper-mersey-abstraction-licensing-strategy

		Water body ID:		GB40402G700400	Scheme:	THIRD PARTY OPTION:	Scammonden IR 1	to Buckton Castle via Huddersfield Narrows Canal	
		Water body Name:		Aire and Calder Carb Limestone - Millstone Grit Coal - Measures	Reference			WR813	
		RBMP:		Humber	Scheme Phase	Construction		Operational	
		Operational catchment:		Aire and Calder Carb Limestone - Millstone Grit Coal - Measures	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
WFD elements for Groundwater: Quantitive	Status t	Surface Water Body Status	Good						
nents r: Qu		Quantitative GWDTEs test	Good			Transfer pipe line on land.			
D eler wate	ntitati ve Elemen	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	
Ground	Quan	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	
/ater:	tatus it	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 all flows).	Medium
vbnud	ical S lemer	Protected Area	Good			New pumping station. No or minimal impact.		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	
nts for Gro Chemical	шe		Good			No or minima impact.		would be required to be granted by the Environment Agency.	
a i	ъ		Good			New outfall to canal.			
hei	-	General Chemical Test	Poor			No or minimal impact.		Use of new transfer pipe line, pumping station, surface water intake, and outfall	
lement C	orting ents fwater)	Prevent and Limit Objective	-					No or minimal impact.	
WFDe	Elem	Trend Assessment	Upward trend						
ntial		Quantitative	Good	Good by 2015	N/A		·		
Overall us\Poten		Chemical (GW)	Poor	Poor by 2015	N/A				
Statu		Overall	Poor	Poor 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 he 4- New pipe line water course crossings would be installed via a trench and cover technique within a dy working area. New pipe line crossings of e 5- A ground investigation will be carried out and will dentify 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: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a> Engineers Proforma: \\WAR-F51.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Third Party Options\WR813\WR813\_1

EA Abstraction Licence Strategy (Aire and Calder): https://www.gov.uk/gov ction licens

		Water body ID:		GB41202G102900	Scheme:	THIRD PARTY OPTION:	Scammonden IR t	o 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:		Manchester and East Cheshire Carboniferous Aquifers	Impact potential	Direct	Γ	Direct	1
		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
antitive		Quantitative Dependent Surface Water Body Status	Good	Good by 2015					
oundwater: Quantit	ive St nent		Good	Good by 2015					
dwate	Quantit	Quantitative Saline Intrusion	Good	Good by 2015				Use of new transfer pipe line, pumping station, surface water intake, and transfer of water via canal.	
Ground		Quantitative Water Balance	Good	Good by 2015		New /modified surface water intake. No or minimal impact.		No or minimal impact. New surface water abstraction quantity.	
		Chemical Dependent Surface Water Body Status	Good	Good by 2015		Transfer pipe line on land. No or minimal impact.	High	No or minimal level of impact. New abstraction of 5 Ml/d from Huddersfield Narrow Canal near Buckton WTW (water is abstracted from Scammonden Reservoir, and transferred vi the Huddersfield Narrow Canal for re-abstraction at Buckton Castle WTW).	Medium
	ica em	Protected Area	Poor	Good by 2027		New pumping station.		The abstraction is from the canal, a managed water course within this water body. It is	
a			Good	Good by 2015		No or minimal impact.		assumed that there is limited interaction between the canal and the secondary aquifers in	
lic			Good	Good by 2015				the groundwater body, so there will not by any significant change to the status of the	
nen		General Chemical Test	Good	Good by 2015				groundwater body. A new abstraction licence would be required to be granted by the	
Chemical	rung ents water)	Prevent and Limit Objective	-					Environment Agency.	
	Eleme	Trend Assessment	Upward trend						
Intial		Quantitative	Good	Good by 2015	N/A				
Overall us/Pote		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.

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 supervised to the pipeline across water courses will take no more than 30 days.

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.

37 A ground investigation with certain with a ground and ground

### Evidence

Catchment Data Explorer: <u>http://environment.data.gov.uk/catchment-planning/</u> Catchment Data Explorer: <u>http://environment.data.gov.uk/catchment-planning/</u> Engineers Proforma: \\WAR-F51.global.amec.com\shared\Projects\38671 UU WRMP Support\5 Design\Feasible Options\Third Party Options\WR813\WR813

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

		Water body ID:			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		Not identified					
		Downstream water bodies	:	Not identified					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
er: ve	Status nt	Quantitative Dependent Surface Water Body Status							
Groundwater: Quantitative	tive Sement	Quantitative GWDTEs test Quantitative Saline	Good					Modified water treatment works. No or minimal impact.	
Grour Quar	no c	Quantitative Saline Intrusion	Good					Changed surface water abstraction quantity.	
		Quantitative Water Balance	Good					No or minimal impact. Increase abstraction for Huntington WTW by 24 MI/d. Additional licence volume is a result of a proposed	
ater:	ement	Chemical Dependent Surface Water Body Status	Good			Modified water treatment works. No or minimal impact.	High	licence trade from an existing industrial use abstraction located a Heron Bridge of 35 Ml/d. The licence trade results in an overall reduction in abstraction	High
cal	us Elei	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	
emical	I Stat	Chemical GWDTEs test	Good					abstraction but it may be possible to trade water with an existing abstractor.	
Chen	Chemical	Chemical Saline Intrusion	Good					Given the short distance between the old and new abstraction locations, there will be no significant change in groundwater -	
	ting eme	General Chemical Test	Good					surface water interactions between the River Dee and the groundwater body.	
WLD		Prevent and Limit Objective	Not provided						
	ᇬᆂᇳ	Trend Assessment	No trend						
all Is/ Iti		Quantitative	Good	Good by 2015	N\A				
atu	a		Good	Good by 2015	N\A				
Pot Sta		Overall	Good	Good by 2015	N\A				

Assumptions
Evidence
Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
Engineers Proformas: \\WAR-F51.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⟨= e&topic=floodmap#x=3
EA Historical Landfill: http://maps.environment-
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

	Water body ID:		GB111067057080	Scheme:	Increase	ed Abstraction Capaci		
	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 bo	dies:	Ceiriog - confluence Dee to Teirw, De	e - Ceiriog to Alwen, Shell Brook	, Dungrey Brook, Worthenbury Brook - lower, Clyw	edog - Dee to Gwer	fro, Alyn - Hope to Dee, Pulford Brook, Aldford Brook, Henla	ake Brook
	Downstream water bodies:		N/A					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confiden
	Phytobenthos	Good						
≥	Macrophytes	Poor			Modified water treatment works. No or minimal impact.			
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 MI/d. Additional licence volume is a result of a	
oyd.	Hydrological regime	Not provided					proposed licence trade from an existing industrial use abstraction located at Heron Bridge of 35 Ml/d.	
iomo.	River continuity	N/A				High	The licence trade results in an overall reduction in abstraction quantity from the River Dee of 11 MI/d.	High
Hydi	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	
sico-	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	
Rivers: emical	Priority hazardous substances	All reported elements good apart form Tributyltin Compounds Nonylphenol which fail					positive benefit on the hydrological regime of the lower reaches of the water body.	
çđ	Priority substances	All reported elements good						
ri iz	Ecological	Moderate	Good by 2021	N\A				
	Chemical	Fail	Good by 2021	N\A				
Po	Overall	Moderate	Good by 2021	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\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=ma EA Historical Landfill: http://maps.environment-

Dee Catchment Abstraction Management Strategy: https://naturalresources.wales/media/674759/dee\_cams\_2015\_english.pdf

		Water body ID:		GB111067052060	Scheme:	Increased treat	ment 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	odies:			, Eglwyseg, Trefnant Brook, Eitha			
		Downstream water bodies:		Dee - Chester Weir to Ceir					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos	Good						
=	~	Macrophytes	Good						
logica	r Rivers: Ecolog	Macrophytes and phytobenthos	Not applicable			Transfer of water via canal. No or minimal impact, no construction necessary.		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.	
s: Eco		Benthic invertebrates	High					Increased quantity of surface water abstraction.	
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	
Its for		Hydrological regime	Not provided				High	proposed licence trade from an existing industrial use abstraction located at Heron Bridge of 35 Ml/d.	Low
elemer	gy	River continuity	Not provided			······································		The licence trade results in an overall reduction in abstraction quantity from the River Dee of 11 Mi/d, but relocates 24 Mi/d of abstraction into the upper reaches o the river.	
WFD e	Hydi	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 existing abstractor.	
-	sico- nical	General physico-chemical	All reported substances good or high.					It is unclear if 24 M/d would be available at Llantisitio, or if flow restrictions would apply. Flows in the River Dee are regulated to allow public water supply	
	Phy cher	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.	
WFD ements for	elements for Rivers: Chemical	Priority hazardous substances	All reported substances good or high apart from Tributyltin						
elem fo		Priority substances	All reported substances good or high.						
all s\		Ecological	Good	Good by 2015	N/A				
Overall Status/		Chemical		Good by 2021	N/A				
0.0	overall	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 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.

		Water body ID:		GB41102G200200	Scheme:	Increase	ed treatment capacit	ty at Hurleston WTW via Canal	
		Water body Name:		Dee Silurian/Ordovician	Reference			8814b	
		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: Quantitative	Status It	Quantitative Dependent Surface Water Body Status	Good						
emen ndwa ntitati	Quantitat Quantitative { Elemen	Quantitative GWDTEs test	Good						
FD el Grou Qua		Quantitative Saline Intrusion	Good					Transfer of water via canal. No or minimal impact. No change in the interaction between the	
3		Quantitative Water Balance	Good					canal and groundwater body expected.	
ter:	ement	Chemical Dependent Surface Water Body Status	Good			Transfer of water via canal.		Increased quality of sufface water advaration. 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 as the River Dee is regulated to support abstraction and environmental needs, and the increase in abstraction may be	
undwa	tus Ele	Chemical Drinking Water Protected Area	Good			No or minimal of impact, no construction necessary.	High		Low
Grou cal	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	
nts for Chemi	emica	Chemical Saline Intrusion	Good					Ordovician strata are not typically primary aquifers or have high permeability and transmissivity, reducing the sensitivity of the	
elemer (	Che	General Chemical Test	Good					groundwater body.	
WFD el	supportin g Elements	Prevent and Limit Objective	Not provided						
		Trend Assessment	Not provided						
		Quantitative	Good	N/A	N/A				
Overall Status /	otent	Chemical (GW)	Good	Good by 2015	N/A				
0.07	1	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 tench and cover technique within a dry working area. New pipe line crossings of estuaries or coastal waters would be installed via a tench 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/

EA Flood Maps (WIYBY): http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=wast&alxy=Groups=default&lang=\_e&topic=floodmap#x=344705&y=511476&lg=1,2,1,0,&scale=7 EA Historical Landfill: http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=wast&alyerGroups=default&lang=\_e&topic=floodmap#x=344705&y=511476&lg=1,2,1,0,&scale=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

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

	Water body ID: Water body Name: RBMP: Operational catchment: Designation (and uses):			Scheme:	Increased treat	tment capacity at Hur	leston WTW via Canal	
			Dee - Ceiriog to Alwen				WR814b	
			Dee	Scheme Phase	Construction		Operational	
			Dee	Impact potential	Direct		Direct	
			Heavily Modified					
	Relevant upstream water bo	dies:			ddwr, Eglwyseg, Trefnant Brook, Eitha			
	Downstream water bodies:		Dee - Chester Weir to 0					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Good						
	Macrophytes	Good						
ological 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	
Eco	Benthic invertebrates	High					the Canal and River Trust abstraction.	
Rivers	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	
nts for I pholo	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 MVd. The licence trade results in an overall reduction in abstraction quantity from the River Dee of 11 MVd, but relocates 24 MVd of abstraction into the upper reaches	
	River continuity	Not provided			Transfer pipe line with water course crossings. Minor level of impact.	High		Low
NFD e	Morphological conditions	Not provided					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	
Phys	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.	
WFD ements Rivers: nemical	Priority hazardous substances	All reported substances good or high apart from Tributyltin						
ci ci el	Priority substances	All reported substances good or high.						
verall tatus\ otenti al	Ecological	Good	Good by 2015	N/A				
ver tatu otel al	Chemical	Fail	Good by 2021	N/A				
Q 22 Q	Overall	Moderate	Good by 2021	N/A				

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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-F51.globalamec.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 Dee Catchment Abstraction Management Strategy: <u>https://naturairesources.wales/media/574759/dee\_cams\_2015\_english.pdf</u>

		Water body ID:		GB41102G200200	Scheme:	Increased	treatment canacity	at Hurleston WTW via Canal	
		Water bouy ID:		00411020200200	Reference	Increased			
		Water body Name:		Dee Silurian/Ordovician			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 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	Good						
WFD elements for Groundwater: Quantitative		Quantitative GWDTEs test	Good					Transfer of water via canal.	
FD el Grou Qua		Quantitative Saline Intrusion	Good					No or minimal impact. No change in the interaction between the canal and groundwater body expected.	
3		Quantitative Water Balance	Good					Increased quantity of surface water abstraction.	
rater:	er: ient	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 as the River Dee is regulated to support abstraction and environmental needs, and the increase in abstraction may be	Low
nts for Groundwat Chemical	us Ele	Chemical Drinking Water Protected Area				Transfer pipe line with water course crossings. No or minimal impact.			
or Gro nical	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	Chemical Saline Intrusion	Good					Ordovician strata are not typically primary aquifers or have high permeability and transmissivity, reducing the sensitivity of the groundwater body.	
eleme	ວົ	General Chemical Test	Good					giouliawater bouy.	
WFD		Prevent and Limit Objective	Not provided						
	20 L L	Trend Assessment	Not provided						
= 5	a	Quantitative	Good	N/A	N/A				
Overall Status \	otenti	Chemical (GW)	Good	Good by 2015	N/A				
0 0	₽.	Overall	Good	Good by 2015	N/A				

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### 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 BGS Geology Mapping: http://mappaps.bgs.ac.uk/eedogyOPtitain/home.html

Dee Catchment Abstraction Management Strategy: https://naturalresources.wales/media/674759/dee\_cams\_2015\_english.pdf

	Water body ID:		GB112069060840	Scheme:	THIRD PARTY OPTIO		ury Canal to integrated zone	
	Water body Name:		Irwell (Roch to Croal)	Reference:			WR816	
	RBMP:		North West	Scheme Phase:	Construction		Operational	
	Operational catchment:		Croal Irwell	Impact potential:	Direct		Direct	
	Designation (and uses):		heavily modified					
	Relevant upstream water bo	odies:	Irwell (Rossendale STW to Roch), R	och (Spodden to Irwell)				
	Downstream water bodies:		Irwell (Croal to Irk)					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
	Macrophytes and phytobenthos	Moderate						
cological Biology	Benthic invertebrates	Poor			New surface water intake. Minor level of impact.			
Rivers: E	Fish	-			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, Bolton and Bury Canal near Elton Reservoir of 10 Ml/d.	
for F	Hydrological regime	Supports good			New pumping station.		The abstraction is from the canal (assumed to be supplied by Elton Reservoir), rather than	
elements Hydromo	River continuity Morphological conditions	-			Minor level of impact. Transfer pipe line on land.	High	from rivers within the surface water body. It is assumed the canal will be managed maintain flows which support the hydrological regime, so no long term or widespre impacts on the status of the surface water body as a whole are anticipated. A ne	Medium
WFD e	General physico-chemical	Moderate			No or minimal impact. Transfer pipe line with water course crossings.		abstraction licence would be required to be issued by the Environment Agency. Use of new transfer pipe line, pumping station, surface water intake, and water	
Physic	Specific pollutants:	High			Minor level of impact.		treatment works No or minimal impact.	
s for s for s: cal	Priority hazardous substances	Does not require assessement						
WFD elements for Rivers: Chemical	Priority substances	Does not require assessement						
Overall tatus\Po tential	Ecological	Moderate	Moderate by 2015	N/A				
Dve atu ten	Chemical	Good	Good by 2015	N/A				
_ 2 2 -	Overall	Moderate	Moderate by 2015	N/A				

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A New pipe line water course crossings would be installed via a trench and cover technique within a dy working area. New pipe line crossings of estuaries or
 S A ground investigation will be careful out and will identify any contaminated land 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.

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Evidence Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/ Engineers Proforma: \WV AR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options\Third Party Options\WR816\WR8 Engineers Proforma: \WV AR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options\Third Party Options\WR816\WR8 Engineers Proforma: \WV AR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options\Third Party Options\WR816\WR8 Engineers Proforma: \WV AR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options\Third Party Options\WR816\WR8 Engineers Proforma: \WV AR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options\Third Party Options\WR816\WR8 Engineers Proforma: \WV AR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options\Third Party Options\WR816\WR8 Engineers Proforma: \WV AR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options\Third Party Options\WR816\WR8 Engineers Proforma: \WV AR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options\Third Party Options\WR816\WR8 Engineers Proforma: \WV AR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/5 Design/Feasible Options\Third Party Options\WR816\WR8 Engineers Proforma: United (States) (States)

	Water body ID:		GB71210501	Scheme:	THIRD PARTY OPTION: Mancheste	ar Polton Bury Con	al to integrated zone	
	Water body ID:		Manchester, Bolton and Bury Canal (North)	Reference:	THIRD FARTT OF HUR, Multiclieste	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	dies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	-						
	Macrophytes	-						
	Macrophytes and							
- 6	phytobenthos							
cological Biology	Benthic invertebrates	-						
ivers: E	Fish	-					New surface water abstraction quantity Minor level of impact. New surface water abstraction from the Manchester,	
for R rpho	Hydrological regime	-					Bolton and Bury Canal near Elton Reservoir of 10 Ml/d.	
s 0 5	River continuity	-			New surface water intake.		It is assumed that the canal is supplied with water from Elton Reservoir,	
elemen Hydron	Morphological conditions	-			Minor level of impact.	High	the sassumed mat the cara is subplied with water nom Euron Reservoir, 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 which support the hydrological regime, so no long term or widespread impacts	Medium
WFD sico- mical	General physico-chemical	-					on the status of the canal are anticipated. A new adhtron watespread impacts on the status of the canal are anticipated. A new adhtron watespread impacts required to be issued by the Environment Agency.	
Phys	Specific pollutants:	-						
D its for srs: nical	Priority hazardous substances	Does not require assessment						
WFD elements fo Rivers: Chemical	Priority substances	Does not require assessment						
Overall Status\ Potential	Ecological	Moderate	Moderate by 2015	N/A				
Sta	Chemical	Good	Good by 2015	N/A				
	Overall	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.
 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 wort 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 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: <u>http://environment.data.gov.uk/catchment-planning/</u> Engineers Proforma: \WAR-FS1.global.amec.com/shared/Projects/38671 UU WRMP Support/S Design/Feasible Options\Third Party Options\WR8 EA Abstraction Licence Strategy (xxx): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300488/LT\_7849\_fa7980.pdf

	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	Direct	
	Operational catchment:		Carboniferous Aquifers		Direct		Direct		
	Designation (and uses):		No designation						
	Relevant upstream water boo	dies:							
	Downstream water bodies:								
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence	
ants for Quantitive e Status	Surface water Body Status	Good							
i: Qu	Quantitative GWDTEs test	Good			New surface water intake.				
FD elen ndwatei iantitati Elem	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.		
WF Ground Qua	Quantitative Water Balance	Good			Transfer pipe line on land. No or minimal impact.		The abstraction is from the canal (assumed to be supplied by Etion Reservoir), rather than from rivers within the surface water body. The canal and the groundwater body are unlikely		
vater: itatus	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	
undv ical S	Protected Area	Good			New pumping station. No or minimal impact.		new abstraction licence would be required to be issued by the Environment Agency.		
Grc Grc Nem	Chemical GWDTEs test	Good			No or minimar impact.				
L-2	Chemical Saline Intrusion	Good			New water treatment works.		Use of new transfer pipe line, pumping station, surface water intake, and water		
Chem Chem	General Chemical Test	Good			No or minimal impact.		treatment works.		
lemen C Tring ents	Prevent and Limit Objective	-					No or minimal impact.		
WFD e Suppo	Trend Assessment	Upward trend							
ntial	Quantitative	Good	Good by 2015	N/A					
Overall us/Poten	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.

