Vyrnwy Aqueduct – WFD Environmental Assessment Report

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Technical note:
Water Framework Directive Screening Assessment of the United Utilities Vyrnwy Aqueduct Strategic Resource Option

1. Introduction

1.1.1 The United Utilities Vyrnwy Aqueduct (UUVA) Strategic Resource Option (SRO) is being delivered by United Utilities (UU) and is one of three SROs the water company is participating in, the others being United Utilities Sources (UUS) and Severn to Thames Transfer (STT). Although these schemes are separate SROs, they directly interface with each other to enable water to be transferred from North West England to the Midlands and South.

1.1.2 To meet the Regulators' Alliance for Progressing Infrastructure Development (RAPID) Gate 1 submission environmental requirements[1], the UUVA SRO must be subject to a range of environmental assessments. As part of this process, UU commissioned Wood Environment and Infrastructure Solutions Ltd (Wood) to undertake a Water Framework Directive (WFD) Screening Assessment of the options identified for the SRO.

1.1.3 This Technical Note presents the findings of the WFD Screening Assessment of the UUVA SRO options being taken forward at Gate 1. It has used an assessment methodology applied to the water resource management options developed in support of UU's Water Resources Management Plan 2019 (WRMP19)[2].

1.2 United Utilities Vyrnwy Aqueduct Strategic Resource Option

1.2.1 The UUVA SRO is one of 17 schemes promoted by Ofwat in the PR19 Final Determination[1] to identify new strategic water resources to address the water needs set out in the National Framework for Water Resources[3]. The SRO programme is managed by RAPID and governed through a gated process during AMP7 with the purpose of selecting the strategic resource options which provide best value for customers for delivery in AMP8. The gates are:

- **Gate 1:** Initial concept design and decision making;
- **Gate 2:** Detailed feasibility, concept design and multi-solution decision making;
- **Gate 3:** Developed design, finalised feasibility, pre-planning investigations and planning applications;

[1] See Ofwat (2019) *PR19 final determinations: Strategic regional water resource solutions* and RAPID (2020) Accelerated *Gate One Assessment –summary of process and criteria Version 2*.
[2] United Utilities (2019) *Final Water Resources Management Plan 2019*. Available from https://www.unitedutilities.com/globalassets/z_corporate-site/about-us-pdfs/wrmp-2019---2045/final-water-resources-management-plan-2019.pdf [Accessed March 2021[.
[3] Environment Agency (2020) *Meeting our future water needs: a national framework for water resources*. Available from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/872759/National_Framework_for_water_resources_main_report.pdf [Accessed September 2020].

- **Gate 4:** Planning applications, procurement and land purchase.

1.2.2 Gate 1 of this process takes place in July 2021 and involves initial concept design and decision making. The Gate 1 decision, if supportive, will provide further funding for development of the schemes and the selected options will be included in the plan development process for the Regional Plans and Water Resources Management Plans 2024 (WRMP24s), as appropriate.

1.2.3 The purpose of the UUVA SRO, alongside the UUS SRO, is to support the STT SRO proposal to transfer up to 180 mega litres per day (Ml/d) of water from Lake Vyrnwy to the Thames Water region via the River Severn by maintaining supply resilience to UU customers supplied directly from Vyrnwy Aqueduct (if UU were to stop or reduce its abstraction from Vyrnwy Reservoir to facilitate a release of raw water into the Severn to Thames transfer system).

1.2.4 Options for the UUVA SRO have been evaluated in terms of their benefits and costs and subject to environmental assessment in accordance with RAPID's Gate 1 requirements. This process has informed the selection of a preferred list of two feasible options for the SRO. Both options will enable treated water from Huntington Water Treatment Works (WTW) to be transferred by pumping to Oswestry WTW, either via Norton Tower, a pumped transfer and aqueduct pipeline enhancement scheme, or via a newly installed pipeline from Huntington to Cotebrook Service Reservoir (SR). The options are summarised in **Section 2** of this Technical Note.

