

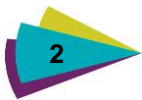
Bristol Water

# Water Framework Directive Assessment of the Water Resources Management Plan 2019



November 2017

Amec Foster Wheeler Environment  
& Infrastructure UK Limited



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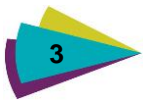
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| 1   | Draft for BW review | 15/11/2017 |
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# Executive summary

## Introduction

This report presents the Water Framework Directive (WFD) assessment for resource and production options that have been considered for inclusion in Bristol Water's (BWs) Water Resources Management Plan (WRMP) 19. 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.

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 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.

## Approach to the WFD Assessment of WRMP 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 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?

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 was completed for eleven feasible options. The WFD assessments for each option were based on the option description provided by BW. The assessment for each option comprised two stages, a 'Level 1' screening, followed by a more detailed 'Level 2' assessment for those water bodies that may be subject to medium or high impacts. The results of both levels of assessment are then combined to create a final impact assessment for all options. Both levels of assessment use the definitions of impacts described in Table 1.

Table 1 Impact Classification Categories

| Level of impact               | Description of impact  |
|-------------------------------|--|
| <b>No or minimal impacts</b>  | No measurable change in the quality of the water environment or the ability for target WFD objectives to be achieved.  |
| <b>Minor level of impact</b>  | 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.<br><br>Impacts would be very unlikely to prevent any target WFD objectives from being achieved. |
| <b>Medium level of impact</b> | 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.<br><br>Impacts have the potential to prevent target WFD objectives from being achieved.  |
| <b>High level of impact</b>   | Impacts when taken on their own have the potential to lead to a significant effect and permanent deterioration of WFD status.<br><br>Impacts have a high risk of preventing target WFD objectives from being achieved.   |

The assessments were based on available data and evidence as far as possible. However, due to the limited engineering and baseline information available, expert opinion and a number of assumptions have been employed in most cases (refer to **Section 2.3**). 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). Additionally for each Level 2 assessment a confidence rating has been given to the results, according to the confidence categories in **Table 2**.

Table 2 Confidence Level Categories

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

The individual assessment of each option would normally be followed by cumulative and protected area assessments. However these were not required for this WFD assessment as there is only one preferred option, which does not have the potential to impact on a protected area.

## Results of the WFD Assessment of WRMP Feasible Options

The Level 1 screening identified 24 WFD water bodies that may be impacted by the eleven feasible options. Some of these water bodies could be impacted by more than one option, resulting in a total number of 36 option-water body combinations.

The Level 1 screening exercise was undertaken for each option and its related water bodies. This identified six 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 A**. The individual Level 2 assessment spreadsheets are presented in **Appendix B**.

Table 3 Summary of Combined Assessment Results for Feasible Options

|                               | No of option–<br>water body<br>combinations | No of water<br>bodies | No of options |
|-------------------------------|---|-----------------------|---------------|
| <b>Total</b>                  | 36  | 24                    | 11            |
| <b>High level of impact</b>   | 2   | 1                     | 2             |
| <b>Medium level of impact</b> | 2   | 2                     | 2             |
| <b>Minor level of impact</b>  | 23  | 19                    | 6             |
| <b>No or minimal impact</b>   | 9   | 6                     | 7             |

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 Options

The draft WRMP includes one resource preferred option, R32: Reduction of bulk transfer agreement with Wessex Water. Two distribution options and a leakage reduction option are also included but these are outside the scope of the WFD assessment.

Option R32 involves the termination of the existing bulk supply agreement to Wessex Water in order to recover up to 11 MI/d to restore BW's supply demand balance. The water would be made available from the P15R source. As the option does not involve any new infrastructure, and there would be no change in abstraction patterns (water currently abstracted for transfer to Wessex Water would be used to supply BW's customers), there is no potential for this option to have an impact on the status of any WFD water bodies. Therefore the impact of this option is 'no or minimal', and the assessment has a high level of confidence.

As there is only one preferred option considered in the WFD assessment, there is no requirement for a cumulative assessment. Also because this option would not change the current situation (i.e. no change in abstraction or infrastructure), there was no potential for it to impact on a protected area beyond the current situation and as such no protected area assessment was required.