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# 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\Third Party Options\WI EA Abstraction Licence Strategy (xxx): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300488/LIT\_7849\_fa7980.pc

	Water body ID:		0.044000004000	Scheme:	THIRD PARTY OPTION: C			
	water body ID:		GB112069061230	Scheme: Reference:	THIRD PARTY OPTION: C	arr mill Dam to Integ	rated Kesource Zone	
	Water body Name:		Black Brook (Mersey Estuary)	Reference:		WR	817	
	RBMP:		North West	Scheme Phase:	Construction		Operational	
	Operational catchment:		Sankey	Impact potential:	Direct		Direct	
	Designation (and uses):		Heavily Modified					
	Relevant upstream water be	dies:	-					
	Downstream water bodies:		to Mersey)					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than		Confidence		Confidence
	WPD Element (Receptor)	Status	KBMP Objective	Good		Connuence		Connuence
	Phytobenthos	-						
	Macrophytes	-						
	Macrophytes and							
	phytobenthos	-						
al al	p. j. care in a care			1				
logical Biology	Benthic invertebrates	Moderate						
e ia	Dentile invertebrates	WIDGET ALE			New surface water intake.			
					Minor level of impact.		New surface water shots still sweetite	
	Fish				wind level of impact.		New surface water abstraction quantity.	
s.e	Fish	Moderate					No or minimal impact. New surface water abstraction from the St Helens Canal near Carr	
ž.					New water treatment works.		Mill Dam of 23 Ml/d.	
<u>к</u> 5	Hydrological regime	Supports good			No or minimal impact.			
- <sup>2</sup>							The abstraction is from the canal (assumed to be supplied by Carr Mill Dam), rather than	
nc nts	River continuity	-			New pumping station.		from rivers within the surface water body. It is assumed the canal will be managed to	
io ge	2				Minor level of impact.	High	maintain flows which support the hydrological regime, so no long term or widespread	Medium
Hyd	Morphological conditions	-					impacts on the status of the surface water body as a whole are anticipated. A new	
					Transfer pipe line on land.		abstraction licence would be required to be issued by the Environment Agency.	
. NFD					No or minimal impact.			
≤ 0	General physico-chemical	Good					Use of new transfer pipe line, pumping station, surface water intake, and water	
Si C	ie i				Transfer pipe line with water course crossings.		treatment works	
L A	her				Minor level of impact.		No or minimal impact.	
<u>م</u>	<sup>o</sup> Specific pollutants:	-						
<u>ہ</u> _	Priority hazardous	Does not require assessment						
s f s	substances	Does not require assessment						
WFD ements for Rivers: Chemical								
he n z	Priority substances	Does not require assessment						
ele O	i nonty outpotanooo							
_		1						
Overall Status\ Potential	Ecological	Moderate	Good by 2027	N/A				
atu ten		Good		N/A				
of St O	Chemical		Good by 2015					
-	Overall	Moderate	Good by 2027	N/A				

Application of standard best practice construction and pollution prevention methods.
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### Evidence

Catchment Data Explorer: http://mnitromment.data.gov.uk/catchment-planning/ Engineers Proforms: WNAR-FSI.global.amec.com/baterd/Project3/8671 UU WRMP SupportS DesigniFeasible Options/Third Party Options/WR817 EA Abstraction Licence Strategy (xxs): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/ite/300490/LIT\_7881\_35d3ed.pdf

	Water body ID:		GB71210088	Scheme:		N: Carr Mill Dam to Integ		
	Water body ID: Water body Name:		St Helens Canal	Reference:	THIRD PARTY OPTION	WR8		
	RBMP:		North West	Scheme Phase:	Construction	WING	Operational	
	Operational catchment:		Sankey Canals	Scheme Phase: Impact potential:	Direct		Direct	
			heavily modified	impact potential:	Direct	-	Direct	
	Designation (and uses):	•	neavily 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							
Ecological Biology	Benthic invertebrates	•						
ivers:	Fish	-			New surface water intake.		New surface water abstraction quantity	
phe	Hydrological regime	-					Minor level of impact. New surface water abstraction from the St Helens Canal near Carr Mill Dam of 23 Ml/d.	
at is the second s	River continuity							
) elemen Hydron	Morphological conditions	-			Minor level of impact.	High	It is assumed that the canal is supplied with water from Carr MII Dam, therefore the new abstraction would be marked by a corresponding discharge from the respondent. It is assumed the canal will be managed to maintain flows 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.	Medium
WFD /sico-	General physico-chemical	-						
Phy che	Specific pollutants:	-						
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	Good by 2027	N/A				
Dve	Chemical	Good	Good by 2015	N/A				
St -	Overall	Moderate	Good by 2027	N/A				

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 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, static transmissions, water transmissions

Evidence Catchment Data Explorer: http://envrorment.data.gov.uk/catchment.planning/ Engineers Proforma: \WAR-F51.global.amec.com/shared/Projects/38671 UU WRMP Supports Design/Feasible Options\Third Party Option: EA Abstraction Licence Strategy (xxx): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300490/LIT\_7881\_35d3

	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 bo	dies:	-					
	Downstream water bodies:		-					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
for intitive atus	Quantitative Dependent Surface Water Body Status	Good						
nents r: Qua ve Sta	Quantitative GWDTEs test	Good			New surface water intake.			
D elen dwate intitati	Quantitative Saline Intrusion	Good			No or minimal impact.		New surface water abstraction quantity No or minimal impact. New surface water abstraction from the St Helens Canal near Carr Mill Dam of 23 Ml/d.	
Ground	Quantitative Water Balance	Good			Transfer pipe line on land. No or minimal impact.		The abstraction is from the cardia (assumed to be supplied by Carr Mill Dam), rather than from rivers within the surface water body. The canal and the groundwater body	
/ater: tatus	Chemical Dependent Surface Water Body Status	Poor			Transfer pipe line with water course crossings. No or minimal impact.	High	are unlikely to by hydraidically connected and this secondary acquier 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
undw ical S	Chemical Drinking Water Protected Area	Good			New pumping station. No or minimal impact.		groundwater body. A new abstraction licence would be required to be issued by the Environment Agency.	
Gro	Chemical GWDTEs test	Good			No or minimar impact.		la de la constante de la const	
5 1 2	Chemical Saline Intrusion General Chemical Test	Good Poor			New water treatment works.		Use of new transfer pipe line, pumping station, surface water intake, and water	
ements Che	Prevent and Limit Objective				No or minimal impact.		treatment works. No or minimal impact.	
WFD e	Trend Assessment	No trend						
ntial	Quantitative	Good	Good by 2015	N/A		- <u> </u>		
Overall us\Poter	Chemical (GW)	Poor	Poor by 2015	N/A				
Statu	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 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

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\Third Party Options\WR EA Abstraction Licence Strategy (xxx): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/300490/LIT\_7881\_35d3ed.pd

	Water body ID:		GB71210133	Scheme:	THIRD PARTY OPTION: S	hropshire Union Canal to Integ	grated Resource Zone	
	Water body Name:		Shropshire Union Canal, Market Drayton to			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 bo	odies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confiden
	Phytobenthos	-						
	Macrophytes	-						
AE.	Macrophytes and phytobenthos	-						
Biolog	Benthic invertebrates	-						
	Fish	-					Transfer of water via canal. Minor level of impact.	
pho	Hydrological regime	-					Increased surface water abstraction quantity. Minor level of impact. Increased abstraction of 15.5. Ml/d from existing	
2 A	River continuity	-			Modified surface water intake.		pumps on the Shropshire Union Canal. It is assumed that water will be	
Hydron	Morphological conditions	-			Minor level of impact.	High	transferred from elsewhere on the canal system to support this abstraction (atthough the source is not clear in the engineering pro forma). It is assumed that flows within the canal will be maintained, mitigating any	Low
sico- mical	General physico-chemical	High					impact on the hydrological regime of the canal. A new abstraction licence would be required to be issued by the Environment Agency.	
Phy chei	Specific pollutants:	-						
ical	Priority hazardous substances	Does not require assessment						
Chem	Priority substances	Does not require assessment						
tential	Ecological	Moderate	Good by by 2027	N/A				•
ten	Chemical	Good	Good by 2015	N/A				
	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

A New pipe line water course crossings would be installed via a trench and cover technique within a dy working area. New pipe line crossings of estuaries or coastal water
 S A ground investigation will be careful out and will identify any contaminated land any mitigation that may be required.
 C 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: \W/AR-FS1.global.amec.com/shared/Projects\38671 UU WRMP Support/5 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

	Water body ID:		GB112068055340	Scheme:	THIRD PARTY OP		on Canal to Integrated Resource Zone	
	Water body Name:		Rookery Brook, Burland and Brindley	Bk. to Reference:		WR8	20	
	RBMP:		North West	Scheme Phase:	Construction		Operational	
	Operational catchment:		Weaver upper	Impact potential:	Direct		Direct	
	Designation (and uses):		modified					
	Relevant upstream water bo	dies:						
	Downstream water bodies:							
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidenc
	Phytobenthos	-						
	Macrophytes	-						
~	Macrophytes and phytobenthos	Moderate						
Biolog	Benthic invertebrates	Moderate						
	Fish	-					Increased surface water abstraction quantity. Minor level of impact. Increased abstraction of 15.5. Mi/d from existing pumps on	
oyd		Supports good			Transfer pipe line on land. No or minimal impact.		the Shropshire Union Canal. The abstraction of 15.5, which form existing pumps on water course and not directly from the Rookery Brook.	
o y	River continuity	-					water course and not directly from the Rookery Brook.	
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
rsico- mical	General physico-chemical	Moderate			Modified water treatment works. No or minimal impact.		Transfer of water via canal. Minor level of impact.	
Che Che	Specific pollutants:	-						
ical	Priority hazardous substances	Does not require assessment						
Chemica	Priority substances	Does not require assessment						
		Moderate	Good by by 2021	N/A				-
	Chemical	Good	Good by 2015	N/A				
		Moderate	Good by by 2021	N/A				

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 ir

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 coast

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: \WAR-FS1.global.amec.com/shared/Projects/38671 UU WRMP SupportS Design/Feasible Options\Third Party Options\WR820\WR820\_TH EA Abstraction Licence Strategy (xxx): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/319959/lit\_7884\_52dcff.pdf

	Water body ID:		GB41202G991700	Scheme:	THIRD PARTY OF	PTION: Shropshire	Union Canal to Integrated Resource Zone	
	Water body Name:		Weaver and Dane Q	Reference			WR820	
	RBMP:		North West GW	Scheme Phase	Construction		Operational	
	Operational catchment:		Weaver and Dane Q	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	Quantitative Dependent Surface Water Body Status	Good						
nents r: Qua	Quantitative GWDTEs test	Good						
D eleme	Guantitative Saline	Good						
Groundw	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:	Chemical Dependent 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. M/d from existing pumps on	Medium
wpun	Chemical Drinking Water 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 -	Chemical GWDTEs test	Poor			No or minimal impact.		likely to be limited, only minimal impacts on the groundwater body are likely to occur. There	
ic of	Chemical Saline Intrusion	Good					are no groundwater management units defined in the ALS.	
en sto	General Chemical Test	Poor						
elements for Grou Chemical orting	St Prevent and Limit Objective	-						
WFD e	Trend Assessment	Upward trend						
ntial	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 whic

A New pipe line water course crossings would be installed via a trench and cover technique within a dry working area. New pipe line cro:
 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\Third Party O EA Abstraction Licence Strategy (xxx): https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/319959/lit\_7884\_5

	Water body ID:		GB112068055340	Scheme:		Shropshire Uni	ion 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 be	odies:		d Rookery Brook, Source to Burl	and and Brindley Bk			
	Downstream water bodies:		Weaver (Marbury Brook to Dane					
	WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
	Phytobenthos	Not provided						
~	Macrophytes	Not provided						
Biology	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 Ml/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.	
	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
- 0	Morphological conditions	Supports good						
sico-	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.	
Phys	Specific pollutants:	Not provided						
ers: nical	Priority hazardous substances	Does not require assessment						
Rivers: Chemical	Priority substances	Does not require assessment						
al	Ecological	Moderate	Good by 2021	N/A				
ential	Chemical	Good	Good by 2015	N/A				
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 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

- Carchment Data Explorer: <a href="http://environment.data\_gov.uk/catchment-planning/">http://environment.data\_gov.uk/catchment-planning/</a> Engineers Proformas: <a href="http://www.new.explored.tata/uk/application/state/explored.tata/uk/application/stata/uk/application/state/explored.tata/uk/ap EA Historical Landfill: http://maps.environment-

Abstraction Licensing Strategies (Weaver and Dane): https://www.gov.uk/government/publications/weaver-and-dane-abstraction-licensing-strategy

		Water body ID:		GB71210133	Scheme:		Shropshire Union	n Canal	
		Water body name:		Shropshire Union Canal, M	arl Reference			WR821	
		RBMP:		North West	Scheme Phase	Construction		Operational	
		Operational catchme	nt:	Weaver Upper Canals	Impact potential	Direct		Direct	
		Designation (and use	s):	Artificial					
		Relevant upstream wa	ater bodies:	N/A					
		Downstream water bo	dies:	N/A					
		WFD Element (Receptor)	Status	RBMP objective	Alternate Objective if less than Good		Confidence		Confidence
		Phytobenthos							
		Macrophytes							
logical	Biology	Macrophytes and phytobenthos							
ers: Eco	_	Benthic invertebrates							
Rive		Fish						New surface water abstraction quantity and transfer of water via the canal.	
nts for	5 <u>9</u>	Hydrological regime				Modified surface water intake.		Minor level of impact. New solution of 30 M/d from the Shropshire Union Canal, Middlewich branch. A new abstraction licence would be required.	
me	phd	River continuity				Minor level of impact.	High		Low
D ele	H	Morphological conditions						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 would only be minor change in the flow regime of the canal.	
M		General physico- chemical	High					would only be minor change in the how regime of the cartai.	
		Specific pollutants:							
WFD elements for Rivers:		Priority hazardous substances	Does not require assessment						
WFD 6 for F	Š	Priority substances	Does not require assessment						
l ential		Ecological	Moderate	Good by 2027	N\A				
Overall us\Poter		Chemical	Good	Good by 2027	N\A				

Stat

Application of standard best practice pollution prevention methods e.g. the GPPs
 Small scale shallow dewatering would take place

Good

Overall

- 3- Stockpiling 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 exsisting 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 saudht to meet environmental requisitions for WP for New discharge sour into Rochdale Canal

Good by 2027

N\A

- Evidence
  Catchment Data Explorer: http://environment.data.gov.uk/catchment-planning/
  Engineers Proforma: W<u>AR-FS1.gbbal.amec.com/shared/Projacts/38671 UU WRMP Support/5 Design/Feasible Options/IRZ/WR049b</u>
  EA Abstraction Licence Strategy (Ribble, Douglas & Crossens)

		Water body ID:		GB41202G9			Shrop	shire Union Canal	
		Water body Name:		and Dane Quaternary				WR821	
		RBMP:			Scheme Phase	Construction		Operational	
		Operational catchment:			Impact potential	Direct		Direct	
		Designation (and uses):		No designat		21000			
		Relevant upstream water	hodies:	Not identifie					-
		Downstream water bodies		Not identifie					
			<b>a</b>	RBMP	Alternate Objective if				
		WFD Element (Receptor)	Status	objective	less than Good		Confidence		Confidence
ints for ater: ative	tus	Quantitative Dependent Surface Water Body Status Quantitative GWDTEs	Good						
WFD elements for Groundwater: Quantitative	antitative Eleme	test Quantitative Saline Intrusion	Good						
8		Balance	Good Poor			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 Ml/d from the Shropshire Union Canal. It is unclear	
/ater:	ame	Surface Water Body Status				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 elsewhere (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
wpuno	tus Ele	Chemical Drinking Water Protected Area				New / modified water treatment works.		Use of new pipe lines, surface water intake and water treatment works.	
or Gr nical	al Star	Chemical GWDTEs test	Poor			No or minimal impact.		No or minimal impact.	
ents f Chei	emica	Chemical Saline Intrusion	Good						
elem	ų	General Chemical Test	Poor						
WFD		Prevent and Limit Objective	Not provided						
	n t i		Upward trend						
l entia		Quantitative	Good	Good by 2015	N/A				
overall s\Pote	-	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.