1.2.5 It should be noted that, at this stage, the preferred option for the UUVA SRO has not been selected. The option will be selected by Gate 2 (October 2022), taking into account further assessment (including WFD assessment), investigations and the volume of water required for trading.

1.3 RAPID's Environmental Requirements

1.3.1 RAPID has requested environmental information from water companies to support their respective SROs as part of the Gate 1 submission (July 2021). To meet RAPID's Gate 1 submission requirements[4], UU is to provide the following information for the UUVA SRO options being taken forward:

- Initial option-level environmental assessments that meet local requirements and comply with Strategic Environmental Assessment (SEA) and Habitats Regulations Assessments (HRA) requirements, including consideration of in-combination effects and identification of environmental risks that need mitigating through the solution design and costing.
- Initial environmental, social, and economic valuations (or metric benefits) consistent with principles in the National Planning Statement and Water Resource Planning Guidelines.

1.3.2 To meet RAPID's requirements, the following environmental assessments have been completed:

- Strategic Environmental Assessment[5] (SEA);
- Habitats Regulations Assessment[6] (HRA);
- WFD Screening Assessment[7];
- Natural Capital Assessment (NCA);

[4] See Ofwat (2019) *PR19 final determinations: Strategic regional water resource solutions* and RAPID (2020) Accelerated *Gate One Assessment –summary of process and criteria Version 2.*
[5] *Statutory Instrument No.1633 - The Environmental Assessment of Plans and Programmes Regulations 2004.*
[6] *Statutory Instrument No.1012 - Conservation of Habitats and Species Regulations 2017.*
[7] *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).*

- Biodiversity Net Gain (BNG) Assessment;
- Invasive Non-native Species (INNS) Risk Assessment.

1.3.3 This Technical Notes relates to the WFD Screening Assessment.

1.4 Water Framework Directive Assessment

Overview

1.4.1 The WFD[8] 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[9] and subsequent amendments (EQSD)[10] and the Groundwater Directive (GWD)[11]. The environmental objectives of the WFD and its daughter directives are to:

- Prevent deterioration of aquatic ecosystems;
- Protect, enhance and restore water bodies to good status, which is based on ecology (with its supporting hydromorphological and physico-chemical factors) and chemical factors for surface water, and water quantity and chemical status for groundwater;
- Comply with water related standards and objectives for environmentally protected areas established under other EU legislation, e.g. The Habitats Directive 92/43/EEC;
- Progressively reduce pollution from priority substances and cease or phase out discharges from priority hazardous substances; and
- Prevent or limit input of pollutants into groundwater and reverse any significant or sustained upward trends in the concentration of any groundwater pollutant.

1.4.2 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 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) and Natural Resources Wales (NRW) every six years.

1.4.3 The draft Water Resources Planning Guideline[12] provides a framework for the development of WRMPs; as the options for the UUVA SRO are likely to be considered in the WRMP24 and Regional Plan development, it is important that the Guideline is also taken into account. Regarding WFD assessment, the Guideline sets out that water companies:

[8] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (the Water Framework Directive).
[9] Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council (the Priority Substances Directive).
[10] Directive 2013/39/EU of the European Parliament and of the Council of 12 August 2013 amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy.
[11] Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration (the Groundwater Directive) including Commission Directive 2014/80/EU which amends Annex II of the original Directive 2006/118/EC
[12] Environment Agency, Ofwat and Natural Resources Wales (2020) *Water Resources Planning Guideline Draft for consultation – July 2020*.

- must ensure that feasible options support the achievement of the RBMP environmental objectives;
- need to assess new supply options against the RBMP measures and objectives for each water body and meet their obligations to avoid future deterioration;
- should confirm that there is no risk of deterioration from a potential new abstraction or from increased abstraction at an existing source;
- should ensure that any options do not prevent the achievement of good status (or potential).