No further WFD assessment was required for the preferred WRMP option. Should the feasible options be considered for implementation in the next WRMP cycle, further assessment work would be required for those options with a medium or a high level of impact, including:

- ▶ R08-02: New water sources for the R08-02R;
- ▶ R11: P10R Reservoir;
- ▶ R23-01: Purchase water from third parties;
- ▶ P08: P08R WTW; and
- ▶ P10: P10R WTW.

It is expected that the impact levels highlighted in this report can be decreased during detailed planning of the individual options. Detailed planning of the options should include further review of WFD objectives to ensure that the impacts highlighted in this report are appropriately accounted for. Additional information that could be used includes location information for infrastructure, detailed abstraction quantities, water quality information etc.



## Statement of Compliance with the WFD

The assessments for the preferred option indicate no or minimal impact against WFD objectives and as such will require no further assessment at detailed planning stage. As such the draft WRMP is compliant with WFD objectives.

Based on the assessments in this report there is currently no requirement to implement Article 4.7 for the preferred options. However, this is based on the assumptions detailed in this report



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# 1. Introduction

## 1.1 Overview

- 1.1.1 Bristol Water (BW) 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, BW is currently consulting on a Draft Water Resources Management Plan (WRMP) in order that regulators, stakeholders and the public can comment on BW's proposed strategy and further contribute to the development of the plan.
- 1.1.2 In developing the Draft WRMP, BW 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 BW to undertake a Water Framework Directive (WFD) assessment of resource and production 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 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.
- 1.2.2 In England, 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), as well as other public bodies, have a duty to 'have regard' to the objectives of the WFD in exercising their functions.
- 1.2.3 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 the WRMP optioneering that should facilitate effective and efficient regulatory decision making.

## 1.3 The Legislative Context – Water Framework Directive

- 1.3.1 The WFD<sup>1</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 been set by so-called 'daughter' directives to the WFD, in the form of the EQS Directive<sup>2</sup> and subsequent amendments (EQSD)<sup>3</sup> and the Groundwater Directive (GWD)<sup>4</sup>. The environmental objectives of the WFD and its daughter directives are to:

- ▶ Prevent deterioration of aquatic ecosystems;

<sup>1</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).

<sup>2</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>3</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>4</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

- ▶ 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.

1.3.2 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. due to disproportional costs), alternative water body objectives can be set. The current (baseline) status (i.e. 2015 classification), and the measures required to achieve the 2027 status objectives are set out for each water body in the relevant River Basin Management Plans (RBMPs), prepared by the EA every six years.

1.3.3 The WRMP options assessed in this report are located within the RBMPs for the Severn and South West 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.

1.3.4 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.

## 1.4 Surface Waters

1.4.1 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.

1.4.2 Good ecological status is defined as a slight variation from undisturbed natural conditions, with minimal distortion arising from human activity. The ecological status of water bodies is determined by examining biological elements (e.g. fish, invertebrates, plants) and a number of supporting elements and conditions, including physico-chemical (e.g. metals and organic compounds), and hydromorphological (e.g. depth, width, flow, and ‘structure’) factors. These elements are summarised in **Table 1.1**.

Table 1.1 WFD classification elements for rivers, lakes, transitional and coastal WFD water bodies

| Water body type | Biological   | Physico-chemical and chemical   | Hydromorphological   |
|-----------------|--|---|--|
| <b>Rivers</b>   | Macrophytes<br>Phytobenthos<br>Benthic invertebrates<br>Fish | Thermal conditions<br>Dissolved oxygen<br>Acidification<br>Nutrients<br>Salinity<br><br>Organic pollutants<br>Pollution by substances being discharged (e.g. phosphate or ammonia)<br>Chemicals e.g. metals, pesticides | Hydrological regime - quantity and dynamics of water flow connection to groundwater bodies<br>River continuity<br><br>Morphological conditions - river depth and width variation structure and substrate of the river bed<br>Structure of the riparian zone. |

