DŴR CYMRU WELSH WATER

Habitats Regulation Assessment Screening Report

Report for: Dŵr Cymru Welsh Water, draft drought plan 2025.

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1. INTRODUCTION

1.1 BACKGROUND

Water companies in England and Wales are required to prepare and maintain statutory Drought Plans under Sections 39B and 39C of the Water Industry Act 1991, as amended by the Water Act 2014, which set out the operational steps a company will take before, during and after a drought. The Water Industry Act 1991 (as amended) defines a Drought Plan as '*a plan for how the water undertaker will continue, during a period of drought, to discharge its duties to supply adequate quantities of wholesome water, with as little recourse as reasonably possible to Drought Orders or Drought Permits*'.

A water company must ensure its Drought Plan meets the requirements of the Habitats Regulations before implementation. The requirement for a HRA is established through the Conservation of Habitats and Species Regulations 2017 as amended. Under Regulations 63 and 105, any plan or project which is likely to have a significant effect on a European site (either alone or in-combination with other plans or projects) and is not directly connected with, or necessary for the management of the site, must be subject to a HRA to determine the implications for the site in view of its conservation objectives.

The responsibility for undertaking the Habitats Regulations Assessment lies with DCWW as the Plan making authority (competent authority). Where a drought plan action may affect a European designated site, Dŵr Cymru Welsh Water Ltd (DCWW) will have to undertake an HRA for submission in seeking permission to implement that action.

DCWW is updating its Statutory Drought Plan, the new plan is intended for publication in 2025, following a draft submission in October 2024.

The current Drought plan was published in 2020. The drought planning guideline that informed DCWW's 2020 Drought Plan was published by Natural Resources Wales (NRW) in December 2017[1]. NRW has published an updated guideline in July 2024[2]. For England, guidance on environmental assessments is provided in a supplementary guidance document to the Environment Agency's drought planning guideline. The new Drought Plan must satisfy the guidance provided in the latest NRW DPG, address feedback received on the current plan, and address lessons learned from operating to it since 2020. For sites in England, the new Drought Plan must satisfy Environment Agency and Natural England guidance.

The Environment Agency's Drought Plan Guidance[3] also specifies that a water company must ensure that its drought plan meets the requirements of the Habitats Regulations. The Environment Agency's

[1] Natural Resources Wales (2017) Water Company Drought Plan Technical Guideline https://naturalresourceswales.gov.uk/media/684414/final-wc-drought-plan-guidance-2017.pdf

[2] Natural Resources Wales (2024) Water Company Drought Plan Technical Guideline https://naturalresources.wales/media/4hihubjr/water-company-drought-plan-technical-guidance.pdf

[3] Environment Agency (2020) Water Company Drought Plan Guideline, December 2020 (Version 1.1), currently under review (informal consultation with water companies was undertaken July/August 2024)

2020 Drought Plan Guidance advises companies to consult the UK Water Industry Research (UKWIR) report 'Strategic Environmental Assessment and Habitat Regulations Assessment - Guidance for Water Resources Management Plans and Drought Plans[4] in preparing its HRA. The UKWIR report recommends that all Drought Plans should be subject to the first stage of HRA, i.e., screening for Likely Significant Effects (LSE).

1.2 REQUIREMENT

The responsibility for undertaking the Habitats Regulations Assessment lies with DCWW, the Plan making authority.

HRA Guidance for the appraisal of Plans[5], summarises the Habitats Regulations. Regulation 63 states that the Plan making authority (in this case DCWW) shall adopt, or otherwise give effect to, the Plan only after having ascertained that it will not adversely affect the integrity of a European site, subject to Regulation 64 or 105 of the Habitats Regulations.

Regulation 64 of the Habitats Regulations states:

> *(1) If the competent authority is satisfied that, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest (which, subject to paragraph (2), may be of a social or economic nature), it may agree to the plan or project notwithstanding a negative assessment of the implications for the European site or the European offshore marine site (as the case may be).*
>
> *(2) Where the site concerned hosts a priority natural habitat type or a priority species, the reasons referred to in paragraph (1) must be either—*
>
> *(a) reasons relating to human health, public safety or beneficial consequences of primary importance to the environment; or*
>
> *(b)any other reasons which the competent authority, having due regard to the opinion of the European Commission, considers to be imperative reasons of overriding public interest.*

Regulation 105 of the Habitats Regulations states:

> *(1) Where a land use plan—*
>
> *(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and*

[4] UKWIR (2021) Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans (WR/02/S). Prepared by Ricardo Energy & Environment.
[5] Tyldesley, D. & Chapman, C. (2013) The Habitats Regulations Assessment Handbook, November 2020 edition UK: DTA Publications Limited.