1.4.4 Reflecting the draft Water Resources Planning Guideline, the All Company Working Group (ACWG) has developed guidance[13,14] on environmental assessment for SROs. This sets out that "*As part of the SRO assessment process, it must be demonstrated that an option will not cause the deterioration in status of any water bodies, as measured and defined in the Water Framework Directive (WFD). This assessment should include and consider any mitigation methods that would be put in place to protect a water body status*." At Gate 1, the ACWG Guidance sets out that a WFD screening assessment should be undertaken.

1.4.5 The National Assessment Unit (NAU), which includes representatives from the EA and Natural England (NE), has been established to provide strategic advice and guidance to water companies on environmental matters pertaining to the SROs, including the UUVA SRO. Both the NAU and NRW have confirmed that their Gate 1 expectations include for WFD requirements to be taken into account in the initial environmental assessments completed for the UUVA SRO.

WFD Assessment of the UUVA SRO

1.4.6 In accordance with the requirements outlined above, a WFD Screening Assessment has been undertaken to identify if the options currently being considered for the UUVA SRO would cause a deterioration in baseline conditions and, for those water bodies that are not currently attaining good status, where the options would not preclude the delivery of measures to facilitate the improvements needed to attain good status.

1.4.7 The WFD Screening Assessment of the UUVA SRO options has been undertaken in two phases:

- **Phase 1**: Initial screening of the feasible options identified for the SRO, to assist UU in identifying those options to be taken forward at Gate 1[15];
- **Phase 2:** Further assessment of the preferred list of feasible options for the SRO to take into account regulator feedback and support UU's selection of the preferred solution post-Gate 1 (this report).

1.4.8 It should be noted that this WFD Screening Assessment is not the 'final' or 'full' WFD assessment that will be undertaken for the SRO. In accordance with the ACWG guidance, the assessment will be refined at each gate, and once the preferred solution for the SRO has been identified, to take into account further investigations/monitoring, developed design and/or mitigation. The full WFD assessment cannot be undertaken at Gate 1 as a preferred solution hasn't been selected and engagement with regulators has identified a need for further investigations post-Gate 1. It is therefore currently envisaged that this work will be undertaken concurrent with the wider WRMP24

[13] Mott MacDonald (2020) *All Companies Working Group WRMP environmental assessment guidance and applicability with SROs*.
[14] Mott MacDonald (2020) *All Company Working Group Water Framework Directive: Consistent framework for undertaking no deterioration assessments*.
[15] Wood (2021) Technical note: WFD Screening Assessment of the United Utilities Sources and Vyrnwy Aqueduct Strategic Resource Options.

and Regional Plan development process and will continue to the project/consenting stage post-Gate 2.

1.5 This Technical Note

1.5.1 This Technical Note presents the findings of the WFD Screening Assessment for the preferred list of UUVA SRO feasible options. The remainder of this Technical Note is structured as follows:

- **Section 2:** Describes the options identified for the UUVA SRO;
- **Section 3:** Outlines the methodology for the WFD Screening Assessment;
- **Section 5:** Summarises the results of the WFD Screening Assessment;
- **Section 6:** Presents the conclusions of the WFD Screening Assessments and sets out the next steps in the assessment process.

2. The United Utilities Vyrnwy Aqueduct SRO Options

2.1 Overview

2.1.1 The options for the UUVA SRO being taken forward at Gate 1 have been selected following a process of options identification and appraisal. UU initially identified five possible options for the SRO that were subject to an initial round of screening (Primary Screening), although in this instance all five options were deemed to be potentially feasible. The five feasible options were then assessed in terms of their Average Incremental Cost (AIC) and subject to initial environmental assessment including WFD screening. Taking into account the AIC and the findings of the initial environmental assessments, as well as ongoing engagement with stakeholders, a preferred list of two feasible options for the UUVA SRO has been identified.

2.2 UU Vyrnwy Aqueduct SRO Options

2.2.1 The UUVA options being taken forward at Gate 1 comprise of two engineering options to maintain service to the customers supplied directly from the Vyrnwy Aqueduct. The options are summarised in **Table 2.1**.