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: <a href="http://environment.data.gov.uk/catchment-planning/">http://environment.data.gov.uk/catchment-planning/</a> Engineers Proformas: <a href="http://www.fsi.global.amec.com/shared/Projects/38671">www.fsi.global.amec.com/shared/Projects/38671</a> UU WRMP Support/S Design/Feasible Options/IRZ/WR075/WR075 Stocks Reservior.xisx

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.environm

Abstraction Licensing Strategies (Weaver and Dane): https://www.gov.uk/government/publications/weaver-and-dane-abstraction-licensing-strategy

			00/000075500	Scheme:	This I	Party Option: Blenkin	Aline	
	Water body ID:		GB103023075580		i hird i			
	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 be	odies:	Not identified					
	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						
Rivers Biolog	Macrophytes and phytobenthos	Poor					New groundwater abstraction quantity. Minor level of impact. New abstraction of 2.2 MI/d from	
	Benthic invertebrates	High					Blenkinsopp Mine. The abstraction licensing strategy (ALS)	
lica lo	Fish	High			Transfer pipe line on land.		indicates that there is water available in the groundwater body, and	
ements . Ecologi Iromo	Hydrological regime	Supports good			No or minimal impact.		in the surface water body across all flows. Although the abstraction	
en co	River continuity	Not provided			No of minimal impact.	High	is from groundwater (mine water), this is already discharging to the	Medium
D ele E Hydr	Morphological conditions	Supports good			Transfer pipe line with water course crossings. Minor level of impact.	riigii	Tipalt Burn, so impacts would be see the hydrological regime of the surface water body rather than the quantitative status of the	Wedium
WF	General physico-chemical	All high			who level of inpact.		groundwater body.	
Ę.	<sup>2</sup> Specific pollutants:	All high					Transfer pipe line.	
WFD eleme nts for Rivers: Chemi	Priority hazardous	All good					No or minimal impact.	
≥ la ti ti ti	Priority substances	All good						
	Ecological	Poor	Good by 2027	N/A				
Overall Status\ Potenti al	Chemical	Good	Good by 2015	N/A				
5 th O	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 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: [UNA+51.global.angl/converted/projects]38571 UU WRNP Support/S Design/Feasible Options/IRZ/WR075/WR075 Stocks Reservior.xisx EA Flood Maps (WIVBY): 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 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

		Matan basks ID:		GB40201G100400			Third Deate Outleas	Disabina and Mina	
		Water body ID:			Scheme:		Third Party Option:	Bienkinsopp Mine	
				Permo-Triassic sandstone	Reference		WR	324	
		Water body Name:		aquifers			VVIC	524	
		RBMP:			Scheme Phase	Construction		Operational	
		RDWF.			Impact potential	Collsti detion		Operational	
				Eden Valley and Carlisle Basin	impact potential				
				Permo-Triassic sandstone		Direct		Direct	
		Operational catchment:		aquifers					
		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
		Quantitative Dependent	Good						
ō	sna	Surface Water Body							
WFD elements for Groundwater: Quantitative	Staf t	Status							
vat ati		Quantitative GWDTEs	Good						
ti g a	ă ţ	test							
uar oui	μĘ	Quantitative Saline	Good						
ਦ ਤੱਕ	Quantitative Elemei	Intrusion							
3	ð	Quantitative Water	Good					New groundwater abstraction quantity.	
		Balance						No or minimal impact. New abstraction of 2.2 MI/d from	
			Good			Transfer pipe line on land.		Blenkinsopp Mine. The abstraction licensing strategy (ALS)	
er:	ent	Surface Water Body				No or minimal impact.		indicates that there is water available in the groundwater body,	
roundwat	e	Status					High	and the abstracted water would be discharging from the mine	Medium
ρί	Ē	Chemical Drinking Water	Poor			Transfer pipe line with water course crossings.		without the abstraction.	
no	sn	Protected Area				No or minimal impact.			
ਲੁਰੌ	star	Chemical GWDTEs test	Poor					Transfer pipe line.	
ni oʻ	8							No or minimal impact	
nts f Chei	<u>ič</u>	Chemical Saline	Good						
မ်းပ	en	Intrusion							
E E	5	General Chemical Test	Good						
eler									
WFD	8 5 8		Not provided						
3	tin up	Objective							
	י - מ		Upward trend						
verall tatus∖ otenti		Quantitative	Good		N/A				
vel tati	a	Chemical (GW)	Poor		N/A				
Sta Po		Overall	Poor	Good by 2027	N/A				

1- 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 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 Assessment Results for Preferred Plan Options



Option		WFD Water Body Info	ormation												Option Del	ail e e			#		¥			Impac	ts				
															and	ngs ed surface ver) intak	s station ed water arks reservoir	oriver/ nal/	ater via aqueduc sed	uantity xisiting urface	ion well rbishmen ion well surface	ed uamtity	servoir release	raising					
				Hydro - morohological				Ecological	Quantitative	Quantitative	Chemical	Chemical			line on t	se crossi -/ modifi er (e.g. ri	pumpin / modifi tment we	outfall t rvoir / ca educt	sfer of w / canal , / increa	raction q ation of thange to:	abstract ing / refu abstract dworks /	/ increating in the second sec	ged to r	ankm ent	La Si	evel 2		Level 2 Screening	
	Option Name	ID	Туре	Designation	WB Name	Operational Catchment	Ecological Status	Objective	Status	Objective	Status	Objective	Overall Status	Overall Objective	Pipe	coun New wate	New New Lreat	New reser	Tran: river New	discr wate	New drills	New grou	Chan	A Level	1 Screening Results R	Required? L	Level 2 Screening Results	Confidence	Combined Screening Result
	Norsthorne Borehole (Hurstwood IR)	GB112071065090 GB41202G100300	River Groundwater	Heavily modified	Brun- headwaters to conf Don Douglas, Darwen and Calder Carboniferous Aquifers	Calder Douglas Darwen and Calder Carboniferous Aq	Moderate n/a	Good by 2027	n/a Good	n/a Good by 2015	Good		Moderate Poor	Good by 2027 Good by 2027	Y	N N	N N	N Y	N	N N	Y Y		N		im level of impact	v v	Minor level of impact		Minor level of impact
WR101	ranklaw Z Site plus Increased Franklaw WTW Treatment Capacity	GB112072065760	River	No designation	Woodplumpton Brook	Brock and Trib	Moderate	Good by 2027	n/a	n/a	Good		Moderate	Good by 2027	N	N N	N N	N N	N	N N	Y Y	Y	N	N Mediu	m level of impact	v ,	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	Good	Good by 2015	Poor	Good by 2027	Ν	N N	N N	N N	Ν	N N	y y	Y	Ν	N Mediu	im level of impact	v <mark>,</mark>	Medium level of impact	Low	Medium level of impact
WR101	Capacity 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	Good		Poor	Good by 2027	Ν	N N	N N	N N	Ν	N N	Y Y	Y	N	N Mediu	m level of impact	y <mark>,</mark>	Medium level of impact	Low	Medium level of impact
	Capacity Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	GB112072065810 GB112072065822	River	No designation	Brock Wyre DS Grizedale Brook confl	Brock and Trib	Good	Good by 2015 Good by 2027	n/a	n/a	Good		Good	Good by 2015 Good by 2027	N	N N	N Y	N N	N	N N	Y Y	Y	N	N Mediu	im level of impact	v ,	Minor level of impact	Medium	Minor level of impact
	apacity Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	GB112072065822 GB112072066220	River	No designation Heavily modified	Calder (Wyre)	Wyre and Calder	Moderate		n/a	n/a	Good		Moderate	Good by 2027	N	N N	N N	N N	N	N N	Y Y	Y	N	N Mediu	im level of impact	v ,	Medium level of impact	Low	Medium level of impact
WR101	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	GB41201G100500	Groundwater	No designation	Fylde Permo-Triassic Sandstone Aquifers	Fylde Permo-Triassic Sandstone Aq	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	N	N N	NY	N N	Ν	N N	Y Y	Y	N	N Mediu	im level of impact	v <mark>,</mark>	Medium level of impact	Low	Medium level of impact
WR102e	old 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	Ν	N N	<u>ү</u> ү	Y	Ν	N Mediu	m level of impact	γ <mark>,</mark>	Minor level of impact	High	Minor level of impact
	Bold Heath Boreholes to Prescot WTW	GB112069060710	River	No designation	Prescot Brook (Logwood Mill Brook)	Ditton	moderate	Moderate by 2027		n/a	Good	Good by 2027	moderate	Moderate by 2027	Y	N N	NY	N N	N	N N	N N	N	N		minimal impact	N			No or minimal impact
	Bold Heath Boreholes to Prescot WTW	GB112069060990 GB112069061170	River River	Heavily modified	Whittle Brook (Mersey Estuary) Sutton Brook	Sankey	Moderate	Good by 2027 Good by 2027	n/a n/a	n/a	Good	Good by 2015 Good by 2015	Moderate Moderate	Good by 2027 Good by 2027	Y	Y N	N N	N N	N	N N	N N	N	N		minimal impact	N			No or minimal impact
	old Heath Boreholes to Prescot WTW	GB112069061210	River	Heavily modified	Hardshaw (Windle) Brook	Sankey	Moderate	Good by 2027	n/a	n/a	Good		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
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-Triassi Sandstone Aq	r n/a	n/a	Poor	Good by 2027	Poor	Good by 2027	Poor	Good by 2027	Y	Y N	N N	N N	Ν	N N	<u>у</u> у	Y	N	N Mediu	im level of impact	y <mark>,</mark>	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	Good	Good by 2015	Poor	Poor by 2015	Poor	Poor by 2015	Y	Y N	NY	N N	Ν	N N	N N	N	Ν	N Minor	level of impact	N			Minor level of impact
	Fytherington Boreholes	GB112069061320	River	Heavily modified	Bollin (Source to Dean)	Bollin Dean Mersey Upper Manchester and Cheshire East Permo-Triassic Sandstone	Moderate	Moderate by 2027		n/a	Good		Moderate	Moderate by 2027	Y	N N	N Y	N N	Ν	N N	Y Y		Ν		im level of impact	× /	Minor level of impact	Low	Minor level of impact
	Fytherington Boreholes	GB41201G101100	Groundwater	No designation Heavily modified	Manchester and East Cheshire Permo-Triassic Sandstone Aquifers Roch (Source to Spodden)	s Ag Roch irk Medlock	n/a Moderate	n/a Good by 2027	Poor n/a	Good by 2027	Poor	Good by 2027 Good by 2027	Poor Moderate	Good by 2027 Good by 2027	Y	N N	N Y	N N	N	N N	Y Y	Y	N	N Mediu	im level of impact	v ,	Minor level of impact	Low	Minor level of impact
	ython Mill Borehole Python Mill Borehole	GB112069064720 GB41202G101800	River Groundwater		Roch (Source to Spodden) Northern Manchester Carboniferous Aquifers	Roch Irk Medlock Manchester Northern Carboniferous Aq	Moderate n/a	Good by 2027	n/a Good	n/a Good by 2027	Poor		Poor	Good by 2027 Good by 2027	Y	N N	N N	N N	Y	N N N	y y	Y	N	N Mediu	im level of impact	v ,	Medium level of impact	Low	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	Good		Good	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	Sroup 1 - Improved reservoir compensation release contro - WET SLEDDALE Sroup 1 - Improved reservoir compensation release contro	M GB102076070690	River	Heavily modified	Lowther (Upper)	Eamont	Moderate	Good by 2021	n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y	N Mediu	im level of impact	v <mark>,</mark>	Minor level of impact	High	Minor level of impact
WR159	- WARLAND Group 1 - Improved reservoir compensation release contro	GB104027062600	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	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y	N Mediu	m level of impact	v <mark>,</mark>	Minor level of impact		Minor level of impact
WR159	- LIGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE 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	Good		Moderate	Good by 2027	N	N N	N N	N N	Ν	N N	N N	N	Y		im level of impact	Y Y	Minor level of impact		Minor level of impact
	- LAMALOAD Group 1 - Improved reservoir compensation release contro - LONDENDALE (WOODHEAD TORSIDE RHODESWOOD	GB112069060650	River	Heavily modified	Dean (Lamaload to Bollington) Etherow (Woodhead Res. to Glossop Bk.)	Bollin Dean Mersey Upper Goyt Etherow Tame	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	N	N N	N N	N N	N	N N	N N	N	Y		im level of impact	v ,	Minor level of impact	Medium	Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - ERREOOD & FERNILEE	GB112069060850	River	Heavily modified	Etherow (Woodhead Res. to Glossop Bk.) Goyt (Source to Randall Carr Brook)	Goyt Etherow Tame	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	N N	N N	N N	N	N N N	N N	N	Y	N Mediu	im level of impact	v ,	Minor level of impact	Medium	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	Good		Moderate	Good by 2027	N	N N	N N	N N	Ν	N N	N N	Ν	Y	N Mediu	im level of impact	y <mark>,</mark>	Minor level of impact		Minor level of impact
WR159	Sroup 1 - Improved reservoir compensation release contro - Kinder Sroup 1 - Improved reservoir compensation release contro	GB112069060970	River	No designation	Sett	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y	N Mediu	im level of impact	v <mark>v</mark>	Minor level of impact	High	Minor level of impact
WR159	- LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, Group 1 - Improved reservoir compensation release contro	GB112069061060	River	Heavily modified	Platt Brook (Source to Fallowfield Bk)	Bollin Dean Mersey Upper	Moderate		n/a	n/a	Good		Moderate	Good by 2027	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y		im level of impact	v <mark>,</mark>	Minor level of impact		Minor level of impact