(b) is not directly connected with or necessary to the management of the site, the plan-making authority for that plan must, before the plan is given effect, make an appropriate assessment of the implications for the site in view of that site's conservation objectives.

(2) The plan-making authority must for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority specifies.

(3) The plan-making authority must also, if it considers it appropriate, take the opinion of the general public, and if it does so, it must take such steps for that purpose as it considers appropriate.

(4) In the light of the conclusions of the assessment, and subject to regulation 107, the plan-making authority must give effect to the land use plan only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).

(5) A plan-making authority must provide such information as the appropriate authority may reasonably require for the purposes of the discharge by the appropriate authority of its obligations under this Chapter.

(6) This regulation does not apply in relation to a site which is—

(a) a European site by reason of regulation 8(1)(c), or

(b) a European offshore marine site by reason of regulation 18(c) of the Offshore Marine Conservation Regulations (site protected in accordance with Article 5(4) of the Habitats Directive).

Best practice guidance[6] recommends that if there are no alternative solutions and if, in exceptional circumstances, it is proposed that a Plan be adopted despite the fact that it may adversely affect the integrity of a European site, the HRA will need to address and explain the Imperative Reasons of Overriding Public Interest (IROPI) which the Plan making authority considers to be sufficient to outweigh the potentially adverse effects on the European site(s). It must also agree and secure a package of compensation measures for the features of the site that may be adversely affected by implementation of the Plan.

1.3 CONTEXT

The amended 2017 Habitats Regulations have created a national site network on land and at sea, including both the inshore and offshore marine areas in the UK. The national site network includes:

- existing Special Areas of Conservation SACs and Special Protected Areas (SPAs)

[6] Tyldesley, D. & Chapman, C. (2013) The Habitats Regulations Assessment Handbook, November 2020 edition UK: DTA Publications Limited.

- new SACs and SPAs designated under these Regulations
- SPAs are classified under the European Council Directive 'on the conservation of wild birds' (2009/147/EC; 'Birds Directive') for the protection of **wild birds and their habitats** (including particularly rare and vulnerable species listed in Annex 1 of the Birds Directive, and migratory species).
- SACs are designated under the Habitats Directive (92/43/EEC) and target particular **habitats** (Annex 1) **and/or species** (Annex II) identified as being of European importance.
- Designated Wetlands of International Importance (known as Ramsar sites) do not form part of the national site network. Many Ramsar sites overlap with SACs and SPAs, and may be designated for the same or different species and habitats. All Ramsar sites are protected in the same way as SACs and SPAs.

For ease of reference through this HRA report, these designations are collectively referred to as "European sites". As per Natural England (NE) guidance[7], any HRA should also consider any European Marine Protected Areas (MPAs) within Wales' inshore waters (out to 12 nautical miles) to support sites in achieving conservation objectives and to guide effective management. No MPAs of European importance or Marine Conservation Zones (MCZs) are associated with the study area.

2. APPROACH

2.1 OVERVIEW OF HRA STAGES

There are four stages of the HRA process:

1. Firstly, a screening process was undertaken to identify whether each drought management measure in DCWW's Drought Plan 2025 (either alone or in combination with other plans or projects) is likely to have any significant effects on European sites (reported in this HRA Report). There was an important judgment in the Court of Justice of the European Union (CJEU) in April 2018[8] which ruled that Article 6(3) of the Habitats Directive must be interpreted as meaning that mitigation measures should be assessed within the framework of an Appropriate Assessment and that it is not permissible to take account of mitigation measures at the screening stage.
2. Where a likely significant effect cannot be ruled out (noting the precautionary principle and the requirement to exclude consideration of mitigation measures), an Appropriate Assessment should be undertaken of the drought management measure to determine whether this would adversely affect the integrity of the European site(s), either alone or in combination with other

[7] Help Note: Tips and advice on how to assess potential impacts of water company statutory plans on the marine environment1 – Focussing on Marine Conservation Zones (MCZ)

[8] Court of Justice of the European Union Case C-323/17: People over Wind & Sweetman v Coillte Teoranta

Drought Plan 2025 options or other plans and projects, taking into account available specific mitigation measures.

3. Where adverse effects cannot be ruled out at the Appropriate Assessment stage, alternative, reasonably feasible options should be examined to determine whether it is possible to avoid adverse effects on the integrity of the European site as Stage 3 of the HRA.

4. Stage 4 comprises an assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Overriding Public Interest, and consideration of compensation measures it has been concluded that the Secretary of State should be asked to determine that the Plan should proceed (this is decision of the Secretary of State, not DCWW).

This document reports the HRA screening (i.e. Stage 1 as identified above) carried out for DCWW's Drought Plan 2025. The HRA screening reaches conclusions as to whether LSE on European sites of the drought options contained within DCWW's Drought Plan 2025 can be ruled out, and, as such, determines the requirement for Appropriate Assessment. HRA is based on a rigorous application of the precautionary principle. Where uncertainty or doubt remains, an impact should be assumed, triggering the requirement for Appropriate Assessment of that option. This document also reports the Appropriate Assessment where that is relevant.