Table 2.1 UUVA SRO Options

Option Number	Option Name	Summary Description
Option A	Norton to Oswestry WTW	[✂]
Option B	Huntington via Cotebrook to Oswestry WTW	[✂]

3. Assessment Methodology

3.1.1 Each of the UUVA SRO options have been assessed using the same assessment methodology employed for UU's draft WRMP19 feasible options, as set out in detail in the Final Water Resources Management Plan 2019: Water Framework Directive Assessment Report[16]. A summary of the methodology is provided below.

3.1.2 The approach to screening is broadly consistent with the ACWG guidance. It should be noted that the methodologies for the WFD assessments of the WRW Regional Plan and associated water company WRMP24s are (at the time of writing) currently being developed. In consequence, post-Gate 1, there will be a need to review the approach to the WFD assessment of the UUVA SRO options to ensure that there is consistency with the methodologies employed for the assessments of the Regional Plan and WRMPs. However, at this stage, it is not anticipated that any such review would materially affect the findings of the assessment presented in this Technical Note.

3.2 Step 1: Collation of Option Data

3.2.1 The WFD screening assessments for each option are based on the engineering scope information provided by UU. Information has been provided on likely option 'activities' (e.g. new pumping stations etc.) and locations. 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. It is envisaged that this information will be made available at subsequent gates.

3.3 Step 2: Level 1 Screening of Options

3.3.1 Each option has been broken down into its main constituent parts ('activities') based on construction and operational phases. This includes activities such as:

- **Construction phase**; trenching and laying of new pipelines, building new abstraction infrastructure (e.g. pumping stations), refurbishment of current infrastructure; and
- **Operational phase**: abstractions, discharges, maintenance of pipelines.

3.3.2 The likely impact of each activity has been assigned based on the definitions of impacts described in **Table 3.1**.

Table 3.1 Impact Classification Categories

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

[16] Wood (2019) *Final Water Resources Management Plan 2019: Water Framework Directive Assessment Report*. Available from https://www.unitedutilities.com/globalassets/z_corporate-site/about-us-pdfs/wrmp-2019---2045/final-water-resources-management-plan-2019-water-framework-directive-assessment.pdf [Accessed March 2021].

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.

3.3.3 Some activities (e.g. pipeline construction) are highly unlikely to have more than a minor level of impact on a WFD water body, irrespective of WFD status. 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 at the WFD water body scale. The Level 1 screening assessment has assumed that all construction activities will be undertaken in line with good practice construction and pollution control measures, and that all relevant consents would be secured, and all regulatory conditions complied with (refer to **Section 3.5**).

3.3.4 Other activities have the potential for a medium or high level of impact on a WFD water body (though no options have been identified as having a high level of impact at this stage). These include activities that could involve large scale construction activities that could result in extensive physical modification within the water body (e.g. construction of new water supply infrastructure).

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

3.3.6 For options that comprise of activities with a medium or high level of impact, the water bodies that the option could affect have been identified by comparing the UU engineering scopes to the spatial extent of WFD water bodies obtained from the EA's Catchment Data Explorer website[17] and NRW's Water Watch website[18], and the activities assigned to the relevant water bodies.

3.3.7 Water bodies that only include activities with a no or minimal or a minor level of impact have not been taken forward for the more detailed Level 2 screening. Options that include any activity that may have a medium or high level of impact have been taken forward for Level 2 screening.

3.3.8 In undertaking the Level 1 screening, consideration has also been given to feedback from the EA, NE and NRW on the options identified for the UUVA SRO (see **Section 3.6)**.