WR159	<ul> <li>BRUSHES, WALKERWOOD &amp; SWINESHAW HIGHER &amp; Group 1 - Improved reservoir compensation release contro</li> </ul>	GB112069061111	River	Heavily modified	Tame (Chew Brook to Swineshaw Brook)	Goyt Etherow Tame	Moderate	Moderate by 2015		n/a	Good	Good by 2015	Moderate	Moderate by 2015	N	N N	N N	N N	Ν	N N	N N	Ν	Y		im level of impact	× ′	Minor level of impact		Minor level of impact
	<ul> <li>LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, Group 1 - Improved reservoir compensation release contro - GREENFIELD VALLEY-GREENFIELD. YEOMAN HEY.</li> </ul>	GB112069061112 GB112069061300	River	Heavily modified	Tame (Swineshaw Brook to Mersey) Chew Brook	Goyt Etherow Tame	Moderate	Moderate by 2015 Good by 2027	n/a	n/a	Good	Good by 2015 Good by 2015	Moderate	Moderate by 2015 Good by 2027	N	N N	N N	N N	N	N N	N N	N	¥ ¥		im level of impact	v ,	Minor level of impact	Medium	Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - RIDGEGATE & TRENTABANK	GB112069061320	River	Heavily modified	Bollin (Source to Dean)	Bollin Dean Mersey Upper	Moderate	Moderate by 2015	n/a	n/a	Good		Moderate	Moderate by 2015	N	N N	N N	N N	N	N N	N N	N	Y	N Mediu	im level of impact	y ,	Minor level of impact	Medium	Minor level of impact
WR159	Sroup 1 - Improved reservoir compensation release contro - DELPH Sroup 1 - Improved reservoir compensation release contro	GB112069064570	River	Heavily modified	Eagley Brook	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	Ν	N N	N N	Ν	Y	N Mediu	m level of impact	v <mark>,</mark>	Minor level of impact	Medium	Minor level of impact
WR159	- SPRINGS DINGLE - SPRINGS DINGLE Sroup 1 - Improved reservoir compensation release contro	GB112069064570	River	Heavily modified	Eagley Brook	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y	N Mediu	m level of impact	v <mark>v</mark>	Minor level of impact	Medium	Minor level of impact
WR159	- WAYOH, ENTWISTLE & JUMBLES Group 1 - Improved reservoir compensation release contro	GB112069064580	River	Heavily modified	Bradshaw Brook	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y		m level of impact	Y Y	Minor level of impact		Minor level of impact
	<ul> <li>SCOUT MOOR</li> <li>Group 1 - Improved reservoir compensation release contro</li> <li>CALF HEY, OGDEN (GRANE) &amp; HOLDENWOOD</li> </ul>	GB112069064620	River	Heavily modified	Irwell (Rossendale STW to Roch) Orden	Croal Irwell	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015 Good by 2015	Moderate	Moderate by 2015 Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y		im level of impact	v ,	Minor level of impact		Minor level of impact
	- CALF HET, OGDEN (GRANE) & HOLDENWOOD Group 1 - Improved reservoir compensation release contro - COWPE & CRAGG HOLES		River	Heavily modified	Irwell (Source to Whitewell Brook)	Croal Irwell	Moderate		n/a	n/a	Good		Moderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y		im level of impact	· · ·	Minor level of impact		Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - CLOUGH BOTTOM	GB112069064670	River	Heavily modified	Whitewell Brook	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	Ν	N N	N N	N	¥	N Mediu	im level of impact	v ,	Minor level of impact	Medium	Minor level of impact
WR159	Sroup 1 - Improved reservoir compensation release contro - CLOWBRIDGE Sroup 1 - Improved reservoir compensation release contro	GB112069064680	River	Heavily modified	Limy Water	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y	N Mediu	m level of impact	v <mark>,</mark>	Minor level of impact	Medium	Minor level of impact
WR159	- PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW Group 1 - Improved reservoir compensation release contro	, GB112069064690	River	Heavily modified	Beal	Roch Irk Medlock	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y	N Mediu	m level of impact	v <mark>v</mark>	Minor level of impact	High	Minor level of impact
	- ASHWORTH MOOR Group 1 - Improved reservoir compensation release contro	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	N N	N N	N N	N	N N	N N	N	Y	N Mediu	im level of impact	Y P	Minor level of impact	Medium	Minor level of impact
	- GREENBOOTH & 2 NADENS Sroup 1 - Improved reservoir compensation release contro - SPRING MILL, WATERGROVE & COWM	GB112069064710 GB112069064720	River	Heavily modified Heavily modified	Naden Brook Roch (Source to Spodden)	Roch Irk Medlock	Moderate	Moderate by 2015 Good by 2027	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Moderate	Moderate by 2015 Good by 2027	N	N N	N N	N N	N	N N	N N	N	¥ ¥	N Mediu	im level of impact	y ,	Minor level of impact	Medium	Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - LIGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE	GB112069064720	River	Heavily modified	Roch (Source to Spodden)	Roch Irk Medlock	Moderate		n/a	n/a	Good		Moderate	Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y		im level of impact	y y	Minor level of impact	, end	Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - SPRING MILL, WATERGROVE & COWM Group 1 - Improved reservoir compensation release contro	GB112069064730	River	Heavily modified	Spodden	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	Ν	N N	N N	N	Y	N Mediu	im level of impact	v <mark>,</mark>	Minor level of impact	Medium	Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - CASTLESHAW UPPER & LOWER Group 1 - Improved reservoir compensation release contro	GB112069064741	River	Heavily modified	Tame (Source to Chew Brook)	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y	N Mediu	im level of impact	× /	Minor level of impact	Medium	Minor level of impact
WR159	<ul> <li>READYCON DEAN, CROOKGATE, DOWRY &amp; NEW YEARS</li> <li>Group 1 - Improved reservoir compensation release control</li> </ul>	GB112069064741	River	Heavily modified	Tame (Source to Chew Brook)	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y	N Mediu	im level of impact	y <mark>,</mark>	Minor level of impact	Medium	Minor level of impact
WR159	- MITCHELLS HOUSE 1 & 2 Group 1 - Improved reservoir compensation release contro - HURSTWOOD	GB112071065040	River	Heavily modified	Hyndburn Brun - headwitters to conf Don	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 Mediu	im level of impact	t I	Minor level of impact	Medium	Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - CANT CLOUGH	GB112071065090 GB112071065090	River	Heavily modified Heavily modified	Brun - headwaters to conf Don Brun - headwaters to conf Don	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 Moderate	Good by 2027 Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N Mediu	im level of impact	v v	Minor level of impact	Medium	Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - SWINDEN 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	N N	N N	N N	N	N N	N N	N	Y	N Mediu	im level of impact	v ,	Minor level of impact	Medium	Minor level of impact
WR159	Sroup 1 - Improved reservoir compensation release contro - COLDWELL UPPER & LOWER Sroup 1 - Improved reservoir compensation release contro	GB112071065130	River	Heavily modified	Walverden Water	Colne Water	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y	N Mediu	m level of impact	v <mark>,</mark>	Minor level of impact	Medium	Minor level of impact
WR159	- CHURN CLOUGH Group 1 - Improved reservoir compensation release contro	GB112071065140	River	No designation	Sabden Brook	Calder	Good	Good by 2015	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y	N Mediu	im level of impact	v <mark>1</mark>	Minor level of impact	Medium	Minor level of impact
WR159	- 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	Good	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	Ν	N N	N N	Ν	Y	N Mediu	im level of impact	Y Y	Minor level of impact	High	Minor level of impact
	- OGDEN UPPER & LOWER Sroup 1 - Improved reservoir compensation release contro - FISHMOOR TOTAL	GB112071065230 GB112071065270	River	No designation Heavily modified	Pendle Water - headwaters to Colne Water Darwen - conf Davy Field Bk to conf Blakewater	Colne Water Darwen	Good Moderate	Good by 2015 Good by 2027	n/a	n/a n/a	Good	Good by 2015 Good by 2015	Good Moderate	Good by 2015 Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y	N Mediu	im level of impact	v ,	Minor level of impact	High	Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - STOCKS	GB112071065270 N GB112071065390	River	Heavily modified	Darwen - cont Davy Held Bk to cont Blakewater Hodder - Stocks Reservoir to conf Croasdale Bk	Barwen Hodder and Loud	Moderate	Good by 2027 Good by 2021	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Moderate	Good by 2027 Good by 2021	N	N N	N N	N N	N	N N	N N	N	Y	N Mediu	im level of impact	v ,	Minor level of impact	High	Minor level of impact
WR159	Group 1 - Improved reservoir compensation release contro - POAKA BECK, PENNINGTON & HARLOCK	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	Ν	N N	N N	N	Y	N Mediu	im level of impact	v <mark>,</mark>	Minor level of impact	Medium	Minor level of impact
WR159	Sroup 1 - Improved reservoir compensation release contro - LEVERS WATER Sroup 1 - Improved reservoir compensation release contro	N GB112073071210	River	No designation	Yewdale/Church Beck	Crake	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y	N Mediu	m level of impact	v <mark>,</mark>	Minor level of impact	Medium	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	Good	Good by 2015	Moderate	Good by 2027	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y	N Mediu	m level of impact	y <mark>,</mark>	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	Good	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	Ν	N N	N N	Ν	Y		minimal impact	Ν			No or minimal impact
	- LIGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE Group 1 - Improved reservoir compensation release contro - LEVERS WATER	GB30431104 GB31229285	Lake	Heavily modified Heavily modified	White Holme Reservoir Levers Water	Calder Upper Crake	Good Moderate	Good by 2015 Good by 2027	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Good Moderate	Good by 2015 Good by 2027	N	N N	N N	N N	N	N N	N N	N	Y		minimal impact	N			No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - POAKA BECK, PENNINGTON & HARLOCK	GB31229285 GB31229599	Lake	Artificial	Levers Water Harlock Reservoir	Crake	Moderate	Good by 2027 Good by 2027	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	Y		minimal impact	N			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	Good	Good by 2015	Moderate	Good by 2027	N	N N	N N	N N	Ν	N N	N N	N	Y		minimal impact	N			No or minimal impact
WR159	Sroup 1 - Improved reservoir compensation release contro - POAKA BECK, PENNINGTON & HARLOCK Sroup 1 - Improved reservoir compensation release contro	GB31229615	Lake	Artificial	Poaka Beck Reservoir	Duddon	Poor	Good by 2027	n/a	n/a	Good	Good by 2015	Poor	Good by 2027	N	N N	N N	N N	Ν	N N	N N	Ν	Y	N No or	minimal impact	N			No or minimal impact
WR159	Sroup 1 - Improved reservoir compensation release contro - STOCKS Sroup 1 - Improved reservoir compensation release contro	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	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y	N No or	minimal impact	N			No or minimal impact
WR159	- LANESHAW Group 1 - Improved reservoir compensation release contro	GB31230377	Lake	Heavily modified	Laneshaw Reservoir	Colne Water	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y		minimal impact	N			No or minimal impact
	OGDEN UPPER & LOWER     Group 1 - Improved reservoir compensation release contro     OCDEN UPPER 8. 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	N N	N N	N N	N	N N	N N	Ν	Y		minimal impact	N			No or minimal impact
	- OGDEN UPPER & LOWER Sroup 1 - Improved reservoir compensation release contro - CHURN CLOUGH	GB31230431 GB31230459	Lake Lake	Heavily modified Heavily modified	Ogden Upper Reservoir Churn Clough Reservoir	Colne Water Calder	Moderate Moderate	Good by 2027 Good by 2021	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Moderate Moderate	Good by 2027 Good by 2021	N	N N	N N	N N	N	N N	N N	N	Y		minimal impact	N			No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - COLDWELL UPPER & LOWER	GB31230459 GB31230523	Lake	Heavily modified	Churn Clough Reservoir Coldwell Lower Reservoir	Calder Colne Water	Moderate	Good by 2021 Good by 2027	n/a n/a	n/a n/a	Good	Good by 2015 Good by 2015	Moderate	Good by 2021 Good by 2027	N	N N	N N	N N	N	N N N	N N	N	Y		minimal impact	N			No or minimal impact
WR159	Group 1 - Improved reservoir compensation release contro - COLDWELL UPPER & LOWER	GB31230533	Lake	Heavily modified	Coldwell Upper Reservoir	Colne Water	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	Y		minimal impact	N			No or minimal impact
	Sroup 1 - Improved reservoir compensation release contro - SWINDEN 1 & 2	GB31230590	Lake	Artificial	Swinden Lower Reservoir	Calder	Moderate		n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	Ν	N N	N N	N N	Ν	N N	N N	Ν	Y	N No or	minimal impact	N			No or minimal impact