| Water body type            | Biological  | Physico-chemical and chemical   | Hydromorphological   |
|----------------------------|---|---|--|
| <b>Lakes</b>               | Macrophytes<br>Phytoplankton<br>Benthic invertebrates<br>Fish         | Transparency<br>Thermal conditions<br>Dissolved oxygen<br>Acidification<br>Nutrients<br>Salinity<br><br>Pollution by substances being discharged<br>Chemicals e.g. metals, pesticides | Hydrological regime -<br>quantity and dynamics of inflows and outflows, residence time, connection to groundwater bodies<br><br>Morphological conditions -<br>lake depth variation, WFD classification elements for rivers, lakes, transitional and coastal WFD water bodies quantity, structure and substrate of the lake bed, structure of the lake shore. |
| <b>Transitional waters</b> | Phytoplankton<br>Other aquatic flora<br>Benthic invertebrates<br>Fish | Transparency<br>Thermal conditions<br>Dissolved oxygen<br>Nutrients<br>Salinity<br><br>Pollution by substances being discharged<br>Chemicals e.g. metals, pesticides                  | Tidal regime -<br>freshwater flow, wave exposure<br><br>Morphological conditions -<br>depth variation, quantity, structure and substrate of the bed, structure of the intertidal zone  |
| <b>Coastal waters</b>      | Phytoplankton<br>Other aquatic flora<br>Benthic invertebrates         | Transparency<br>Thermal conditions<br>Dissolved oxygen<br>Nutrients<br>Salinity<br><br>Pollution by substances being discharged<br>Chemicals e.g. metals, pesticides                  | Tidal regime -<br>direction of dominant currents<br>wave exposure<br><br>Morphological conditions -<br>depth variation, structure and substrate of the bed, structure of the intertidal zone   |

## 1.5 Groundwater

- 1.5.1 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.
- 1.5.2 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.
- 1.5.3 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.

## 1.6 Protected Areas

- 1.6.1 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)).

1.6.2 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.

## 1.7 Structure of this Report

1.7.1 The structure of the remainder of this report is as follows:

- ▶ **Section 2** describes the methodology that has been adopted in order to undertake the WFD assessment of WRMP options;
- ▶ **Section 3** presents an overview of the WRMP feasible options, and outlines how each type of option has been treated in the assessment process;
- ▶ **Section 4** presents the results of the assessment of the WRMP feasible options;
- ▶ **Section 5** presents the results of the assessment of the WRMP preferred option;
- ▶ **Section 6** provides a summary of the key outcomes, and the requirements for further work; and
- ▶ **Section 7** is the statement of compliance with the WFD.

## 2. Approach to the WFD Assessment of WRMP Options

### 2.1 Overview

#### Approach to the Assessment

- 2.1.1 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?
- 2.1.2 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?
- 2.1.3 Whilst some guidance is available to help answer the above questions, the overall assignment of WFD impact was based on expert judgement.
- 2.1.4 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

- 2.1.5 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>5</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>6</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.
- 2.1.6 Furthermore, the Cycle 2 RBMPs<sup>7</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

<sup>5</sup> Environment Agency (2016) *Clearing the waters for All* – available at: <https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters>

<sup>6</sup> Court ruling available at [curia.europa.eu](http://curia.europa.eu)

<sup>7</sup> 2015 River Basin Management Plans – available at <https://www.gov.uk/government/collections/river-basin-management-plans-2015>

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.

- 2.1.7 The EA have also made available their position statement on WFD assessment of new physical works in rivers (position 488\_10<sup>8</sup>), which has been used, as appropriate, to guide the assessment of levels of impact from the construction and operation phase of each WRMP option.
- 2.1.8 The EA have not published any guidance on WFD compliance assessments of lake or groundwater bodies.