Table 3.2 Level 1 Screening Impacts from Option Activities*

Level of impact	Construction activities	Operation activities	Level 1 screening result
No or minimal impact	• Trenching and laying of pipelines within the interfluves of a catchment (i.e. involving no watercourse crossings); • Modification of an existing water treatment works; • Construction of a new water treatment (set back from a watercourse); • Construction of new abstraction borehole headworks and associated surface infrastructure.	• Maintenance of pipelines; • Maintenance and use of pumping stations and water treatment works; • Maintenance and use of river intakes/outfalls; • Maintenance and use of abstraction borehole headworks and surface infrastructure.	Screened out of Level 2 detailed assessment

[17] EA Catchment data explorer, accessed September 2020: http://environment.data.gov.uk/catchment-planning/
[18] NRW Water Watch website, accessed September 2020: http://waterwatchwales.naturalresourceswales.gov.uk/en/

Level of impact	Construction activities	Operation activities	Level 1 screening result
Minor level of impact	• Trenching and laying of pipelines involving watercourse crossings; • Construction or modification of a new pumping station and/or river intake; • Construction of new outfall structure to a watercourse or reservoir; • Refurbishment of existing abstraction boreholes or drilling of new abstraction boreholes.	• Transfer of water to an existing reservoir; • Use of existing surface water abstraction licences, within existing licence conditions and recent actual abstraction patterns.	Screened out of Level 2 detailed assessment
Medium level of impact		• New or increased surface water abstraction; • New or increased groundwater abstraction; • Use of existing groundwater abstraction licences, within existing licence conditions but beyond recent actual abstraction patterns.	Screened in to Level 2 detailed assessment
High level of impact	• Construction of new impounding reservoir (e.g. resulting in the impoundment of an existing watercourse); • Modification to existing reservoir (e.g. embankment raising or new lining).	• Presence of new reservoir or modified existing reservoir.	Screened in to Level 2 detailed assessment

*Not all of the activities identified are relevant to the UUVA SRO options but are listed for completeness and consistency with the assessment of the UUS SRO.

3.4 Step 3: Level 2 Detailed Assessment of Potential Impacts

3.4.1 Where the Level 1 screening of options has indicated that an activity may have a medium or high level of impact on a water body, further assessment of the potential impacts has been undertaken. It should be noted that no options have been identified as having a high level of impact at this stage, however both options have been taken forward to Level 2

3.4.2 The EA's Catchment Data Explorer website[19] and the NRW Water Watch website[20] were used to collate baseline WFD classification data for each water body for the Level 2 assessments. The Level 1 and Level 2 assessments were based on the 2019 classifications, in line with the 2019 Cycle 2 RBMPs.

[19] EA Catchment data explorer accessed September 2020: http://environment.data.gov.uk/catchment-planning/
[20] NRW Water Watch website, accessed September 2020: http://waterwatchwales.naturalresourceswales.gov.uk/en/

3.4.3 Additional baseline data for the Level 2 assessments was collected from the National River Flow Archive (NRFA)[21] and the EA's Abstraction Licensing Strategies (ALS)[22]. 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. NRFA data provide long term gauged flow data for some rivers that coincide with the options assessed, to provide additional hydrological context. As a result, all surface water catchments and groundwater management units are then 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.

3.4.4 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 classification element and the WFD baseline that has been collated. However, where feasible, assessments against elements have been grouped if the scale and level of impacts are expected to be similar.

3.4.5 The assessments are based on available data and evidence as far as possible. However, due to the limited nature of the engineering and baseline information available at this stage, expert opinion has been employed in most cases alongside feedback from the EA, NE and NRW on the SRO options (see **Section 3.6**). Where there is 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).

3.4.6 The same level of impact categories have been 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 good practice and pollution prevention measures would be put in place (see **Section 3.5**).

3.4.7 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 need for/quantity of a new 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.

Table 3.3 Confidence Level Categories

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

[21] National River Flow Archive website, accessed September 2020: https://nrfa.ceh.ac.uk/
[22] Abstraction Licencing Strategies, accessed September 2020: https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process

High	Good level of evidence with minimal assumptions required or low risk activity.