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\38671 UU WRMP Support\5 Design\Feasible Options\UU WRMP WFD\Report\Tables\_&\_Appendices\38671cgos073i4\_WFD\_Report\_Appendices\_v1.xlsx

	Option		WFD Water Body Info	ormation											C	ption Detail										
Mathebr <th></th> <th>Le la</th> <th>urface intak e</th> <th>tion rater</th> <th>rvoir</th> <th>er /</th> <th>via reduct</th> <th>ity ting</th> <th>ce well</th> <th>well ace</th> <th>ity</th> <th>olr ease</th>																Le la	urface intak e	tion rater	rvoir	er /	via reduct	ity ting	ce well	well ace	ity	olr ease
Mathebr <th></th> <th>th wat sings</th> <th>ified su river) i</th> <th>ing stat ified w works</th> <th>ie reser</th> <th>l toriw canal /</th> <th>water II/aqu</th> <th>ter i quant of exisit</th> <th>o surfa</th> <th>furbish iction v / surfa</th> <th>sased er 1 quant</th> <th>ion rele</th>																th wat sings	ified su river) i	ing stat ified w works	ie reser	l toriw canal /	water II/aqu	ter i quant of exisit	o surfa	furbish iction v / surfa	sased er 1 quant	ion rele
No. <th></th> <th></th> <th></th> <th></th> <th>Hydro - morphological</th> <th></th> <th></th> <th></th> <th>Fcological</th> <th>Quantitative</th> <th>Quantitative</th> <th>Chemical</th> <th>Chemical</th> <th></th> <th></th> <th>line or se crot</th> <th>r (e.g.</th> <th>pump / mod tment</th> <th>storag</th> <th>outfal rvoir / educt</th> <th>ster of / cana</th> <th>ace war raction ation c</th> <th>hange t ahetra</th> <th>ing / re abstra Jworks</th> <th>/ incre ndwat</th> <th>1ged to pensat</th>					Hydro - morphological				Fcological	Quantitative	Quantitative	Chemical	Chemical			line or se crot	r (e.g.	pump / mod tment	storag	outfal rvoir / educt	ster of / cana	ace war raction ation c	hange t ahetra	ing / re abstra Jworks	/ incre ndwat	1ged to pensat
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Math	WR159	- CANT CLOUGH	GB31230663	Lake	Heavily modified	Cant Clough Reservoir	Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M <td< td=""><td>WR159</td><td>- CLOWBRIDGE</td><td>GB31230769</td><td>Lake</td><td>Heavily modified</td><td>Clowbridge Reservoir</td><td>Croal Irwell</td><td>Moderate</td><td>Good by 2027</td><td>n/a</td><td>n/a</td><td>Good</td><td>Good by 2015</td><td>Moderate</td><td>Good by 2027</td><td>N N</td><td>Ν</td><td>N N</td><td>Ν</td><td>Ν</td><td>Ν</td><td>Ν</td><td>Ν</td><td>N N</td><td>Ν</td><td>Y</td></td<>	WR159	- CLOWBRIDGE	GB31230769	Lake	Heavily modified	Clowbridge Reservoir	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
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m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m m <td< td=""><td>WR159</td><td>- MITCHELLS HOUSE 1 &amp; 2</td><td>GB31230833</td><td>Lake</td><td>Artificial</td><td>Mitchells House Reservoir No 2</td><td>Calder</td><td>Moderate</td><td>Good by 2027</td><td>n/a</td><td>n/a</td><td>Good</td><td>Good by 2015</td><td>Moderate</td><td>Good by 2027</td><td>N N</td><td>Ν</td><td>N N</td><td>Ν</td><td>Ν</td><td>Ν</td><td>Ν</td><td>N</td><td>N N</td><td>Ν</td><td>Y</td></td<>	WR159	- MITCHELLS HOUSE 1 & 2	GB31230833	Lake	Artificial	Mitchells House Reservoir No 2	Calder	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	N	N N	Ν	Y
Math	WR159	- CLOUGH BOTTOM	GB31230858	Lake	Heavily modified	Clough Bottom Reservoir	Croal Irwell	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	Ν	N N	Ν	Ν	Ν	Ν	N	N N	Ν	Y
M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M <td< td=""><td>WR159</td><td>- FISHMOOR TOTAL</td><td>GB31230883</td><td>Lake</td><td>Artificial</td><td>Fishmoor Reservoir</td><td>Darwen</td><td>Moderate</td><td>Good by 2027</td><td>n/a</td><td>n/a</td><td>Good</td><td>Good by 2015</td><td>Moderate</td><td>Good by 2027</td><td>N N</td><td>Ν</td><td>N N</td><td>Ν</td><td>Ν</td><td>Ν</td><td>Ν</td><td>N</td><td>N N</td><td>Ν</td><td>Y</td></td<>	WR159	- FISHMOOR TOTAL	GB31230883	Lake	Artificial	Fishmoor Reservoir	Darwen	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	N	N N	Ν	Y
No <td>WR159</td> <td>- CALF HEY, OGDEN (GRANE) &amp; HOLDENWOOD</td> <td>GB31231013</td> <td>Lake</td> <td>Heavily modified</td> <td>Ogden Reservoir Lancashire</td> <td>Croal Irwell</td> <td>Moderate</td> <td>Moderate by 2015</td> <td>n/a</td> <td>n/a</td> <td>Good</td> <td>Good by 2015</td> <td>Moderate</td> <td>Moderate by 2015</td> <td>N N</td> <td>Ν</td> <td>N N</td> <td>Ν</td> <td>Ν</td> <td>Ν</td> <td>Ν</td> <td>Ν</td> <td>N N</td> <td>Ν</td> <td>Y</td>	WR159	- CALF HEY, OGDEN (GRANE) & HOLDENWOOD	GB31231013	Lake	Heavily modified	Ogden Reservoir Lancashire	Croal Irwell	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P <td< td=""><td>WR159</td><td>- CALF HEY, OGDEN (GRANE) &amp; HOLDENWOOD</td><td>GB31231025</td><td>Lake</td><td>Heavily modified</td><td>Calf Hey Reservoir</td><td>Croal Irwell</td><td>Moderate</td><td>Moderate by 2015</td><td>n/a</td><td>n/a</td><td>Good</td><td>Good by 2015</td><td>Moderate</td><td>Moderate by 2015</td><td>N N</td><td>N</td><td>N N</td><td>Ν</td><td>Ν</td><td>N</td><td>Ν</td><td>N</td><td>N N</td><td>N</td><td>Y</td></td<>	WR159	- CALF HEY, OGDEN (GRANE) & HOLDENWOOD	GB31231025	Lake	Heavily modified	Calf Hey Reservoir	Croal Irwell	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	N	N N	Ν	Ν	N	Ν	N	N N	N	Y
matrix ma	WR159	- CALF HEY, OGDEN (GRANE) & HOLDENWOOD	GB31231027	Lake	Heavily modified	Holden Wood Reservoir	Croal Irwell	Moderate	Moderate by 2015	n/a	n/a	Good	Good by 2015	Moderate	Moderate by 2015	N N	N	N N	Ν	N	N	N	N	N N	N	Y
Mathef Ma	WR159	- COWPE & CRAGG HOLES	GB31231115	Lake	Heavily modified	Cowpe Reservoir	Croal Irwell	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	N	N	Ν	N	N	N N	N	Y
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Part of the state Part of t	WR159	- SPRING MILL, WATERGROVE & COWM	GB31231141	Lake	Heavily modified	Cowm Reservoir	Roch Irk Medlock	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
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> Norman Norman<	WR159		GB31231168	Lake	Heavily modified		Roch Irk Medlock	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
bi <td>WR159</td> <td>Group 1 - Improved reservoir compensation release control</td> <td></td> <td>Lake</td> <td>Heavily modified</td> <td></td> <td></td> <td>Moderate</td> <td>Good by 2027</td> <td>n/a</td> <td>n/a</td> <td>Good</td> <td>Good by 2015</td> <td>Moderate</td> <td>Good by 2027</td> <td>N N</td> <td>N</td> <td>N N</td> <td>N</td> <td>N</td> <td>N</td> <td>N</td> <td>N</td> <td>N N</td> <td>N</td> <td>Y</td>	WR159	Group 1 - Improved reservoir compensation release control		Lake	Heavily modified			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
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b) <td></td> <td>Group 1 - Improved reservoir compensation release control</td> <td></td> <td>Lake</td> <td>Heavily modified</td> <td></td> <td>Roch Irk Mediock</td> <td>Moderate</td> <td>Good by 2027</td> <td>n/a</td> <td>n/a</td> <td>Good</td> <td>Good by 2015</td> <td>Moderate</td> <td>Good by 2027</td> <td>N N</td> <td>N</td> <td>N N</td> <td>N</td> <td>N</td> <td>N</td> <td>N</td> <td>N</td> <td>N N</td> <td>N</td> <td>Y</td>		Group 1 - Improved reservoir compensation release control		Lake	Heavily modified		Roch Irk Mediock	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
bi <td></td> <td>Group 1 - Improved reservoir compensation release control</td> <td></td> <td>Lake</td> <td></td> <td>N N</td> <td>N</td> <td>N N</td> <td>N</td> <td>N</td> <td>N</td> <td>N</td> <td>N</td> <td>N N</td> <td>N</td> <td>v</td>		Group 1 - Improved reservoir compensation release control		Lake												N N	N	N N	N	N	N	N	N	N N	N	v
Normanne		Group 1 - Improved reservoir compensation release control		Lake												N N	N	N N	N	N	N	N	N	N N	N	v.
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Mathemation <		Group 1 - Improved reservoir compensation release control		Lake								Good				N N	N	N N	N	N	N	N	N	N N	N	, i
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bi <td></td> <td>Group 1 - Improved reservoir compensation release control</td> <td></td> <td>Lake</td> <td></td> <td>N N</td> <td>N</td> <td>N N</td> <td>N N</td> <td>N</td> <td></td> <td>N</td> <td>N</td> <td>N N</td> <td>N</td> <td>÷</td>		Group 1 - Improved reservoir compensation release control		Lake												N N	N	N N	N N	N		N	N	N N	N	÷
matrix ma		Group 1 - Improved reservoir compensation release control		Lake								Good				N N	N	N N	N	N	N	N	14	N N	N	
matrix ma		Group 1 - Improved reservoir compensation release control		Lake								Good				N N		N N	N	N	N	N		N N	N	
bi <td></td> <td>Group 1 - Improved reservoir compensation release control</td> <td></td> <td>N N</td> <td>N</td> <td>N N</td> <td>N</td> <td>N</td> <td>N</td> <td>N</td> <td>N</td> <td>N N</td> <td>N</td> <td>Y</td>		Group 1 - Improved reservoir compensation release control														N N	N	N N	N	N	N	N	N	N N	N	Y
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>Name Name Nam		Group 1 - Improved reservoir compensation release control														N N	N	N N	N	N	N	Ν	N	N N	N	Y
bia <td></td> <td>Group 1 - Improved reservoir compensation release control</td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>N N</td> <td>N</td> <td>N N</td> <td>N</td> <td>N</td> <td>N</td> <td>Ν</td> <td>N</td> <td>N N</td> <td>N</td> <td>Y</td>		Group 1 - Improved reservoir compensation release control				-										N N	N	N N	N	N	N	Ν	N	N N	N	Y
matrix ma		Group 1 - Improved reservoir compensation release control														N N	N	N N	N	N	N	Ν	N	N N	N	Y
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Norm		<ul> <li>PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW, Group 1 - Improved reservoir compensation release control</li> </ul>		Lake				Moderate		n/a	n/a			Moderate		N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
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bi scale <		Group 1 - Improved reservoir compensation release control	GB31231454	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	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td< td=""><td>WR159</td><td>Group 1 - Improved reservoir compensation release control</td><td></td><td>Lake</td><td>Heavily modified</td><td>Dowry Reservoir</td><td>Goyt Etherow Tame</td><td>Moderate</td><td>Good by 2027</td><td>n/a</td><td>n/a</td><td>Good</td><td>Good by 2015</td><td>Moderate</td><td>Good by 2027</td><td>N N</td><td>Ν</td><td>N N</td><td>Ν</td><td>Ν</td><td>Ν</td><td>Ν</td><td>Ν</td><td>N N</td><td>Ν</td><td>Y</td></td<>	WR159	Group 1 - Improved reservoir compensation release control		Lake	Heavily modified	Dowry Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td< td=""><td></td><td>Group 1 - Improved reservoir compensation release control</td><td></td><td>Lake</td><td>Heavily modified</td><td>New Years Bridge Reservoir</td><td>Goyt Etherow Tame</td><td>Moderate</td><td>Good by 2027</td><td>n/a</td><td>n/a</td><td>Good</td><td>Good by 2015</td><td>Moderate</td><td>Good by 2027</td><td>N N</td><td>Ν</td><td>N N</td><td>Ν</td><td>Ν</td><td>Ν</td><td>Ν</td><td>Ν</td><td>N N</td><td>Ν</td><td>Y</td></td<>		Group 1 - Improved reservoir compensation release control		Lake	Heavily modified	New Years Bridge Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
Image       Marcine		Group 1 - Improved reservoir compensation release control		Lake				Moderate		n/a	n/a					N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td< td=""><td>WR159</td><td></td><td>GB31231778</td><td>Lake</td><td>Heavily modified</td><td>Greenfield Reservoir</td><td>Goyt Etherow Tame</td><td>Moderate</td><td>Good by 2027</td><td>n/a</td><td>n/a</td><td>Good</td><td>Good by 2015</td><td>Moderate</td><td>Good by 2027</td><td>N N</td><td>Ν</td><td>N N</td><td>Ν</td><td>Ν</td><td>Ν</td><td>Ν</td><td>Ν</td><td>N N</td><td>Ν</td><td>Y</td></td<>	WR159		GB31231778	Lake	Heavily modified	Greenfield Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
	WR159		GB31231791	Lake	Heavily modified	Yeoman Hey Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
> > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > > >	WR159		GB31231829	Lake	Heavily modified	Davestone Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
>his sind	WR159		GB31231942	Lake	Heavily modified	Chew Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
Marting	WR159	- LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD,	GB31232065	Lake	Heavily modified	Woodhead Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
Mail	WR159	- BRUSHES, WALKERWOOD & SWINESHAW HIGHER &	GB31232066	Lake	Heavily modified	Higher Swineshaw Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
in all all all all all all all all all al	WR159	<ul> <li>BRUSHES, WALKERWOOD &amp; SWINESHAW HIGHER &amp;</li> </ul>	GB31232094	Lake	Heavily modified	Lower Swineshaw Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
111 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <	WR159	- BRUSHES, WALKERWOOD & SWINESHAW HIGHER &	GB31232108	Lake	Heavily modified	Brushes Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
Main series <	WR159	- LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD,	GB31232111	Lake	Heavily modified	Torside Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
Mail	WR159	- BRUSHES, WALKERWOOD & SWINESHAW HIGHER &	GB31232112	Lake	Heavily modified	Walkerwood Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
Name	WR159	- LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD,	GB31232136	Lake	Heavily modified	Rhodeswood Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	N	N N	Ν	Y
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td< td=""><td>WR159</td><td>- LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD,</td><td>GB31232150</td><td>Lake</td><td>Heavily modified</td><td>Valehouse Reservoir</td><td>Goyt Etherow Tame</td><td>Moderate</td><td>Good by 2027</td><td>n/a</td><td>n/a</td><td>Good</td><td>Good by 2015</td><td>Moderate</td><td>Good by 2027</td><td>N N</td><td>Ν</td><td>N N</td><td>Ν</td><td>Ν</td><td>Ν</td><td>Ν</td><td>N</td><td>N N</td><td>Ν</td><td>Y</td></td<>	WR159	- LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD,	GB31232150	Lake	Heavily modified	Valehouse Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	N	N N	Ν	Y
Nai <td>WR159</td> <td>- LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD,</td> <td>GB31232166</td> <td>Lake</td> <td>Heavily modified</td> <td>Amfield Reservoir</td> <td>Goyt Etherow Tame</td> <td>Moderate</td> <td>Good by 2027</td> <td>n/a</td> <td>n/a</td> <td>Good</td> <td>Good by 2015</td> <td>Moderate</td> <td>Good by 2027</td> <td>N N</td> <td>Ν</td> <td>N N</td> <td>Ν</td> <td>Ν</td> <td>Ν</td> <td>Ν</td> <td>Ν</td> <td>N N</td> <td>Ν</td> <td>Y</td>	WR159	- LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD,	GB31232166	Lake	Heavily modified	Amfield Reservoir	Goyt Etherow Tame	Moderate	Good by 2027	n/a	n/a	Good	Good by 2015	Moderate	Good by 2027	N N	Ν	N N	Ν	Ν	Ν	Ν	Ν	N N	Ν	Y
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td< td=""><td>WR159</td><td>- LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD,</td><td>GB31232183</td><td>Lake</td><td>Heavily modified</td><td>Audenshaw Reservoirs</td><td>Bollin Dean Mersey Upper</td><td>Moderate</td><td>Moderate by 2015</td><td>n/a</td><td>n/a</td><td>Good</td><td>Good by 2015</td><td>Moderate</td><td>Moderate by 2015</td><td>N N</td><td>N</td><td>N N</td><td>Ν</td><td>N</td><td>N</td><td>Ν</td><td>N</td><td>N N</td><td>N</td><td>Y</td></td<>	WR159	- LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD,	GB31232183	Lake	Heavily modified	Audenshaw Reservoirs	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	Ν	N	N	Ν	N	N N	N	Y
100 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000<	WR159	– Kinder	GB31232499	Lake	Heavily modified	Kinder 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	Ν	N	N	Ν	N	N N	N	Y
Nai <td>WR159</td> <td>- ERREOOD &amp; FERNILEE</td> <td>GB31232950</td> <td>Lake</td> <td>Heavily modified</td> <td>Fernilee Reservoir</td> <td>Goyt Etherow Tame</td> <td>Moderate</td> <td>Good by 2027</td> <td>n/a</td> <td>n/a</td> <td>Good</td> <td>Good by 2015</td> <td>Moderate</td> <td>Good by 2027</td> <td>N N</td> <td>N</td> <td>N N</td> <td>Ν</td> <td>N</td> <td>N</td> <td>N</td> <td>N</td> <td>N N</td> <td>N</td> <td>Y</td>	WR159	- ERREOOD & FERNILEE	GB31232950	Lake	Heavily modified	Fernilee 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	Ν	N	N	N	N	N N	N	Y
Noise       Noise      Noise       Noise <th< td=""><td>WR159</td><td>- ERREOOD &amp; FERNILEE</td><td>GB31233043</td><td>Lake</td><td>Heavily modified</td><td>Errwood Reservoir</td><td>Goyt Etherow Tame</td><td>Moderate</td><td>Good by 2027</td><td>n/a</td><td>n/a</td><td>Good</td><td>Good by 2015</td><td>Moderate</td><td>Good by 2027</td><td>N N</td><td>N</td><td>N N</td><td>Ν</td><td>N</td><td>N</td><td>Ν</td><td>N</td><td>N N</td><td>N</td><td>Y</td></th<>	WR159	- ERREOOD & FERNILEE	GB31233043	Lake	Heavily modified	Errwood 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	Ν	N	N	Ν	N	N N	N	Y
Name Processible Proc	WR159	- LAMALOAD	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	Ν	N	N	N	N	N N	N	Y
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td< td=""><td>WR159</td><td>- RIDGEGATE &amp; TRENTABANK</td><td>GB31233247</td><td>Lake</td><td>Heavily modified</td><td>Trentabank Reservoir</td><td>Bollin Dean Mersey Upper</td><td>Moderate</td><td>Good by 2027</td><td>n/a</td><td>n/a</td><td>Good</td><td>Good by 2015</td><td>Moderate</td><td>Good by 2027</td><td>N N</td><td>N</td><td>N N</td><td>Ν</td><td>N</td><td>N</td><td>Ν</td><td>N</td><td>N N</td><td>N</td><td>Y</td></td<>	WR159	- RIDGEGATE & TRENTABANK	GB31233247	Lake	Heavily modified	Trentabank 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	Ν	N	N	Ν	N	N N	N	Y
No. 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000<	WR159	- RIDGEGATE & TRENTABANK	GB31233250	Lake	Heavily modified	Ridgegate 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	Ν	N	N	N N	Ν	Y
Nind Condition Condit	WR159	- BOLLINHURST & HORSE COPPICE	GB31247004	Lake	Heavily modified	Bollinhurst 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
NIME         Constrained and a constrained and a mage and mage and mage and a mage and a mage and a mage and a m	WR159	Group 1 - Improved reservoir compensation release control – BOLLINHURST & HORSE COPPICE	GB31247005	Lake	Heavily modified	Horse Coppice 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	Ν	N	N	N	N	N N	N	Y
NHARD         Second Se	WR159		GB40202G102300	Groundwater	No designation	Eden and Esk Lower Palaeozoic and Carboniferous Aquifers	Eden and Esk Lower Palaeozoic and Carboniferous Aq	n/a	n/a d	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
NH         NH        NH        NH        NH        NH        NH        NH         NH        NH        NH        NH        NH        NH        NH        NH      NH      NH      NH <td>WR159</td> <td></td> <td>GB40402G700400</td> <td>Groundwater</td> <td>No designation</td> <td>Aire &amp; Calder Carb Limestone / Millstone Grit / Coal Measures.</td> <td>Aire and Calder Carb Limestone - Millstone Grit Coal - Mea</td> <td>sı n/a</td> <td>n/a d</td> <td>Good</td> <td>Good by 2015</td> <td>Poor</td> <td>Poor by 2015</td> <td>Poor</td> <td>Poor by 2015</td> <td>N N</td> <td>N</td> <td>N N</td> <td>N</td> <td>N</td> <td>N</td> <td>N</td> <td>N</td> <td>N N</td> <td>N</td> <td>Y</td>	WR159		GB40402G700400	Groundwater	No designation	Aire & Calder Carb Limestone / Millstone Grit / Coal Measures.	Aire and Calder Carb Limestone - Millstone Grit Coal - Mea	sı n/a	n/a d	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
Bits         Bits        Bits       Bits         Bi	WR159		GB40402G700400	Groundwater	No designation	Aire & Calder Carb Limestone / Millstone Grit / Coal Measures.	Aire and Calder Carb Limestone - Millstone Grit Coal - Mea	sı n/a	n/a d	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
Bar al - Incontrast contrast contr		Group 1 - Improved reservoir compensation release control – MITCHELLS HOUSE 1 & 2			-					Good					-	N N	N	N N	N	N	N	N	N	N N	N	Y
aligned - import amportant or any state in the		Group 1 - Improved reservoir compensation release control			-		-			Good						N N	N	N N	N	N	N	N	N	N N	N	×
Group 1- Import derenvol: compensation relaxes co		Group 1 - Improved reservoir compensation release control			-		-			Good						N N	N	N N	N	N	N	N	N	N N	N	Y
Group 1-incrprote reserve comparison relaxed continues         Control 1-incrprote reserve comparison relaxed continues         Control 1-incrprote reserve comparison relaxed control 1-incrprote reserve comparison relax		Group 1 - Improved reservoir compensation release control			-		-			Good						N N	N	N N	N	N	N	N	N	N **	N	
Grage 1-import determined and the field of a register in the field of a registe		Group 1 - Improved reservoir compensation release control			-		-			Good						N N	N	N N	-4 N	N	N	N	N	N N	N	v
Grage 1-insprcess relation relations constructions relations relations constructions relations relations relations constructions relations relatina relatina relation relations relations relatinations relations r		Group 1 - Improved reservoir compensation release control			-		-			Good						N N	N	N N	N	N	N	N	N	N N		
Grage 1-imported releaved compertation rele		Group 1 - Improved reservoir compensation release control			-		-			Good						N N	14	N N	rd Ar	IN .	EN .	N	N	N N	N	
Grage 1-improved reserved compensation relase control         Grade 1-improved reserved compensat		Group 1 - Improved reservoir compensation release control			-		-			Good						a N	N	N N	N	TN	IN .	N	N	N N	N	Y
Group 1-improved reserved compersation relates control         Note them Manchester Carboniferous Aquifers         Manchester Northern Carboniferous Aquifers         Note them Manchester Carboniferous Aquifers         Note them Manchester Carboniferous Aquifers         Note them Manchester Carboniferous Aquifers         Northern Manchester Carboniferous Aquif		Group 1 - Improved reservoir compensation release control			-		-			Good						N N	14	N N	rd Ar	IN .	EN .	N	N	N N	N	
Group 1- Improved reservoir compensation release control WR159         Group 2- Improved reservoir compensation release control Group 1- Improved reservoir compensation release control Group		Group 1 - Improved reservoir compensation release control			-					Good						a N	N	N N	N	TN	IN .	N	N	N N	N	Y
Group 1- Improved reservoir compensation release control WR159         - ASIMVORTH MOOR 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         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         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N		Group 1 - Improved reservoir compensation release control			-											N N	TN	N N	N	TN	N	IN N	IN N	N N	N	Y
Group 1 - Improved reservoir compensation release control WR159 - GREENBOOTH & X.NUERS Group 1 - Improved reservoir compensation release control 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	Y
Group 1 - Improved reservoir compensation release control		Group 1 - Improved reservoir compensation release control			-											N N	N	N N	N	N	N	IN N	N	N N	N	Y
		Group 1 - Improved reservoir compensation release control			-					Cood						N N	TN	N N	N	TN	N	IN N	IN N	N N	N	Y
	MK128	STINNO MILL, WATERORUVE & LUWM		Groundwater	wo uesignation	www.eennimanchester Carboniterous Aquifers	mancrester northern carboniterous Aq	-17 a	-iya (	6000	3000 BY 2015	ruuf	3000 By 2027	POU	auou by 2027	a N	TN .	iv N	N	TN .	N	14	19	is N	N	