2.2 POTENTIAL IMPACTS

To provide an indication of those measures more likely to have a significant effect on a European site(s), those drought management measures that are within 20km of a European site were identified initially. Consideration has also been given to the relative spatial locations of the drought management measures and designated sites within the same surface water and groundwater catchments and/or estuarine system to ensure that any hydrological connectivity over a longer distance that might affect water-dependent sites, qualifying features and designated mobile species has been taken into account. GIS data were used to map the locations and boundaries of European sites within or adjacent to the DCWW Water Resource Zones (WRZs) using publicly available data from Natural Resources Wales.

The attributes of the European sites, which contribute to and define their integrity, have been considered with reference to Standard Data forms for SACs and SPAs and Information Sheets for Ramsar sites. An analysis of these information sources has enabled the identification of the site's qualifying features. This information, as well as Article 12 and 17 reporting, site conservation objectives, supplementary guidance, Site Improvement Plans, Regulation 33 information for European Marine Sites and the supporting Site of Special Scientific Interest's favourable condition tables, has been used to identify those features of each site which determine current conservation status, site integrity and the specific sensitivities of the site. Analysis of how potential impacts of the drought management measures may affect a European site has been undertaken using this information. The locations of the supply side drought permit/order options were mapped to establish their geographic proximity to the European sites.

The Drought Plan 2025 proposes a number of options which would make more water available for supply than is available under normal licensed conditions. Drought options include demand side options (e.g. water use restrictions), continued utilisation of existing licensed water sources within DCWW's resource base (referred to as supply side options) and drought permits/orders.

Demand side options are designed to reduce the demand for water and the options available to DCWW are consistent across all resource zones (see **Table 2.1**).

Supply side measures are measures available to DCWW to introduce during the course of a drought to increase the amount of water available for supply. Supply side drought options that require drought permits/orders are listed in **Table 2.2,** with full details provided in the corresponding Environmental Assessment Report (EAR).

Table 2.1: Demand-side Drought Management Options (All Water Resource Zones)

Ref	Demand-side options	Comments
DM1	Leakage Management	This option involves increasing leakage reduction activity to reduce losses from water supply network during drought. Two types of leakage reduction would be undertaken: 1. Active Leakage Control – increasing the number of leakage control technicians within each WRZ where this option is implemented. 2. Pressure Management – proactively managing pressure within the distribution network to reduce leakage. The scale of the works depends on the size of the WRZ and the level of leakage within each zone. It also depends on the effectiveness of the works to locate and fix leakage.
DM2	Water Efficiency – customer messaging and device offering	This option involves an increased level of water efficiency messaging to customers. This would involve the distribution of simple retrofit devices and water efficiency information to households and businesses within the targeted WRZ. This would be accompanied by a media campaign. No construction would arise from this option.
DM3	Temporary Use bans (TUBs)	This option involves the implementation of temporary use bans on customers. Temporary use bans include restrictions on the use of hosepipes. The implementation of this option would be accompanied by a media campaign. No construction would arise from this option.
DM4	Non-Essential Use Bans (NEUBs)	This option involves the implementation of NEUBs on customers under the Drought Direction 2011. NEUBs include restrictions on, for example, the cleaning of non-domestic premises, filtering or maintaining ponds and non-domestic swimming pools and operating mechanical vehicle washers. NEUBs would be imposed extremely infrequently with a 1 in 100 drought return period or even rarer event being needed to trigger them. No construction would arise from this option.
DM5	Extreme measures e.g. pressure management and water rationing	This option would involve water rationing through the use of widespread enhanced pressure management or localised use of standpipes. Such measures would only be employed in very exceptional circumstances under emergency drought orders. No construction would arise from this option.

Table 2.2: Supply Side Options

Water Source Grid Surface Water Resource Zone		Type of Drought Management Option
North Eryri Ynys Mon (NEYM)	8001-2 Llyn Cwellyn	Abstraction limit removal
	8001-7 Llyn Cwellyn	Compensation flow release reductions
	8001-4 Ffynnon Llugwy	Abstraction below licence intake level
Barmouth (As now connected to Lleyn Harlech)	8033-34-2 Llyn Bodyn	Compensation flow release reductions
Lleyn Harlech (As now connected to Barmouth)	8033-34-4 Llyn Cwmystradllyn	Retain part of the freshet bank
	8033-34-1 Llyn	Compensation flow release reductions