## 2.2 WFD Assessment Process

- 2.2.1 The WFD assessment has been undertaken on eleven feasible production and resource options as listed below:
- ▶ R08-02: New water sources for the R08-02R;
  - ▶ R08-03: New water sources for the R08-03R;
  - ▶ R11: P10R Reservoir;
  - ▶ R23-01: Purchase water from third parties;
  - ▶ R24: R24R Source;
  - ▶ R32: Reduction of bulk transfer agreement with Wessex Water;
  - ▶ P01-01: Increase performance of P01-01R;
  - ▶ P01-02: Increase performance of P01-02R;
  - ▶ P06: Catchment Management of the Mendip Lakes;
  - ▶ P08: P08R Water Treatment Works (WTW); and
  - ▶ P10: P10R WTW.
- 2.2.2 BW's feasible options also include three distribution options related to leakage control (D21), pressure management (D22), and asset renewal (D23), four customer demand options (C08, C12, C20 and C26), and one production option related to leakage reduction (P20). Assessment of these options is outside the scope of the WFD assessment.
- 2.2.3 The assessment steps are listed below and then described in more detail in the following sections.
- 2.2.4 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.

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<sup>8</sup> Environment Agency (2015) Position 488\_10 Protecting and improving the water environment: WFD compliance of physical works in rivers

## Step 1: Collation of Baseline WFD and Option Data

- 2.2.5 The WFD assessments for each option were based on the option description provided by BW. The option descriptions are high level, and do not contain information on construction methods, or the exact locations or designs of the new infrastructure.
- 2.2.6 All relevant water bodies that the option could impact on were identified by comparing the option description to the spatial extent of WFD water bodies obtained from the EA's Catchment Data Explorer website<sup>9</sup>. The website was also used to collate baseline WFD data for each water body for the Level 2 assessments. Both the level 1 and Level 2 assessments were based on the 2015 classifications, in line with the 2015 Cycle 2 RBMPs.

## Step 2: Level 1 Screening of Options

- 2.2.7 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.
- 2.2.8 Each water body, that the option was identified as intersecting, 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 2.1**.

Table 2.1 Impact classification categories

| Level of impact        | Description of impact  |
|------------------------|--|
| No or minimal impact   | No measurable change in the quality of the water environment or the ability for target WFD objectives to be achieved.  |
| Minor level of impact  | Impacts from the option when taken on their own have the potential to lead to a minor localised, short-term and fully reversible effect on the quality of the water environment that would not result in the lowering of WFD status.<br>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.<br>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.<br>Impacts have a high risk of preventing target WFD objectives from being achieved.   |

- 2.2.9 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 assumes that all construction activities will be undertaken in line with best practice construction and pollution control measures (refer to Section 2.3). Where the Level 1 screening identifies 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 is 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).

<sup>9</sup> EA Catchment data explorer, available at: <http://environment.data.gov.uk/catchment-planning/>



- 2.2.10 Other activities have the potential for a medium or a 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 identifies that a water body could be subject to a medium or high level of impact from one or more activities, the water body has been screened in for Level 2 detailed assessment.
- 2.2.11 Note that the feasible options are initially assessed as though they will be the only option to be implemented within a water body.
- 2.2.12 **Table 2.2** summarises the Level 1 screening impacts from the activities that make up the options.

Table 2.2 Level 1 screening impacts from option activities

| Level of impact        | Construction activities  | Operation activities   | Level 1 screening result                    |
|------------------------|--|--|---|
| No or minimal impact   | <ul style="list-style-type: none"> <li>Trenching and laying of pipe lines within the interfluvies of a catchment (no watercourse crossings)</li> <li>Modification of an existing WTW</li> <li>Construction of a new WTW</li> </ul> | <ul style="list-style-type: none"> <li>Maintenance of pipe lines</li> <li>Maintenance and use of pumping stations and WTW</li> <li>Maintenance and use of river intakes</li> <li>Catchment management schemes</li> </ul> | Screened out of Level 2 detailed assessment |
| Minor level of impact  | <ul style="list-style-type: none"> <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> </ul>                            | <ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>New or increased surface water abstraction</li> <li>New or increased groundwater abstraction</li> </ul>   | Screened in for Level 2 detailed assessment |
| High level of impact   | <ul style="list-style-type: none"> <li>Construction of new reservoir</li> </ul>  | <ul style="list-style-type: none"> <li>Presence of new reservoir or modified existing reservoir</li> </ul>   | Screened in for Level 2 detailed assessment |

- 2.2.13 For the feasible options, all the water bodies affected by an activity that may cause a medium or high level of impact are 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 is also included, as the abstraction may affect the wider water body.
- 2.2.14 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

- 2.2.15 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.