	Impacts				
ę					
łew reservoir / :mbankment raisi ng					
Vew reservoir / smbankment ra		Level 2 Screening		Level 2 Screening	
New	Level 1 Screening Results	Required?	Level 2 Screening Results	Confidence	Combined Screening Result
N	No or minimal impact	N			No or minimal impact
Ν	No or minimal impact	N			No or minimal impact
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Option		WFD Water Body Info	ormation												Option Detail											Impacts				
															iter	intake	ation	srvoir		ueduct fity	iting	well hment well	ace	t ity voir lease	ang Bug					
															n land rith wi	dified:	aing st. diffied v works	ge reso Il tori	canal	al/aq eased ster n quar	of exis to surf	action efurbis action	s / surf eased tor	n quar oresei tion re	voir / ent rai					
				Hydro - morphological				Ecological	Quantitative	Quantitative	Chemical	Chemical			e line o e line v rse cro	v / mo	v pumi	v stora	educt	r / can v / inci face wa	sation charge :er	v abstr ling / n v abstr	dwork ictures v / inci undwa	tractio tractio mged t	v reser bankm		Level 2 Screening		Level 2 Screening	
Ref	Option Name Group 1 - Improved reservoir compensation release control	ID	Туре	Designation	WB Name	Operational Catchment	Ecological State	s Objective	Status	Objective	Status	Objective	Overall Status	Overall Objective	pig cou	New Mar	Nev Nev	5 N N	a de s	avit avite	Ces dise wat	Nev Aril	ttr. Nev Pro	5.42 H 5	a le	Level 1 Screening Results	Required?	Level 2 Screening Resul		Combined Screening Resu
WR159	- PIETHORNE, NORMAN HILL, KITCLIFFE, OGDEN MILNROW 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	Ν	N N	Ν	Ν	N N	Ν	Ν	Ν	N Y	N	No or minimal impact	N			No or minimal impact
WR159	- LIGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE 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	Ν	N N	Ν	Ν	N N	Ν	Ν	Ν	N Y	N	No or minimal impact	N			No or minimal impact
WR159	- CALF HEY, OGDEN (GRANE) & HOLDENWOOD Group 1 - Improved reservoir compensation release control	GB41202G101800	Groundwater		Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor		Poor	Good by 2027	N N	Ν	N N	Ν	Ν	N N	Ν	Ν	Ν	N Y	N	No or minimal impact	N			No or minimal impact
WR159	- COWPE & CRAGG HOLES 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	Ν	N N	Ν	Ν	N N	Ν	Ν	Ν	N Y	N	No or minimal impact	N			No or minimal impact
WR159	<ul> <li>SCOUT MOOR</li> <li>Group 1 - Improved reservoir compensation release control</li> </ul>	1	Groundwater		Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor		Poor	Good by 2027	N N	Ν	N N	Ν	Ν	N N	Ν	Ν	Ν	N Y	N	No or minimal impact	N			No or minimal impact
WR159	<ul> <li>CLOUGH BOTTOM</li> <li>Group 1 - Improved reservoir compensation release control</li> </ul>	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 N	N	N N	Ν	N	N N	N	N	Ν	N Y	N	No or minimal impact	N			No or minimal impact
WR159	<ul> <li>CLOWBRIDGE</li> <li>Group 1 - Improved reservoir compensation release control</li> </ul>		Groundwater		Northern Manchester Carboniferous Aquifers	Manchester Northern Carboniferous Aq	n/a	n/a	Good		Poor		Poor	Good by 2027	N N	N	N N	Ν	N	N N	N	N	N	N Y	N	No or minimal impact	N			No or minimal impact
WR159	<ul> <li>POAKA BECK, PENNINGTON &amp; HARLOCK</li> <li>Group 1 - Improved reservoir compensation release control</li> <li>LEVERS WATER</li> </ul>			-	South Cumbria Lower Palaeozoic and Carboniferous Aquifers	Cumbria South Lower Palaeozoic and Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor		Poor	Good by 2027	N N	N	N N	N	N	N N	N	N	N	NY	N	No or minimal impact	N			No or minimal impact
WR159	Group 1 - Improved reservoir compensation release control			No designation	South Cumbria Lower Palaeozoic and Carboniferous Aquifers		n/a							Good by 2027	N N	N	N N	N	N	N N	N	N	N	NY	N		N			No or minimal impact
WR159	- RIDGEGATE & TRENTABANK Group 1 - Improved reservoir compensation release control		Groundwater	-	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good	Good by 2015	Poor		Poor	Good by 2027	N N	N	N N	N	N	N N	N	N	N	NY	N	No or minimal impact	N			No or minimal impact
WR159	<ul> <li>LAMALOAD</li> <li>Group 1 - Improved reservoir compensation release control</li> <li>CASTLESHAW UPPER &amp; LOWER</li> </ul>			No designation	Manchester and East Cheshire Carboniferous Aquifers Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq Manchester and Cheshire East Carboniferous Aq	n/a n/a	n/a	Good		Poor		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	<ul> <li>CASTLESHAW UPPER &amp; LOWER</li> <li>Group 1 - Improved reservoir compensation release control</li> <li>READYCON DEAN, CROOKGATE, DOWRY &amp; NEW YEARS</li> </ul>		Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq Manchester and Cheshire East Carboniferous Aq	n/a	n/a n/a	Good	Good by 2015	Poor		Poor	Good by 2027 Good by 2027	N N	N	N N	N	N	N N	N	N	N	The second secon	N	No or minimal impact	N			No or minimal impact
WP100	<ul> <li>READYCON DEAN, CROOKGATE, DOWRY &amp; NEW YEARS</li> <li>Group 1 - Improved reservoir compensation release control</li> <li>GREENFIELD VALLEY-GREENFIELD, YEOMAN HEY.</li> </ul>		Groundwater	-	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a n/a	Good	Good by 2015 Good by 2015	Poor		Poor	Good by 2027	N N	N	N N	N	N	N N	N	N	N	n y	N N	No or minimal impact	N			No or minimal impact
WR159	<ul> <li>GREENFIELD VALLET-GREENFIELD, TEUMIAN HET,</li> <li>Group 1 - Improved reservoir compensation release control</li> <li>BRUSHES, WALKERWOOD &amp; SWINESHAW HIGHER &amp;</li> </ul>	GB41202G102900 GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a n/a	Good	Good by 2015	Poor		Poor	Good by 2027	N N	M	N N	N	N	N N	N	N	N	N N	N	No or minimal impact	N			No or minimal impact
WR159	Group 1 - Improved reservoir compensation release control     Kinder		Groundwater	-	Manchester and East Cheshire Carbonilerous Aquirers	Manchester and Cheshire East Carboniferous Aq	n/a	n/a	Good		Poor		Poor	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	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	N	No or minimal impact	N			No or minimal impact
WR159	Group 1 - Improved reservoir compensation release control – BOLUNHURST & HORSE COPPICE		Groundwater		Manchester and East Cheshire Carboniferous Aquifers	Manchester and Cheshire East Carboniferous Ag	n/a	n/a	Good	Good by 2015	Poor		Poor	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	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	Ν	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 – CHURN CLOUGH	GB41202G103000	Groundwater	No designation	Ribble Carboniferous Aquifers	Ribble Carboniferous Aq	n/a	n/a	Good	Good by 2015	Good		Good	Good by 2015	N N	Ν	N N	Ν	N	N N	N	N	N	N <b>Y</b>	N	No or minimal impact	N			No or minimal impact
WR159	Group 1 - Improved reservoir compensation release control – STOCKS	GB41202G103000	Groundwater	No designation	Ribble Carboniferous Aquifers	Ribble Carboniferous Aq	n/a	n/a	Good	Good by 2015	Good	Good by 2015	Good	Good by 2015	N N	Ν	N N	Ν	N	N N	N	N	N	N <b>Y</b>	N	No or minimal impact	N			No or minimal impact
WR160	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	Ν	N N	Ν	N	N N	N	N	N	N <b>Y</b>	N	Medium level of impact	Y	Minor level of impact	High	Minor level of impact
WR160	Group 2 - Improved reservoir compensation release control – VYRNWY	GB109054049880	River	Heavily modified	Vrynwy - Lake Vrynwy to conf Afon Cownwy	Severn Uplands	Moderate	Good by 2021	n/a	n/a	Good	Good by 2015	Moderate	Good by 2021	N N	Ν	N N	Ν	N	N N	N	N	Ν	N <b>Y</b>	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
WR160	Group 2 - Improved reservoir compensation release control – RIVINGTON	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	Ν	N N	Ν	Ν	N N	N	N	Ν	N <b>Y</b>	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
WR160	Group 2 - Improved reservoir compensation release control - Thirlmere	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	Ν	N N	Ν	Ν	N N	N	N	Ν	N <b>Y</b>	N	Medium level of impact	Y	Minor level of impact	High	Minor level of impact
WR160	Group 2 - Improved reservoir compensation release control – HAWESWATER	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	Ν	N N	Ν	Ν	N N	Ν	Ν	Ν	N <b>Y</b>	N	No or minimal impact	N			No or minimal impact
WR160	Group 2 - Improved reservoir compensation release control – VYRNWY	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	Ν	N N	Ν	Ν	N N	Ν	Ν	Ν	N <b>Y</b>	N	No or minimal impact	N			No or minimal impact
WR160	Group 2 - Improved reservoir compensation release control - 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	Ν	N N	Ν	Ν	N N	Ν	Ν	Ν	N <b>Y</b>	N	No or minimal impact	N			No or minimal impact
WR160	Group 2 - Improved reservoir compensation release control     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	Ν	N N	Ν	Ν	N N	Ν	Ν	Ν	N <b>Y</b>	N	No or minimal impact	N			No or minimal impact
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	Ν	N N	Ν	Ν	N N	Ν	Ν	Ν	N <b>Y</b>	N	No or minimal impact	N			No or minimal impact
WR160	<ul> <li>VYRNWY</li> <li>Group 2 - Improved reservoir compensation release control</li> </ul>	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	Ν	N N	Ν	Ν	N N	Ν	Ν	Ν	N <b>Y</b>	N	No or minimal impact	N			No or minimal impact
WR160	- RIVINGTON     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	Ν	N N	Ν	Ν	N N	Ν	Ν	Ν	N <b>Y</b>	N	No or minimal impact	N			No or minimal impact
WR160	- Thirlmere	GB41202G103700	Groundwater	No designation	Derwent and West Cumbria Lower Palaeozoic and Carboniferou	s A/ 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	Ν	N N	N	Ν	Ν	N Y	N	No or minimal impact	N			No or minimal impact
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 Y	Y	N Y	Ν	Ν	N Y	N	Ν	Ν	N N	Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact
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	Ν	Ν	N N	Ν	No or minimal impact	N			No or minimal impact
	Shropshire Union Canal	GB41202G991700		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		Poor	Good by 2027	Y N	Y	N Y	N	N	Y Y	N	Ν	Ν	N N	Ν	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact
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		Moderate	Good by 2021	N N	Y	N N	Ν	N	Y Y	N	Ν	Ν	N N	Ν	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact
82	Enabling Works	GB109054049880	River	Heavily modified	Vrynwy - Lake Vrynwy to conf Afon Cownwy	Vrynwy	Moderate	Good by 2021	n/a	n/a	Good		Moderate	Good by 2021	Y N	Ν	N N	Ν	Ν	N N	Ν	Ν	Ν	N N	Ν	No or minimal impact	N			No or minimal impact
B2	Enabling Works	GB109054049920	River	No designation	Hirnant - source to conf Afon Tanat	Tanat	Poor	Good by 2021	n/a	n/a	Fail		Poor	Good by 2021	Y N	Ν	N N	Ν	Ν	N N	Ν	Ν	Ν	N N	Ν	No or minimal impact	N			No or minimal impact
82	Enabling Works	GB109054049950	River	No designation	Afon Tanat - conf Hirnant to conf Afon Rhaeadr	Tanat	Moderate	Good by 2021	n/a	n/a	Fail		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
82	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	NY	N	N	N N	N	N	N	N N	Ν	No or minimal impact	N			No or minimal impact
82	Enabling Works	GB109054050050	River	No designation	Afon Tanat - conf Afon Rhaeadr to conf Afon Vyrnwy	Tanat	Moderate	Good by 2021		n/a	Fail		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
82	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
82	Enabling Works	GB109054055050	River	No designation	Afon lwrch - source to conf Afon Tanat	Tanat	Moderate	Good by 2021	n/a	n/a	Good		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
82	Enabling Works	GB109054055060	River	No designation	Afon Cynllaith - source to conf Afon Tanat	Tanat Morda and Severn North Shronshire	Moderate	Good by 2021	n/a	n/a	Good		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
82					Morda - source to conf unnamed trib Severn Uplands - Lower Palaeozoic	Morda and Severn North Shropshire Severn Uplands - Lower Palaeozoic	Moderate n/a	Good by 2021 n/a	n/a Good	n/a Good by 2015	Good		Moderate	Good by 2021 Poor by 2015	Y N	N	N N	N	N	N N	N	N	N	N N	N	No or minimal impact	N			
82	Enabling Works	GB40902G205300 GB40902G205400	Groundwater	-	Severn Uplands - Lower Palaeozoic Severn Uplands - Carboniferous Oswestry	Severn Uplands - Lower Palaeozoic Severn Uplands - Carboniferous Oswestry	n/a	n/a	Good		Poor		Poor	Poor by 2015 Good by 2015	V N	N	N N	N	N	N N	N	N	N	N N	N	No or minimal impact	N			No or minimal impact
32	Linuxing work5	00-03020203400	Groundwater	No designation	Severn opionals " calibornierous oswestry	serem opianos - caroonnerous oswesu ý	.ga	iija	3000	5000 by 2015	3000	5000 by 2015	5000	3000 by 2015	N	8	a T	13	1¥	a N	N	19		0 N	1	pro or minima implict				No of minimarinipact

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## Appendix E Water Body Cumulative Assessment for Preferred Plan Options



WFD Water Body Infor	mation			Option		Option D	etail	7				ż		Ŀ	e	~	es	2	1		Impacts					
D	Туре	Hydro - morphological Designation	WB Name	Ref	Option Name	Pipe line on land	Pipe line with water course crossings	New / modified surface wate (e.g. river) intake	New pumping station	New / modified water treatment works	New storage reservoir	New outfall to river / reservo / canal / aqueduct	Transfer of water via river / canal / aqueduct	New / increased surface wate abstraction quantity	Cessation of exisiting discharg to surface water	New abstraction well drilling refurbishment	New abstraction well headworks / surface structur	New / increased groundwate abstraction quantity	Changed to reservoir compensation release	New reservoir / embankment raising	Level 1 Screening Results	Level 2 Screening Required?	Level 2 Screening Resul	Level 2 Screening ts Confidence	Combined Screening Result	Cumulative Assessme
				WR160	Group 2 - Improved reservoir compensation release control – VYRNWY	Ν	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 compens-
GB109054049880	River	Heavily modified	Vrynwy - Lake Vrynwy to conf Afon Cownwy	в2	Enabling Works	Y	N	N	N	N	N	Ν	N	Ν	Ν	N	N	N	N	N	No or minimal impact	N			No or minimal impact	The cumulative effect each option (reduction effect.
				WR113	Tytherington Boreholes	Y	N	N	N	Y	N	Ν	N	N	N	Y	Y	Y	N	N	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact	Increased peak abstrai quantities), and reduct MI/d, a reduction of 0. The ALS shows that th
GB112069061320	River	Heavily modified	Bollin (Source to Dean)	WR159	Group 1 - Improved reservoir compensation release control – RIDGEGATE & TRENTABANK	N	N	N	N	N	N	Ν	N	N	N	N	N	N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	catchments has no wa at all flows. The cumulative effect availability of water, th current licensed quant
				WR114	Python Mill Borehole	Y	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 peak abstrat compensation flow fro from Blackstone Edge reduction for the rese
GB112069064720	River	Heavily modified	Roch (Source to Spodden	) WR159	Group 1 - Improved reservoir compensation release control – SPRING MILL, WATERGROVE & COWM	N	N	Ν	N	N	N	N	N	N	N	N	N	Ν	Y	N	Medium level of impact	Y	Minor level of impact	High	Minor level of impact	The ALS shows that the is defined for this area The cumulative effect potential reduction in MI/d as the full reduct of the groundwater ab
				WR159 WR099b	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	Y	N	Medium level of impact	Y Y	Minor level of impact	High	Minor level of impact	Increased peak abstra quantities), and reduct MI/d to 8.1 MI/d, a red place in this water boo
GB112071065090	River	Heavily modified	Brun - headwaters to con Don		Worsthorne Borehole (Hurstwood IR) Group 1 - Improved reservoir compensation release control – HURSTWOOD	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	Medium level of impact	Y		Medium	Minor level of impact	The ALS shows that part catchment has no wat and Cant Clough reser water available at high and where the abstract flows (Q70), and no wi
				WR159	Group 1 - Improved reservoir compensation release control – CANT CLOUGH	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	The cumulative effect availability of water at and the surface water is within current licens
			Eden and Esk Lower	WR159	Group 1 - Improved reservoir compensation release control – SWINDEN 1 & 2 Group 1 - Improved reservoir compensation release control –	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 compens Ml/d to 21.8 Ml/d resp
GB40202G102300	Groundwater	No designation	Palaeozoic and Carboniferous Aquifers	WR159 WR160	WET SLEDDALE Group 2 - Improved reservoir compensation release control – HAWESWATER	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 reductions in compens courses (assuming tha surface water interact
GB40902G205300	Groundwater	No designation	Severn Uplands - Lower Palaeozoic	WR160	Group 2 - Improved reservoir compensation release control – 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	Reduction of compension line construction. The cumulative effect each option (reduction
				B2 WR099b	Enabling Works Worsthorne Borehole (Hurstwood IR) Group 1 - Improved reservoir compensation release control –	Y	N	N	N	N	N	N Y	N	N	N	N Y	Y	N Y	N	N	No or minimal impact Medium level of impact	Y	Minor level of impact	Medium	No or minimal impact Minor level of impact	effect.
				WR159 WR159 WR159	MITCHELLS HOUSE 1 & 2 Group 1 - Improved reservoir compensation release control – FISHMOOR TOTAL Group 1 - Improved reservoir compensation release control – HURSTWOOD Group 1 - Improved reservoir compensation release control –	N	N	N	N	N	N	N	N	N	N	N	N	N	Y Y Y	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	Increased peak abstra quantities), and reduc - Mitchells House 1 & 2 - Fishmoor from 2.0 M - Hurstwood, Cant Clo Ml/d to 8.1 Ml/d, and - Rivington 26.6 Ml/d t
GB41202G100300	Groundwater	No designation	Douglas, Darwen and Calder Carboniferous Aquifers	WR159 WR159 WR159	CANT CLOUGH Group 1 - Improved reservoir compensation release control – SWINDEN 1 & 2 Group 1 - Improved reservoir compensation release control – LANESHAW	N	N	N	N	N	N	N	N	N	NN	N	N	N	Y Y Y	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 compens assumed to take place The cumulative effect the minor level of imp WR159 and WR160 (w
				WR159 WR159 WR160	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 – RIVINGTON	N	N	N	N	N	N	N	N	N N	N N	N	N	N	Y Y	N	No or minimal impact No or minimal impact No or minimal impact	N			No or minimal impact No or minimal impact No or minimal impact	are unlikely to reduce compensation release secondary aquifer wou
				WR160 WR114 WR159	RIVINGTON Python Mill Borehole Group 1 - Improved reservoir compensation release control – WAYOH, ENTWISTE & JUMBLES	Y	N	N	N	N	N	Y	Y N	N	N	Y	Y N	Y	N	N	Medium level of impact	Y N	Medium level of impact	Low	Medium level of impact	
				WR159	Group 1 - Improved reservoir compensation release control – DELPH	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	No or minimal impact	N			No or minimal impact	

	Cumulative Screening
ssment	Results
npensation flow from Vyrnwy reservoir from 48.4 Ml/d to 45.0 Ml/d, a reduction of 3.4 Ml/d. Pipe	Minor level of impact
bstraction quantity of 3 MI/d at refurbished Tytherington Boreholes (within current licence eduction of compensation flow from Ridgegate and Trentabank reservoirs from 2.1 MI/d to 1.8 or 0.3 MI/d (consented compensation flows maintained). nat the part of the surface water body which contains the reservoirs and their upstream to water available at any flows. Downstream of the reservoirs, the water body has water available affect of the two options will not increase the level of impact on the water body, due to the ter, the small reduction in compensation flows, and that the increase in peak abstraction is within quantities with no increase in annual average abstraction.	Minor level of impact
bstraction quantity of 3 MI/d at refurbished Python Mill Boreholes, and reduction of sw from Watergrove reservoir from 15.9 MI/d to 15.0 MI/d, plus a reduction of compensation flow Edge Reservoir from 16.8 MI/d to 15.7 MI/d, a combined reduction of 2 MI/d. (Note: Total reservoir Aquator groups assumed to take place in this water body.) that the surface water body has no water available at any flow. No groundwater management unit a area. Iffect of the two options will not increase the level of limpact on the water body, as the total on in water in the water body (5 MI/d) remains moderate. Total flows are unlikely to reduce by 5 eduction from the Aquator group has been assumed to take place in this water body, and not all ter abstraction is likely to be translated to a reduction in surface water flows.	Medium level of impact
bstraction quantity of 4 MI/d at refurbished Worsthorne Boreholes (within current licence eduction of compensation flow from Hurstwood, Cant Clough, and Swinden reservoirs from 9.1 a reduction of 1.0 MI/d. (Note: Total reduction for the reservoir Aquator group assumed to take ir body.) nat part of the surface water body that contains the Swinden reservoirs and their upstream owater available at any flows. The part of the surface water body that contains the Hurstwood reservoirs and their upstream catchments has water available at low flows (Q95 and Q20), but no thigher flows (Q50 and Q30). The remaining part of the catchment, downstream of the reservoirs straction is located has water available at low flows (Q05), limited water available at medium no water available at higher flows (Q50 and Q30). It is likely that compensation flows from the popring the low flow water availability. Iffect of the two options will not increase the level of impact on the water body, due to the ter at low flows, that there are unlikely to be strong dependencies between the secondary aquifer watercourses, the small reduction in compensation flows, and that the increase in peak abstraction licensed quantities.	Minor level of impact
npensation flow from Wet Sleddale and Haweswater reservoirs from 7.8 Ml/d to 7.4 Ml/d and 24.0 d respectively, a total reduction of 2.6 Ml/d. ffect of the two options will not increase the level of impact on the groundwater body. The small npensation flows are unlikely to reduce the wetted area of the reservoirs or downstream water g that low flow compensation released are aminianed), therefor any impact on groundwater eraction on this secondary aquifer would be minimal.	No or minimal impact
npensation flow from Vyrnwy reservoir from 48.4 Ml/d to 45.0 Ml/d, a reduction of 3.4 Ml/d. Pipe . effect of the two options will not increase the level of impact on the water body, as the activities in uction in compensation flow and pipe line construction) will not interact to produce a cumulative	No or minimal impact
bstraction quantity of 4 MI/d at refurbished Worsthorne Boreholes (within current licence eduction of compensation flow from: 1 82 from 0.4 MI/d to 0.3 MI/d. 2.0 MI/d to 0.3 MI/d. 2.0 MI/d to 0.3 MI/d. 2.0 MI/d to 1.7 MI/d. (I Colugh, Swinden 1 82, Laneshaw, Coldwell (upper & lower), Ogden (upper & lower) from 9.1 and MI/d to 2.47 MI/d. (I colugh, Swinden 1 82, Laneshaw, Coldwell (upper & lower), Ogden (upper & lower) from 9.1 divide 1 2.47 MI/d. (I colugh, Swinden 1 82, Laneshaw, Coldwell (upper & lower), Ogden (upper & lower) from 9.1 fift to 2.47 MI/d. (I colugh, Swinden 1 82, Laneshaw, Coldwell (upper & lower), Ogden (upper & lower) from 9.1 mensation flow reduction of 3.3 MI/d. Note: Total reduction for the reservoir Aquator group place in this groundwater body. The relatively small reductions in compensation flows from options 50 (which are spread across a number of surface water bodies porting the groundwater body) duce the wetted area of the reservoirs or downstream water courses (assuming that low flow firesead are maintained), therefor any impact on groundwater surface water interaction on this rwould be minimal.	Minor level of impact