3.4.8 The overall WFD impact of the options is 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'.

3.5 Assumptions

3.5.1 The WFD assessment is based on available data, primarily spatial data on the EA's Catchment Data Explorer website and NRW's Water Watch website, and the engineering scopes provided for each option. However, in all cases the option information had insufficient detail and so the use of assumptions in the assessment of construction and operational impacts is required. The assumptions used are as follows:

- Good practice construction measures 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[23], 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 pipeline 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.
- Ground investigations would be undertaken prior to construction activities. These will identify any contaminated land and mitigation measures that may be required to manage potential WFD impacts.
- Extensions, modifications, or new pumping stations, water treatment works, etc. would be consented either via permitted development rights, or via planning consent from the relevant Local Planning Authority. Construction of these assets 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 permission.
- 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.

[23] http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/

- The relatively shallow and localised excavations associated with laying new transfer pipelines, and constructing new pumping stations etc. would not present a risk to the overall WFD status of groundwater bodies.
- Options that involve a new transfer of water into the water environment (e.g. new outfalls into 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.
- Options that involve abstraction of water that are within the limits of an existing abstraction license are assumed to be accounted for within the *recent actual* abstraction volumes. UU has undertaken an initial review with the EA as to whether the existing abstraction licenses have been accommodated within the recent actual calculations for determining water availability in the catchment/aquifer (see **Section 3.6**).

3.6 Incorporation of Regulator Comments

3.6.1 As set out in **Section 1.3**, UU has undertaken extensive engagement with regulators (EA, NRW and NE) on the UUVA SRO options. Where appropriate, regulator comments been incorporated into the assessment in the following way:

- [✂]
- To override the results of the Level 1 and Level 2 screening to reflect regulator concerns around WFD compliance. This override has been applied where regulator concerns have not been identified in the Level 1 screening exercise.

3.6.2 [✂]

4. Assessment Results

4.1.1 [✂]

4.2 Level 1 Screening

4.2.1 The Level 1 screening results are summarised in **Table 4.1**. Originally, Option A (Dee Aqueduct) and Option B (Huntington WTW Transfer) were screened out at Level 1 due to the nature of the options – they involve changes in the movement of water around the supply system rather than an increased abstraction. However, in their review, the regulator (NRW) has requested more information on the options to be reassured that they will not impact the complex regulatory arrangements in the Dee catchment, and have an inadvertent WFD impact.

4.2.2 In consequence, the whole Dee catchment was screened in at this stage, as the expectation is that the assessment will be able to demonstrate that the options are compatible with the broader regulatory environment and the initial conclusion of no impact on a specific water body will be upheld. It is recommended that this screening determination is reviewed post-Gate 1, once further option information is available, and be presented to the regulator and any environmental investigations are completed.

Table 4.1 Summary of Level 1 Screening Results

Option Number	Option Name	Carried Forward to Level 2 Screening?	Number of water bodies where a Medium or High Level of Impact could occur
Option A	Dee Aqueduct	Yes	Dee Catchment
Option B	Huntington WTW Transfer	Yes	Dee Catchment

4.3 Level 2 Screening

4.3.1 Option A and Option B have both been ascribed a 'Medium Level of Impact' (Low confidence). **Table 4.2** contains information on the regulator comments for these options and any subsequent changes that were made in the assessment outcome.

Table 4.2 Summary of Level 2 Screening Results

Option No.	Option Name	WFD Water Body ID	Confidence in Level 2 Assessment	Regulator Comments (Summary)	Change Post Regulator Comments
Option A	Norton to Oswestry WTW	-	Low	[✂]	[✂]
Option B	Huntington via Cotebrook to Oswestry WTW	-	Low	[✂]	[✂]

5. Summary, Conclusions and Next Steps

5.1 Summary and Conclusions

5.1.1 A WFD screening assessment has been undertaken of the preferred list of two UUVA SRO feasible options, using the same methodology as applied during the WRMP19 WFD Assessment. Each option has been subject to a Level 1 screening exercise. Option-water body combinations that have been identified as being subject to a medium or high level of impact in the Level 1 screening have then been subject to a Level 2 assessment.