- 2.2.16 Additional baseline data for the Level 2 assessments was collected from the EA's Abstraction Licensing Strategies (ALS)<sup>10</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.
- 2.2.17 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>11</sup> where required.
- 2.2.18 As for the Level 1 screening, each option has been broken down into its main constituent activities. Each activity has been 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.
- 2.2.19 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).
- 2.2.20 The same level of impact categories were used as in the Level 1 screening exercise (Table 2.1). The final impact category identified for each part of an option assumes that generic mitigation measures would be put in place (see Section 2.3). A confidence rating has also been given to the conclusions of the Level 2 assessments, according to the confidence categories in **Table 2.3**.

Table 2.3 Confidence level categories

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

- 2.2.21 The overall level of WFD impact for 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 impact level of 'no or minimal' but the operational phase has an impact level of 'medium' the overall impact on WFD objectives from the option would be identified as 'medium level of impact'.

<sup>10</sup> Abstraction Licensing Strategies, accessed October 2017:

<https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process>

<sup>11</sup> Aquifer designation data, accessed October 2017:

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

## Step 4: Cumulative Assessment

- 2.2.22 Where two or more preferred options are located in the same water body or operational catchment<sup>12</sup>, a high level assessment would be undertaken to determine the potential for cumulative effects on WFD objectives, should all the options be implemented (e.g. does the level of impact on the fish classification status increase if two new abstractions start on the same river but in different water bodies). However, as the WRMP only includes one preferred option, this assessment has not been required.

## Step 5: Protected Areas Assessment

- 2.2.23 Where a preferred option is located in a water body that is linked to a protected area, assessments would be undertaken to establish the impact of the options on the protected area. However, this has not been required for this assessment (see Section 5.1).

## 2.3 Assumptions

- 2.3.1 The WFD assessment is based on available data, primarily spatial data on the EA's Catchment Data Explorer website, and the option description provided for each option. However, in all cases the information had insufficient detail in order to avoid the use of assumptions in the assessment of construction and operational impact in accordance with Table 2.1. 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>13</sup>. 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 will be undertaken prior to construction activities. These will identify any contaminated land and mitigation that may be required.
- ▶ Extensions, modifications, or new pumping stations, WTW, 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, by default, need to demonstrate that they are compliant with the objectives of the WFD in order to gain planning consent.

<sup>12</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>13</sup> <http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/>

- ▶ Dewatering would be of uncontaminated water, and water would be discharged within the same water body. As such the dewatering of excavations would not require a permit from the EA. Dewatering and a corresponding discharge of sufficient magnitude, duration, or sensitivity to require a permit may have a greater impact than assessed.
- ▶ The relatively shallow and localised excavations associated with laying new transfer pipe lines, and constructing new pumping stations, WTW etc. would not present a risk to overall WFD status of groundwater bodies.
- ▶ Construction, refurbishment, and testing of groundwater abstraction wells will be undertaken under consent from the EA. Wells will 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 new or altered abstractions have been accompanied by analysis, during the identification of feasible options, to confirm that the volume of water required is potentially available to abstract, without compromising the objectives of the WFD.
- ▶ 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.



## 3. Overview of Options

- 3.1.1 The eleven 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

- 3.1.2 Four WRMP feasible options (R08-02: New water sources for the R08-02R, R08-03: New water sources for the R08-03R,, R23-01: Purchase water from third parties, and R24: R24R Source) include the need for the construction of in-channel structures (e.g. new surface water abstractions require the construction of intake structures), or the construction of pipe lines with watercourse crossings. In-channel 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.
- 3.1.3 For the purposes of the WFD assessment it has been assumed that construction best practice would be used, including pollution prevention measures (see Section 2.3). 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

- 3.1.4 Eight WRMP feasible options include the construction or modification of raw water transfer pipe lines and WTW, within WFD river water body catchments and groundwater bodies, but away from watercourse channels. These are:
- ▶ R08-02: New water sources for the R08-02R;
  - ▶ R08-03: New water sources for the R08-03R;
  - ▶ R23-01: Purchase water from third parties;
  - ▶ R24: R24R Source;
  - ▶ P01-01: Increase performance of P01-01R;
  - ▶ P01-02: Increase performance of P01-02R;
  - ▶ P08: P08R (WTW); and
  - ▶ P10: P10R WTW.
- 3.1.5 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 2.3), 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 no or minimal impact in the Level 1 screening are not subject to a detailed Level 2 assessment.