WFD Water Body Info	rmation			Option		Option I	Detail														Impacts					
ID	Туре	Hydro - morphological Designation	WB Name	Ref	Option Name	ipe line on land	Dipe line with water course crossings	Vew / modified surface water e.g. river) intake	Vew pumping station	Vew / modified water reatment works	vew storage reservoir	Vew outfall to river / reservoir ' canal / aqueduct	fransfer of water via river / :anal / aqueduct	Vew / increased surface water Ibstraction quantity	cessation of exisiting discharge to surface water	Vew abstraction well drilling / efurbishment	Vew abstraction well headworks / surface structures	Vew / increased groundwater Ibstraction quantity	Changed to reservoir compensation release	Vew reservoir / embankment aising	Level 1 Screening Results	Level 2 Screening Required?	Level 2 Screening Results	Level 2 Screening Confidence	Combined Screening Result	Cumulative Assessm
	Type	Desgradon		WR159	Group 1 - Improved reservoir compensation release control – SPRINGS DINGLE	N	N	N	E N	N	E N		N	N	N	N	N	N	Y	N	No or minimal impact	N		connactice	No or minimal impact	
				WR159	Group 1 - Improved reservoir compensation release control – ASHWORTH MOOR	N	N	N	N	N	N	I N	N	N	N	N	N	N	Y	N	No or minimal impact	N			No or minimal impact	Increased peak abstr compensation flow f - Wayoh, Entwistle, .
				WR159	Group 1 - Improved reservoir compensation release control – GREENBOOTH & 2 NADENS	N	N	N	N	N	N	<u>( N</u>	N	N	N	N	N	N	Y	N	No or minimal impact	N			No or minimal impact	<ul> <li>Ashworth Moor, Gi</li> <li>Piethorne, Norman</li> <li>Edge (Oldham) from</li> <li>Calf Hey, Ogden (Gi</li> </ul>
GB41202G101800	Groundwater	No designation	Northern Manchester Carboniferous Aquifers	WR159	Group 1 - Improved reservoir compensation release control – SPRING MILL, WATERGROVE & COWM Group 1 - 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	(Rossendale) from 1 This is a total reduct
				WR159	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	assumed to take place
				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	Y	N	No or minimal impact	N			No or minimal impact	medium level of imp WR159 (which are s reduce the wetted a
				WR159	Group 1 - Improved reservoir compensation release control – CALF HEY, OGDEN (GRANE) & HOLDENWOOD	N	N	N	Ν	N	N	N	N	N	N	N	N	N	Y	N	No or minimal impact	N			No or minimal impact	released are maintai would be minimal.
				WR159	Group 1 - Improved reservoir compensation release control – COWPE & CRAGG HOLES	N	N	N	Ν	N	N	N	N	Ν	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	I 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	I N	N	N	N	N	N	N	Y	N	No or minimal impact	N			No or minimal impact	

sment	Cumulative Screening Results
straction quantity of 3 MI/d at refurbished Python Mill Boreholes, and reduction of w from: e, Jumbles, Delph, Springs Dingle (Bolton IR's) from 24.3 MI/d to 23.6 MI/d, Greenbooth, J. Nadens, Spring Mill, Watergrove, Cown (Rochdale) from 18.9 MI/d to 18.0 MI/d, an Hill, Kttliffe, Ogden Milnow, Hanging Lees, Rooden, Light Hazzles, Whiteholme, Blackstone m 16.8 MI/d to 15.7 MI/d, and (Grane), Holdenwood, Cowpe, Cragg Holes, Scout Moor, Clough Bottom and Clowbridge 11.3 MI/d to 9.8 MI/d. (stion in compensation flows of 4.2 MI/d. (Note: Total reduction for each reservoir Aquator group Jace in within this groundwater body). ffect of the two options will not increase the level of impact on the groundwater body beyond the mpact assigned to WR 114. The relatively small reductions in compensation flows from option spread across a number of surface water bodies overlying the groundwater body are unlikely to d area of the reservoirs or downstream water courses (assuming that low flow compensation induce), therefor any impact on groundwater surface water interaction on this secondary aquifer i.	Medium level of impact



## Appendix F Operational Catchment Cumulative Assessment for Preferred Plan Options



Catc	ment	WFD Water Body Inform	mation			Option		Option D	etail														Impacts					
Oper	ational			Hydro - morphological	WB Name	Def	Option Name	pe line on land	ipe 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	ransfer of water via river / snal / aqueduct	ew / increased surface water bstraction quantity	essation of exisiting discharge surface water	ew abstraction well drilling / sfurbishment	ew abstraction well eadworks / surface structures	ew / increased groundwater bstraction quantity	hanged to reservoir ompensation release	ew reservoir / embankment sising		Level 2 Screening Required?		Level 2 Screening Confidence	6	
Catch		GB112071065130	River	Designation Heavily modified	Walverden Water	WR159	Group 1 - Improved reservoir compensation release control – COLDWELL UPPER & LOWER	N	N	N	N	N	N	N	N	N	N	N	N	<b>Z 76</b> 1 N <b>Y</b>	0 8	N	Level 1 Screening Results Medium level of impact	Y	Level 2 Screening Results	Medium	Combined Screening Result	Reduction of compensation
Colne	Water	GB112071065210	River	Heavily modified	Colne Water (Laneshaw)	WR159	Group 1 - Improved reservoir compensation release control – LANESHAW	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	8.1 MI/d, a reduction of 1.0 The cumulative effect of th operational catchment will water body assessments as
		GB112071065230	River	No designation	Pendle Water - headwaters to Colne Water	WR159	Group 1 - Improved reservoir compensation release control – OGDEN UPPER & LOWER	N	N	N	N	N	N	N	N	N	N	N	N	N <b>Y</b>	,	N	Medium level of impact	Y	Minor level of impact	High	Minor level of impact	same Aquator group the w
		170	River	No designation	Non reportable water body to north of River Mersey	WR102e	Bold Heath Boreholes to Prescot WTW	Y	Y	N	N	N	N	N	N	N	N	Y	Y	Y	ł	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	
Sank	BM	GB112069060990	River	Heavily modified	Whittle Brook (Mersey Estuary)	WR102e	Bold Heath Boreholes to Prescot WTW	Y	Ν	Ν	Ν	Ν	Ν	N	Ν	Ν	Ν	N	N	N	l	N	No or minimal impact	N			No or minimal impact	New groundwater abstracti
Julix	- 1	GB112069061170	River	Heavily modified	Sutton Brook	WR102e	Bold Heath Boreholes to Prescot WTW	Y	Y	N	Ν	Ν	Ν	Ν	N	Ν	Ν	N	N	N	l.	N	Minor level of impact	N			Minor level of impact	impact on the operational c and pipe line construction in
		GB112069061210	River	Heavily modified	Hardshaw (Windle) Brook	WR102e	Bold Heath Boreholes to Prescot WTW	Y	Ν	N	Ν	Ν	Ν	N	Ν	N	N	N	N	N	1	N	No or minimal impact	N			No or minimal impact	
Carb	and Calder Limestone -	GB40402G700400	Groundwater	No designation	Aire & Calder Carb Limestone / Millstone Grit / Coal Measures.	WR159	Group 1 - Improved reservoir compensation release control – WARLAND	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	N	N Y	,	N	No or minimal impact	N			No or minimal impact	Reduction of compensation MI/d, a reduction of 1.1 MI, catchment.)
	tone Grit Coal asures	GB40402G700400	Groundwater	No designation	Aire & Calder Carb Limestone / Millistone Grit / Coal Measures.	WR159	Group 1 - Improved reservoir compensation release control – LIGHT HAZZLES, WHITEHOLME & BLACKSTONE EDGE	N	N	N	Ν	N	N	N	N	N	N	N	N	N Y	,	N	No or minimal impact	N			No or minimal impact	The cumulative effect of th reductions in compensation that low flow compensation secondary aquifer would be
		GB112069060650	River	Heavily modified	Dean (Lamaload to Bollington)	WR159	Group 1 - Improved reservoir compensation release control – LAMALOAD	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	Increased peak abstraction
		GB112069060920	River	Heavily modified	Micker (Norbury) Brook	WR159	Group 1 - Improved reservoir compensation release control – BOLLINHURST & HORSE COPPICE	N	N	N	N	N	N	N	N	N	N	N	N	N <b>Y</b>	,	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	reduction of compensation - Ridgegate, Trentabank, an - Bollinhurst and Horse Cop - Audenshaw 1, 2 and 3 res
	ollin Dean rsey Upper	GB112069061060	River	Heavily modified	Platt Brook (Source to Fallowfield Bk)	WR159	Group 1 - Improved reservoir compensation release control – LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, VALEHOUSE, BOTTOMS & ARNFIELD) & AUDENSHAW 1, 2 & 3	N	N	Ν	N	N	N	N	N	Ν	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 reduct take place in this operation The cumulative effect of the
		GB112069061320	River	Heavily modified	Bollin (Source to Dean)	WR113	Tytherington Boreholes	Y	Ν	Ν	Ν	Y	Ν	N	N	Ν	N	Y	Y	Y	l	N	Medium level of impact	Y	Minor level of impact	Low	Minor level of impact	operational catchment, plu anticipated to increase the passage, downstream flow:
		GB112069061320	River	Heavily modified	Bollin (Source to Dean)	WR159	Group 1 - Improved reservoir compensation release control – RIDGEGATE & TRENTABANK	N	N	Ν	N	N	N	N	N	Ν	N	N	N	N Y	,	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	and the EA's investigations reduction for each reservoi
		GB112072065760	River	No designation	Woodplumpton Brook	WR101	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	N	N	Ν	N	N	N	N	N	Ν	Ň	Y	Y	Y	i.	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact	
		GB112072065790	River	No designation	New Draught Brook	WR101	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	Ν	N	N	N	N	N	N	N	N	N	¥	Y	Y	I	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact	Increased abstraction of 30 Broughton borehole sites. ' aggregated daily peak of 15
Brock	and Trib	GB112072065800	River	No designation	Barton (Westfield) Brook	WR101	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	Ν	N	Ν	N	N	N	N	N	Ν	Ň	Y	Y	Y	I	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact	The cumulative effect of th catchment as a whole. This occur, a worst case abstrac
		GB112072065810	River	No designation	Brock	WR101	Franklaw Z Site plus Increased Franklaw WTW Treatment Capacity	N	N	Ν	N	Y	Ν	Ν	Ν	Ν	Ν	Y	Y	Y	1	Z	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	
		GB112071065040	River	Heavily modified	Hyndburn	WR159	Group 1 - Improved reservoir compensation release control – MITCHELLS HOUSE 1 & 2	Ν	Ν	Ν	N	N	Ν	Ν	N	Ν	Ν	N	N	N <b>Y</b>	,	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	
		GB112071065090	River	Heavily modified	Brun- headwaters to conf Don	WR099b	Worsthome Borehole (Hurstwood IR)	Y	N	Ν	N	Ν	Ν	Y	N	Ν	N	Y	Y	Y	l	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	Increased peak abstraction of compensation flow from - Mitchells House reservoir: - Hurstwood, Cant Clough, 1
	Calder	GB112071065090	River	Heavily modified	Brun - headwaters to conf Don	WR159	Group 1 - Improved reservoir compensation release control – HURSTWOOD	Ν	Ν	N	N	N	N	N	N	N	N	N	N	N <b>Y</b>	,	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	This would be a total reduc take place in this operation
		GB112071065090	River	Heavily modified	Brun - headwaters to conf Don	WR159	Group 1 - Improved reservoir compensation release control – CANT CLOUGH	Ν	Ν	Ν	Ν	Ν	Ν	N	Ν	Ν	Ν	Ν	N	N <b>Y</b>	,	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	The cumulative effect of th on the operational catchme dependencies between the
		GB112071065090	River	Heavily modified	Brun - headwaters to conf Don	WR159	Group 1 - Improved reservoir compensation release control – SWINDEN 1 & 2	Ν	N	Ν	N	Ν	Ν	N	N	Ν	N	N	N	N Y	,	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	and that the increase in per
		GB112071065140	River	No designation	Sabden Brook	WR159	Group 1 - Improved reservoir compensation release control – CHURN CLOUGH	N	N	Ν	N	N	Ν	N	N	N	N	N	N	N <b>Y</b>	,	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	
		GB112069064570	River	Heavily modified	Eagley Brook	WR159	Group 1 - Improved reservoir compensation release control – DELPH	Ν	Ν	N	N	Ν	N	Ν	Ν	N	Ν	Ν	N	N <b>Y</b>	,	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	
		GB112069064570	River	Heavily modified	Eagley Brook	WR159	Group 1 - Improved reservoir compensation release control – SPRINGS DINGLE	N	Ν	N	N	Ν	Ν	N	Ν	N	Ν	N	N	N <b>Y</b>	,	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	
		GB112069064580	River	Heavily modified	Bradshaw Brook	WR159	Group 1 - Improved reservoir compensation release control – WAYOH, ENTWISTLE & JUMBLES	Ν	Ν	Ν	N	Ν	Ν	N	N	Ν	N	N	N	N <b>Y</b>	,	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	Reduction of compensation - Delph, Springs Dingle, Way - Scout Moor, Calf Hey, Ogd
	roal Irwell	GB112069064620	River	Heavily modified	Irwell (Rossendale STW to Roch)	WR159	Group 1 - Improved reservoir compensation release control – SCOUT MOOR	N	N	Ν	N	N	Ν	N	N	Ν	N	N	N	N Y		N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	This is a total reduction of 2
		GB112069064650	River	Heavily modified	Ogden	WR159	Group 1 - Improved reservoir compensation release control – CALF HEY, OGDEN (GRANE) & HOLDENWOOD	N	N	N	N	N	N	N	N	N	N	Ν	N	N <b>Y</b>		N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	The cumulative effect of th catchment will not increase two Aquator Groups only, a flow is relatively small, and
		GB112069064660	River	Heavily modified	Irwell (Source to Whitewell Brook)	WR159	Group 1 - Improved reservoir compensation release control – COWPE & CRAGG HOLES	N	N	Ν	N	N	N	N	N	Ν	N	N	N	N <b>Y</b>	,	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	
		GB112069064670	River	Heavily modified	Whitewell Brook	WR159	Group 1 - Improved reservoir compensation release control – CLOUGH BOTTOM	N	N	N	N	N	N	N	Ν	N	N	N	N	N <b>Y</b>		N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	<mark>_</mark>
		GB112069064680	River	Heavily modified	Limy Water	WR159	Group 1 - Improved reservoir compensation release control – CLOWBRIDGE	Ν	Ν	Ν	N	Ν	Ν	Ν	N	Ν	Ν	Ν	N	N <b>Y</b>		N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	<u> </u>

sment pensation flow from Coldwell Upper and Lower, Laneshaw, and Ogden Upper and Lower reservoirs from 9.1 M/d to ion of 1.0 M/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this catchment.) Fact of the reduction of compensation flows from multiple reservoirs located in three water bodies in this ment will not increase the level of inpact in the operational catchment as whole. This is because the individual ments assumed a worst case compensation flow reduction for each water body. As the reservoirs are all in the up the worst case reduction applies to the operational catchment as a whole.	Cumulative Screening Results Minor level of impact
abstraction of 6.5 to 9 MI/d peak capacity from the Bold Heath boreholes, plus pipe line construction activities. Fet of the activities within the four water bodies within this operational catchment will not increase the level of rational catchment as a whole. This because an increase in abstraction quantity only occurs in one water body, truction in several water bodies will not have a prolonged or widespread impact.	Minor level of impact
upensation flow from Warland, White Holme, Blackstone Edge and Light Hazzles reservoirs from 16.8 Ml/d to 15.7 of 1.1 Ml/d. (Note: Total reduction for the reservoir Aquator group assumed to take place in this operational fect of the two options will not increase the level of impact on the groundwater operational catchment. The small pensation flows are unlikely to reduce the wetted area of the reservoir so downteam water courses (assuming pensation released are maintained), therefore any impact on groundwater surface water interaction on this would be minimal.	No or minimal impact
straction quantity of 3 Ml/d at refurbished Tytherington Boreholes (no overall increase in licence quantity), plus ensation flow from: abank, and Lamaload reservoirs from 2.1 Ml/d to 1.8 Ml/d, forse Coppic reservoirs from 6.8 Ml/d to 15.5 Ml/d, and and 3 reservoirs from 6.8 Ml/d to 4.5 A Ml/d. tal reduction in compensation flow of 4.9 Ml/d. Note: Total reduction for each reservoir Aquator group assumed to peratianal actionment. fect of the reduction of compensation flows from multiple reservoirs located in multiple water bodies in this ment, plus the potential reduction in baseflow due to increased groundwater abstraction at Tytherington is not rease the level of impact on the operational activitients as whole. This is because no issues are identified with fibe among the statement based flow downstream water quality in these water bodies as a result of UU's tigations into heaving worldies (HMWB). Also the assessments for WL50 is precautionary (total reservoir Aquator group assumed to take place in this operational actiment).	Minor level of impact
tion of 30 Ml/d (from approximately 98 Ml/d recent use, to approx. 128 Ml/d), split across several Franklaw and le sites. The increased abstraction quantity is within the current licence quantity for the borehole group (maximum esk of 190 Ml/d). Tect of the increased abstraction in several water bodies will not increase the level of impact in the operational hole. This is because due to a lack of information about at which borehole sites the increase in abstraction would e abstraction increase was assumed for each individual water body.	Medium level of impact
straction quantity of 4 Ml/d at refurbished Worsthorne Boreholes (within current licence quantities), and reduction low from: reservoirs from 0.4 Ml/d to 0.3 Ml/d, and Clough, Swinden 1 & 2 and Churn Clough reservoirs from 9.1 Ml/d to 8.1 Ml/d. Ital reduction in compensation flow of 1.2 Ml/d. Note: Total reduction for each reservoir Aquator group assumed to sperational catchment. Text of the two options in the three water bodies in this operational catchment will not increase the level of impact (actriment as whole. This due to the availability of where at low flows, that there are unlikely to be strong ween the secondary aquifer and the surface watercourses, the relatively small reduction in compensation flows, are in peak abstraction is within current licensed quantities.	Minor level of impact
perstation flow from the following reservoirs: ingle, Waych, Entwistle and Jumbles reservoirs from 24.3 M/(d to 23.6 M/(d, and Hey, Ogden (Grane), Holdenwood, Cowpe, Cragg Holes, Clough Bottom and Clowbridge from 11.3 Ml/d to 9.8 Ml/d cition of 2.2 Ml/d. Terct aft he reduction of compensation flows from multiple reservoirs located in seven water bodies in this to increase the level of impact in the operational catchment as a whole. This is because the reservoirs form pan of ps only, and a worst case flow reduction was assumed for each water body. The total reduction in compensation mall, and the ALS indicates that there is some water availability in most of the catchment.	Minor level of impact