5.1.2 Following the Level 2 screening, both Option A (Dee Aqueduct) and Option B (Huntington WTW Transfer) are assessed as having a 'Medium Level of Impact' (Low confidence). This is due to regulator comments around the links to the environmental ambition work and a need to be reassured that the options (though entirely supply side) will not compromise the complex regulatory arrangements in the Dee catchment, causing an inadvertent WFD impact.

5.1.3 Assigning a medium level of impact to an option means that the activities that form part of the option pose a potential risk of either (i) deterioration of WFD status and/or (ii) the inability of a water body to attain its target status. In such cases, further WFD assessment is required to provide a more option-specific and robust conclusion that may include the requirement for bespoke design measures and/or environmental mitigation in order to ensure that WFD objectives are not compromised.

5.1.4 In addition, it is recommended that both options are reviewed post-Gate 1 to take account of the latest available information. However, UU has indicated that there would be no increase in abstractions associated with Option A or Option B and therefore any impacts on WFD water bodies is extremely unlikely within the current regulatory regime. This could change if the allowable "take" for abstraction is constrained under the Environment Agencies Environmental Ambition programme (see Table 4.2 and Section 5.2).

Mitigation Measures

5.1.5 Regulator comments associated with Option A and Option B reflect the highly complex regulatory nature of the Dee catchment. Further work will be required to demonstrate that these options are compatible with this regulatory regime, and appropriate mitigation measures will need to be developed if required. The WFD conclusions associated with this work should feed into mitigation measure development.

5.1.6 In this context (at the time of writing), UU is preparing an Environmental Monitoring Plan for submission at Gate 1. Taking into account regulator feedback, the Plan will detail the investigations to be completed prior to Gate 2 (and beyond) in response to the issues/uncertainties identified in the WFD assessment and to inform the selection of the preferred solution for the UUVA SRO. The Environmental Monitoring Plan will be a 'live' document that is developed over time and its implementation will be reviewed in liaison with the NAU and NRW.

In-combination Assessment

5.1.7 The complex nature of the Dee catchment means that the development of any measure has to include an in-combination assessment, therefore development of the specific mitigation measures for Option A and Option B should involve involve the in-combination and alone assessments. Therefore there should not be a significant requirement for additional in-combination assessments

above and beyond the next phase of work to develop option specific mitigation measures. This should be explicitly considered in the next phase of work as mitigation measures are developed.

5.2 Next Steps

5.2.1 The WFD assessment of the preferred list of feasible options for the UUVA SRO has identified that further assessment is required in respect of both Option A and Option B to confirm the potential impacts on WFD water bodies and the requirements, or otherwise, for bespoke mitigation in order to ensure that WFD objectives are not compromised. In accordance with the ACGW guidance, this further WFD assessment will be undertaken prior to Gate 2 and will:

- reflect the WFD assessment methodologies developed for the WRW Regional Plan and WRMP24;
- take account of the further investigations to be undertaken prior to Gate 2, as detailed in the Environmental Monitoring Plan;
- draw upon ongoing engagement with regulators; and
- reflect the most recent available information from UU on the options for the SRO.

5.2.2 Further to the selection by UU of the preferred solution for the UUVA SRO, the WFD assessment at Gate 2 will additionally include a detailed in-combination assessment. Gate 2 should also involve a review of the work on Environmental Ambition, as the Environment Agency have indicated that there could be a decrease in the allowable take for freshwater abstraction in the Dee (see Table 4.2).

5.2.3 There could also be a need for further detailed WFD assessments as a part of the permitting and consenting process; this will apply to both options, though the level of detail in the assessments will depend on the likely impacts, an initial indication of which has been given in this assessment. At the moment, the use of Article 4.7 has not been anticipated for this assessment.

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