### Construction of Reservoirs

- 3.1.6 One feasible option (R11: P10R Reservoir) involves the construction of a new reservoir. The construction of a new reservoir could have a widespread impact on the river water body in which it is located due to the following:
- ▶ Reduction in the chemical status due to a deterioration in water quality 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 and watercourse diversions.
- 3.1.7 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.

### Operation Phase Activities

#### New or Increased Abstractions

- 3.1.8 Five WRMP feasible options (R08-02: New water sources for the R08-02R, R08-03: New water sources for the R08-03R, R24: R24R Source P08: P08R WTW, and P10: P10R WTW) 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, 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.
- 3.1.9 One option (R24: R24R Source) includes a reinstated 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 due to 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 tests. 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.
- 3.1.10 Four options (R08-02: New water sources for the R08-02R, R08-03: New water sources for the R08-03R, P08: P08R WTW, and P10: P10R WTW) 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.

3.1.11 Changes to abstractions may have a widespread or prolonged effect on the WFD status of surface water or ground water bodies. Water bodies in which a new or changed abstraction is located have been flagged as medium level of impact and 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.

#### Presence of New Reservoir

3.1.12 One option (R11: P10R Reservoir) includes 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 a highly modified water body. Interactions with underlying groundwater bodies may also occur affecting their WFD status. Therefore this option is flagged as a high impact at Level 1 screening stage and subject to a Level 2 detailed assessment.

#### Catchment Management

3.1.13 One option (P06: Catchment Management of the Mendip Lakes) includes catchment management options, such as providing support to farms investing in improved infrastructure to aid clean and dirty water separation, storage of slurry, effluent and manures, and providing advice and support towards management options that reduce diffuse pollution risk, such as cultivation of over-wintering cover crops after maize, and use of an integrated manures and fertilizer management plans.

3.1.14 Successful implementation of catchment management schemes will result in positive WFD impacts to the water bodies in which they are implemented. There may be improvements in chemical status due to reductions in point and diffuse source pollution, and improvements to ecological status due to reduction in sediment inputs, and improvements to the flow regime due to better runoff control and natural flood risk management options.

3.1.15 It has not been possible to identify water bodies associated with this option, as the option description did not contain any information on the location of the improvements. However, this option as a whole is flagged as no or minimal impact at Level 1 screening stage and is not subject to a Level 2 detailed assessment.





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

### 4.1 Level 1 Screening of Feasible Options

- 4.1.1 The Level 1 screening identified 24 WFD water bodies that may be impacted by the eleven feasible options. Some of these water bodies could be impacted by more than one option, resulting in a total number of 36 option-water body combinations. The screening exercise was undertaken for each individual option and its related water bodies. The results of the screening exercise is summarised in **Table 4.1** and presented in full in **Appendix A**.

Table 4.1 Summary of Level 1 screening exercise

|                               | No of option–<br>water body<br>combinations | No of water<br>bodies | No of options |
|-------------------------------|---|-----------------------|---------------|
| <b>Total</b>                  | 36  | 24                    | 11            |
| <b>High level of impact</b>   | 2   | 2                     | 1             |
| <b>Medium level of impact</b> | 11  | 9                     | 5             |
| <b>Minor level of impact</b>  | 18  | 18                    | 4             |
| <b>No or minimal impact</b>   | 5   | 4                     | 4             |

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.

### 4.2 Level 2 Assessment of Feasible Options

- 4.2.1 The Level 1 screening identified six feasible options that may have medium or high levels of impact on one or more water bodies. The water bodies that may be subject to medium or high levels of impact from these options, were subject to a Level 2 detailed assessment. This involved a more detailed 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 assigned during the Level 1 screening may have been reduced or increased depending on the judgement of the likely impact.
- 4.2.2 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 4.2** and presented in full in Appendix A. The individual Level 2 assessment spreadsheets are presented in **Appendix B**. In general terms the Level 2 detailed assessments resulted in a lowering of the level of impacts, a reflection on the conservative approach used in the Level 1 screening.