Catchment	WFD Water Body Inform	nation			Option		Option Detail 95 19 29		urface water	ition	vater	rvoir	rer / reservoir t	via river /	surface water :ity	ting discharge	well drilling /	well ace structures	groundwater :ity	voir ease	mbankment	Impacts				
Operational Catchment	ID	Туре	Hydro - morphological Designation	WB Name	Ref	Option Name	Pipe line on land Pipe line with wa	crossings	New / modified s (e.g. river) intake	New pumping sta	New / modified w treatment works	New storage rese	New outfall to riv / canal / aqueduc	Transfer of water canal / aqueduct	New / increased s abstraction quant	Cess ation of exisi- to surface water	New abstraction refurbishment	New abstraction headworks / surfi	New / increased g abstraction quant	Changed to resen compensation rel	New reservoir / e raising	Level 1 Screening Results	Level 2 Screening Required?	Level 2 Screening Results	Level 2 Screening Confidence	e Comi
Cumbria South Lower Palaeozoic and Carboniferous	GB41202G102100	Groundwater	No designation	South Cumbria Lower Palaeozoic and Carboniferous Aquifers	WR159	Group 1 - Improved reservoir compensation release control – POAKA BECK, PENNINGTON & HARLOCK	N N	1	N	N	N	N	N	N	N	N	N	N	N	Y	N	No or minimal impact	N			No or
Aq	GB41202G102100	Groundwater	No designation	South Cumbria Lower Palaeozoic and Carboniferous Aquifers	WR159	Group 1 - Improved reservoir compensation release control – LEVERS WATER	N N	1	N	N	N	N	N	N	N	Ň	N	N	N	Y	N	No or minimal impact	N			No or
	GB102076070690	River	Heavily modified	Lowther (Upper)	WR159	Group 1 - Improved reservoir compensation release control – WET SLEDDALE	N N	1	V	N	Ν	Ν	N	N	Ν	N	Ν	N	N	¥	N	Medium level of impact	Y	Minor level of impact	High	Mino
Eamont	GB102076070720	River	Heavily modified	Haweswater Beck	WR160	Group 2 - Improved reservoir compensation release control – HAWESWATER	N N	P	N	N	N	N	N	N	Ν	N	N	N	N	Y	N	Medium level of impact	Y	Minor level of impact	High	Minor
	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	2	N	N	N	N	N	N	Ν	N	N	N	N	¥	N	Medium level of impact	Y	Minor level of impact	High	Mino
	GB112069060850	River	Heavily modified	Goyt (Source to Randall Carr Brook)	WR159	Group 1 - Improved reservoir compensation release control – ERREOOD & FERNILEE	N N	1	N	Ν	N	N	N	N	N	N	N	N	N	¥	N	Medium level of impact	Y	Minor level of impact	Medium	Minor
	GB112069060970	River	No designation	Sett	WR159	Group 1 - Improved reservoir compensation release control – Kinder	NN	1	V	N	N	N	N	N	N	N	N	N	N	Y	N	Medium level of impact	Y	Minor level of impact	High	Minor
Goyt Etherow	GB112069061111	River	Heavily modified	Tame (Chew Brook to Swineshaw Brook)	WR159	Group 1 - Improved reservoir compensation release control – BRUSHES, WALKERWOOD & SWINESHAW HIGHER & LOWER	N N	1	N	N	N	Ν	N	N	Ν	Ň	N	N	N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor
Tame	GB112069061112	River	Heavily modified	Tame (Swineshaw Brook to Mersey)	WR159	Group 1 - Improved reservoir compensation release control – LONDENDALE (WOODHEAD, TORSIDE, RHODESWOOD, VALEHOUSE, BOTTOMS & ARNFIELD) & AUDENSHAW 1, 2 & 3	N N	1	N	N	N	Ν	N	N	Ν	Ň	N	N	N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor
	GB112069061300	River	Heavily modified	Chew Brook	WR159	Group 1 - Improved reservoir compensation release control – GREENFIELD VALLEY-GREENFIELD, YEOMAN HEY, DOVESTONE & CHEW	N N	1	2	N	N	N	N	N	N	Ň	N	N	N	Y	N	Medium level of impact	Y	Minor level of impact	High	Minor
	GB112069064741	River	Heavily modified	Tame (Source to Chew Brook)	WR159	Group 1 - Improved reservoir compensation release control – CASTLESHAW UPPER & LOWER	NN	7	N	N	N	N	Ν	N	N	Ν	N	N	N	Y	N	Medium level of impact	Ŷ	Minor level of impact	Medium	Minor
	GB112069064741	River	Heavily modified	Tame (Source to Chew Brook)	WR159	Group 1 - Improved reservoir compensation release control – READYCON DEAN, CROOKGATE, DOWRY & NEW YEARS BRIDGE	NN	7	N	N	N	N	N	N	N	N	N	N	N	Y	N	Medium level of impact	Y	Minor level of impact	Medium	Minor
	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	WR159	Group 1 - Improved reservoir compensation release control – RIDGEGATE & TRENTABANK	N N	1	N	N	N	N	N	N	Ν	N	N	N	N	Y	N	No or minimal impact	N			No or
	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	WR159	Group 1 - Improved reservoir compensation release control – LAMALOAD	N N	1	N	N	N	N	N	N	N	N	N	N	N	Y	Ν	No or minimal impact	N			No or
	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	WR159	Group 1 - Improved reservoir compensation release control – CASTLESHAW UPPER & LOWER	N N	1	N	N	N	N	N	N	Ν	Ν	N	N	Ν	Y	N	No or minimal impact	N			No or
	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	1	N	N	N	N	N	Ν	N	N	N	Ν	N	Y	N	No or minimal impact	N			No or
Manchester and	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	WR159	Group 1 - Improved reservoir compensation release control – GREENFIELD VALLEY-GREENFIELD, YEOMAN HEY, DOVESTONE & CHEW	N N	1	N	Ν	Ν	Ν	N	Ν	N	Ν	Ν	Ν	Ν	Y	Ν	No or minimal impact	N			No or
Cheshire East Carboniferous Aq	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	WR159	Group 1 - Improved reservoir compensation release control – BRUSHES, WALKERWOOD & SWINESHAW HIGHER & LOWER	N N	1	N	Ν	Ν	Ν	N	Ν	N	Ν	Ν	Ν	Ν	Y	Ν	No or minimal impact	N			No or
	GB41202G102900	Groundwater	No designation	Manchester and East Cheshire Carboniferous Aquifers	WR159	Group 1 - Improved reservoir compensation release control – Kinder	N N	1	N	N	N	N	N	N	N	N	N	N	N	Y	N	No or minimal impact	N			No or

| GB41202G102900 | Groundwater                                                                                                                                                                                                                                                                                                                                         | No designation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Manchester and East Cheshire Carboniferous Aquifers WR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Group 1 - Improved reservoir compensation release<br>control – Kinder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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| GB41202G102900 | Groundwater                                                                                                                                                                                                                                                                                                                                         | No designation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Manchester and 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|                | GB41202G102900           GB41202G102900           GB41202G102900           GB41202G102900           GB109054055070           GB109054055070           GB109054055010           GB41202G103000           GB41202G103000           GB41202G103000           GB112069064590           GB112069064710           GB112069064720           GB112069064720 | GB41202G102900         Groundwater           GB41202G102900         Groundwater           GB41202G102900         Groundwater           GB41202G102900         Groundwater           GB41202G102900         Groundwater           GB41202G102900         River           GB109054055070         Niver           GB41202G103000         Groundwater           GB41202G103000         Groundwater           GB41202G103000         Groundwater           GB41206906490         River           GB112069064710         River           GB112069064720         River           GB112069064720         River           GB112069064720         River | GB41202G102900         Groundwater         No designation           GB41202G102900         Groundwater         No designation           GB41202G102900         Groundwater         No designation           GB41202G102900         Groundwater         No designation           GB109054055070         River         No designation           GB109054055070         River         No designation           GB109054055070         River         No designation           GB41202G103000         Groundwater         No designation           GB41202G103000         Groundwater         No designation           GB41202G013000         Groundwater         No designation           GB412069064710         River         Heavily modified           GB112069064710         River         Heavily modified           GB112069064720         River         Heavily modified           GB112069064720         River         Heavily modified           GB112069064720         River         Heavily modified | GB41202G102900         Groundwater         No designation         Manchester and East Cheshire Carboniferous Aquifers         WR1           GB41202G102900         Groundwater         No designation         Manchester and East Cheshire Carboniferous Aquifers         WR1           GB41202G102900         Groundwater         No designation         Manchester and East Cheshire Carboniferous Aquifers         WR1           GB41202G102900         Groundwater         No designation         Manchester and East Cheshire Carboniferous Aquifers         WR1           GB109054055070         River         No designation         Morda - 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Improved reservoir compensation release<br/>control - CHURN CLOUGH       No         GB41202G103000       Groundwater       No designation</td><td>USH120200       Groundwater       No designation       Manchester and East Cheshire Carboniferous Aquifers       WR159       control – Kinder       No       No</td><td>QB31202500       Groundwater       No designation       Manchester and East Cheshire Carboniferous Aquifers       WR159       Control - Kinder       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       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</td><td>Displand/Display         Display Display         Note Segment on<br/>Manchester and East Cheshire Carboniferous Aquifes         Wits 9         Control – Kinder         III         III         III         III         III         III         III         III         III         IIII         IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII</td><td>UNILIZATION         UNILIARY         UNILIARY</td><td>UNDELAXGUODO         Ordinateries         No designation         Matchester and East Clusteries Clusteries and East Clusteries Clusteries and East Clusteries Clusteries Clusteries and East Clusteries Clusteries and East Clusteries Clusteries Clusteries and East Clusteries Clusteries and East Clusteries Clusteries and East Clusteries Clusteries and East Clusteries Clusteries</td><td>VINIAUX0000         Unstandant         Notabelies and said statute interaction of lease in the interaction of lease interaction interactio interaction interaction interactio interaction interac</td><td>UNDERCERCE         UNDERCENT NO DESIGNATION         NATION INCOMP         NUMBER         Control - 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Improved reservoir compensation release<br>control - Kinder         III           GB41202G102900         Groundwater         No designation         Manchester and East Cheshire Carboniferous Aquifers         WR159         Group 1 - Improved reservoir compensation release<br>control - KINDERVAULLES & HORSE COPPICE         III           GB41202G102900         Groundwater         No designation         Manchester and East Cheshire Carboniferous Aquifers         WR159         Group 1 - Improved reservoir compensation release<br>control - KINDEVAULLES & ANNFIELD &<br>ALIENTAULSE &<br>ALIENTAULSE & ANNFIELD &<br>ALIENTAULSE &<br>ALIENTAULSE | CBH1202G102900       Groundwater       No designation       Matchester and East Cheshire Carboniferous Aquifer       WR159       control - Kinder       No       No         GB41202G102900       Groundwater       No designation       Manchester and East Cheshire Carboniferous Aquifer       WR159       Group 1 - Improved reservoir compensation release<br>control - 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Kinder         In         In </td <td>UNIX_D10000         Unix Description         Description</td> <td>OpenLineXies         OpenSequence         OpenSequence&lt;</td> <td>Contraction         Contraction         Contraction</td> <td>UNIX_D00_U       UNIXED       UNIXED</td> | UNIX_D10000         Unix Description         Description | OpenLineXies         OpenSequence         OpenSequence< | Contraction         Contraction | UNIX_D00_U       UNIXED       UNIXED | Contraction         Control         Contro         Control         Control | Control         Contro         Control         Control <t< td=""><td>Outcome         Outcome         &lt;</td><td>Diame         Openant         <th< td=""></th<></td></t<> | Outcome         < | Diame         Openant         Openant <th< td=""></th<> |

t	Cumulative Assessment 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. 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 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.	Cumulative Screening Results
	Reduction of compensation flow from Wet Sieddale and Haweswater reservoirs from 7.8 Ml/d to 7.4 Ml/d, and 24.0 Ml/d to 21.8 Ml/d respectively, a total reduction of 2.6 Ml/d. 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 atchment as a whole. This is because of the relatively small decrease in compensation flows compared to the total compensation flow which will be maintaned (29.2 Ml/d), and that HMWB investigations undertaken by UU and the EA have not identified any issues with compensation releases from either reservoir.	Minor level of impact
	Reduction of compensation flow from the following reservoirs: - Woodhead, Tarside, Rhodeswood, Valehouse, Bottoms & Annield) and Audenshaw 1, 2 & 3 reservoirs from 48.6 Ml/d to 45.4 Ml/d, a reduction of 3.2 Ml/d. - Brushes, walkerwood, Swineshaw (higher & lower), Greenfield Valley- Greenfield, Yeoman Hey, Dovestone and Chew from 20.7 Ml/d to 19.5 Ml/d, a reduction of 1.2 Ml/d. - Castleshaw (upper & lower), Readycon Dean, Crookgate, Dowry and New Years Bridge from 16.8 Ml/d to 15.7 Ml/d, a reduction of 1.1 Ml/d. A total reduction of 1.1 Ml/d. - Castleshaw (upper & lower), Readycon Dean, Crookgate, Dowry and New Years Bridge from 16.8 Ml/d to 15.7 Ml/d, a reduction of 1.1 Ml/d. A total reduction of 1.1 Ml/d. 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 acthement will not increase the level of impact on the operational acthement as a whole. This is because of the relatively small decrease in compensation flows compared to the total compensation flow which will be maintained (96.1 Ml/d), and that there is some water availability in parts of the operational acthment.	Minor level of impact
	Reduction of compensation flow from the following reservoirs: - Ridgegate, Trentabank and Lamakaad from 2.1 M//d to 1.8 M//d, - Gatestimined (upper & lower), Readycon Dean, Cookgate, Dowry and New Years Bridge from 16.8 M//d to 15.7 M//d, - Gatestimined (upper & lower), Readycon Dean, Cookgate, Dowry and New Years Bridge from 16.8 M//d to 15.7 M//d, to 19.5 M//d, - Ronder, Frond, Trende, Bollinhurst and Horsc Coppler from 16.9 M//d to 1.5 M//d, and - Londerdade (Woodhead, Torside, Rhodeswood, Valehouse, Bottoms & Anfleid) and Audenshaw 1.2 and 3 from 48.6 M//d to 45.4 M//d. - To the vould be a total reduction in compensation flow of 7.2 M//d. Note: Total reduction for each reservoir Aquator group assumed to take place in this operational catchment. The comulative 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 reservoir or downstream water course (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
	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
	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. to total reduction of 2.1 MI/d. Note: Total reduction for each reservoir Aquator group assumed to take place in this operational achtment. The cumulative effect of the reduction in compensation flows will not increase the level of impact on the groundwater operational catchment. The cumulative effect of the 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
	New abstraction of up to 3 MI/d from refurbished borehole at Python Mill, plus reduction of compensation flow from reservoirs at: - Piethome, Norman Hill, Kitcliffe, Ogden Milnrow, Hanging Less, Rooden, Light Hazles, Whiteholme and Blackstone Edge from 16.8 MI/d to 15.7 MI/d, and - Ashworth Meor, 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. 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. The cumulative impact of the new groundwater abstraction and multiple reductions in compensation flows, reprovirs within the operational catchment will not increase the impact on the operational catchment as a whole. This is because of the relatively small reduction in compensation flows, especially when compared to the total maintained compensation flow of 3.7 MI/d and that the ALS indicates three is some water availability within the eacthment.	Medium level of impact

Catchment	WFD Water Body Inform	nation			Option		Option D	Detail														Impacts					_
Operational Catchment	D	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	New outfall to river / reservoir / canal / aqueduct	Transfer of water via river / canal / aqueduct	New / increased surface water abstraction quantity	Cess ation of exisiting discharge to surface water	New abstraction well drilling / refurbishment	New abstraction well headworks / surface structures	New / increased groundwater 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
	GB112069064730 GB109054049920	River River	Heavily modified	Spodden Hirnant - source to conf Afon Tanat	WR159 B2	Group 1 - Improved reservoir compensation release control – SPRING MILL, WATERGROVE & COWM Enabling Works	N	N	N	N	N	N	N	N	N	N	N	N	N	<b>Y</b>	N	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	
	GB109054049960	River	No designation	Afon Tanat - conf Hirnant to conf Afon Rhaeadr	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	
	GB109054055040	River	No designation	Afon Rhaeadr - source to conf Afon Tanat	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
Tanat	GB109054055050	River	No designation	Afon Iwrch - source to conf Afon Tanat	B2	Enabling Works	Y	N	N	N	N	N	N	N	N	N	N	N	Ν	N	N	No or minimal impact	N			No or minimal impact	effect on the operational cal
	GB109054050050	River	No designation	Afon Tanat - conf Afon Rhaeadr to conf Afon Vyrnw	у В2	Enabling Works	Y	N	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	No or minimal impact	N			No or minimal impact	enect on the operational ca
	GB109054055060	River	No designation	Afon Cynllaith - source to conf Afon Tanat	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	
	GB112068055340	River	No designation	Rookery Brook, Burland and Brindley Bk. To Weaver	WR821	Shropshire Union Canal	Y	¥	Y	N	Y	N	Ν	N	Y	N	N	N	N	N	Ν	Medium level of impact	Y	Minor level of impact	Medium	Minor level of impact	New surface water abstracti Treatment works.
Weaver Upper	GB112068060460	River	No designation	Weaver (Marbury Brook to Dane)	WR821	Shropshire Union Canal	¥	N	N	Ν	Ν	Ν	N	N	N	N	N	N	N	N	Ν	No or minimal impact	N			No or minimal impact	The cumulative effect of the the operational catchment a will not interact to produce :
	GB112072065822	River	No designation	Wyre DS Grizedale Brook confl	WR101	Franklaw Z Site plus increased Franklaw WTW Treatmen Capacity	nt N	N	N	Ν	N	N	Ν	N	N	N	¥	Y	Y	N	Ν	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact	Increased abstraction of 30 i Broughton borehole sites. Ti aggregated daily peak of 190
Wyre and Calder	GB112072066220	River	Heavily modified	Calder (Wyre)	WR101	Franklaw Z Site plus increased Franklaw WTW Treatmen Capacity	t <sub>N</sub>	N	N	Ν	N	Ν	N	N	N	N	Y	Y	Y	N	N	Medium level of impact	Y	Medium level of impact	Low	Medium level of impact	The cumulative effect of the catchment as a whole. This i occur, a worst case abstract

essment	Cumulative Screening Results
effect of the construction of pipe lines in six water bodies within this operational catchment will not have a significant perational catchment.	No or minimal impact
ater abstraction of up to 30 MI/d from the Shropshire Union Canal, plus construction of pipe lines, intake, and ks. effect of the activities in two water bodies within this operational catchment will not increase the level of impact on i acchament as a whole, as the activities in each waterbody (new surface water abstraction and pipe line construction) t to produce a cumulative effect.	Minor level of impact
raction of 30 MI/d (from approximately 98 MI/d recent use, to approx. 128 MI/d), split across several Franklaw and ehole sites. The increased abstraction quanity is within the current licence quantity for the borehole group (maximum y peak of 190 MI/d). effect of the increased abstraction in several water bodies will not increase the level of impact in the operational whole. This is because due to a tack of information about a which borehole sites the increase in abstraction would case abstraction increase was assumed for each individual water body.	Medium level of impact