Table 4.2 Summary of Combined Assessment Results

|                               | No of option–<br>water body<br>combinations | No of water<br>bodies | No of options |
|-------------------------------|---|-----------------------|---------------|
| <b>Total</b>                  | 36  | 24                    | 11            |
| <b>High level of impact</b>   | 2   | 1                     | 2             |
| <b>Medium level of impact</b> | 2   | 2                     | 2             |
| <b>Minor level of impact</b>  | 23  | 19                    | 6             |
| <b>No or minimal impact</b>   | 9   | 6                     | 7             |

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. Results of the WFD Assessment of the Preferred Option

### 5.1 R32: Reduction of Bulk Transfer Agreement with Wessex Water

- 5.1.1 The draft WRMP only includes one resource preferred option, R32: Reduction of bulk transfer agreement with Wessex Water. Two distribution options and a leakage reduction option are also included but these are outside the scope of the WFD assessment.
- 5.1.2 Option R32 involves the termination of the existing bulk supply agreement to Wessex Water in order to recover up to 11 Ml/d to restore BW's supply demand balance. The water would be made available from the P15R source. As the option does not involve any new infrastructure, and there would be no change in abstraction patterns (water currently abstracted for transfer to Wessex Water would be used to supply BW's customers), there is no potential for this option to have an impact on the status of any WFD water bodies. Therefore the impact of this option is 'no or minimal', and the assessment has a high level of confidence.
- 5.1.3 As there is only one preferred option, there is no requirement for a cumulative assessment. Also because there will be no change from the current situation, or WFD impact from this option, there is no also no potential for it to impact on a protected area, and no protected area assessment is required.



## 6. Summary and Conclusions

### 6.1 Summary of Feasible Options Assessment

- 6.1.1 A WFD assessment was undertaken on eleven feasible options to inform BW'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.
- 6.1.2 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 A and B**, and summarised in **Section 5**.

### 6.2 Summary of Preferred Options Assessment

- 6.2.1 The draft WRMP only includes one resource preferred option, R32: Reduction of bulk transfer agreement with Wessex Water. As the option does not involve any new infrastructure, and there would be no change in abstraction patterns, there is no potential for this option to have an impact on the status of any WFD water bodies. Therefore the impact of this option is 'no or minimal', and the assessment has a high level of confidence.
- 6.2.2 As there is only one preferred option, there is no requirement for a cumulative assessment. Also because there will be no change from the current situation or WFD impact from this option, there is no also no potential for it to impact on a protected area, and no protected area assessment is required.

### 6.3 WRMP Options that Require Further Assessment

- 6.3.1 No further WFD assessment is required for the preferred WRMP option. Should the feasible options be considered for implementation in the next WRMP cycle, further assessment work would be required for those options with a medium or a high level of impact. These are:
- ▶ R08-02: New water sources for the R08-02R;
  - ▶ R11: P10R Reservoir;
  - ▶ R23-01: Purchase water from third parties;
  - ▶ P08: P08R WTW; and
  - ▶ P10: P10R WTW.
- 6.3.2 As noted in Section 2.2, the assessments were based on worst case scenarios and assumptions due to the limited detailed information available for the assessments. As such it is expected that the impact levels highlighted in this report could be decreased during detailed planning of the individual options. Detailed planning of the options should include further review of WFD objectives to ensure that the impacts highlighted in this report are appropriately accounted for. Additional information that could be used includes location information for infrastructure, detailed abstraction quantities, water quality information etc.



## 7. Statement of Compliance with the WFD

### 7.1 Preferred Option

- 7.1.1 The assessments for the preferred option indicate no or minimal impact against WFD objectives and as such will require no further assessment at detailed planning stage. As such the draft WRMP is compliant with WFD objectives.

### 7.2 Article 4.7 Requirements

- 7.2.1 Based on the assessments in this report there is currently no requirement to implement Article 4.7 for the preferred options. However, this is based on the assumptions detailed in this report.







# Appendix A

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





# Appendix B

## Level 2 Detailed Assessments