Water Source Grid Surface Water Resource Zone		Type of Drought Management Option
	Cwmystradllyn	
Clwyd Coastal	8012-2 Aled Isaf	Reduction of the regulation release and modification of the Hands Off Flow
	8012-4 Afon Aled	Relaxation of annual licenses
	8012-6 Aled Isaf to Llyn Aled	Pumped (winter) refill
	8012-1 Llyn Aled	Dead storage use
SWECUS	8121-1 Llwyn Onn	Compensation flow release reductions
	8121-2 Pontsticill	
	8121-3 Shon Sheffrey	
	8121-4 Grwyne Reservoir	Reservoir release
Twyi CUS	8201-1(ii) Crai	Compensation flow release reductions
	8201-2(i+ii) Ystradfellte	
North Ceredigion	8203-2 Nantymoch	Pump abstraction into raw water main
	8203-3 Llyn Craig Y Pistyll	Compensation flow release reductions
Pembrokeshire (without/with planned WRMP19 scheme)	8206-1 Crowhill	Reduction of required downstream flow
	8206-7 Llys y Fran	Retain part of the freshet bank

In determining the likelihood of significant effects on European sites from any drought management measure, particular consideration has been given to the possible source-receptor pathways through which effects may be transmitted from activities associated with the measures to features contributing to the integrity of the European sites (e.g. groundwater or surface water catchments, air, etc.). **Table 2.3** provides examples of the types of impacts the measures might have on European site qualifying features. Screening for LSEs has been determined on a proximity basis for many of the types of impacts, based on the proximity of the potential location of each measure to each European site. However, there are many uncertainties associated with using set distances as there are very few standards available as a guide to how far impacts will extend. Different types of impacts can occur over different distances, and the assumptions and distances used in the HRA and justification for them are shown in **Table 2.3**.

Table 2.3: Potential Impacts of Drought Options[9]

Broad categories of potential impacts on European sites, with examples	Examples of operations responsible for impacts (distance assumptions in *italics*)
Physical loss: • Removal (including offsite effects, e.g. foraging habitat, and removal of supporting habitat within boundary of a SPA) • Smothering	Development of infrastructure associated with scheme, e.g. new or temporary pipelines, transport infrastructure, temporary weirs. Indirect effects from a reduction in flows e.g. drying out marginal habitat. Physical loss is most likely to be significant where the boundary of the scheme extends within the boundary of the European site, or within an offsite area of known foraging, roosting, breeding habitat (that supports species for which a European site is designated).

[9] Note that the distances given in Table 2.3 are illustrative only and should be defined for each DP on a case by case basis.

Broad categories of potential impacts on European sites, with examples	Examples of operations responsible for impacts (distance assumptions in italics)
Physical damage: • Sedimentation / silting • Prevention of natural processes including coastal and fluvial bank stabilisation, prevention of long-shore drift etc. • Habitat degradation • Erosion • Fragmentation • Severance/barrier effect • Edge effects	Reduction in river flow leading to permanent and/or temporary loss of available habitat, sedimentation/siltation, fragmentation, etc. Physical damage is likely to be significant where the boundary of the scheme extends within or is directly adjacent to the boundary of the European site, or within/adjacent to an offsite area of known foraging, roosting, breeding habitat (that supports species for which a European site is designated, or where natural processes link the scheme to the site, such as through hydrological connectivity downstream of a scheme, long shore drift along the coast, or the scheme impacts the linking habitat).
Non-physical disturbance: • Noise (incl. underwater) • Visual presence • Human presence • Light pollution • Vibration (incl. underwater).	Noise from temporary construction or temporary pumping activities. Taking into consideration the noise level generated from general building activity (c. 122dB(A)) and considering the lowest noise level identified in appropriate guidance as likely to cause disturbance to bird species, it is concluded that noise impacts could be significant up to 1km from the boundary of the European site[10]. Noise from vehicular traffic during operation of a scheme. Noise from construction traffic is only likely to be significant where the transport route to and from the scheme is within 3-5km of the boundary of the European site. Plant and personnel involved in in operation of the scheme. These effects (noise, visual/human presence) are only likely to be significant where the boundary of the scheme extends within or is directly adjacent to the boundary of the European site, or within/adjacent to an offsite area of known foraging, roosting, breeding habitat (that supports species for which a European site is designated). Schemes which might include artificial lighting, e.g. for security around a temporary pumping station. Effects from light pollution are only likely to be significant where the boundary of the scheme is within 500m of the boundary of the European site. Vibration from temporary construction From a review of Environment Agency internal guidance on HRA and various websites/sources[11,12,13] it is considered that effects of vibration are more likely to be significant if development is within 500m of a European site.
Water table/availability: • Drying • Flooding / stormwater • Changes to surface water levels and flows including both increases and reductions. • Changes in groundwater levels and flows • Changes to coastal water movement	Changes to water levels and flows due to increased water abstraction, reduced storage or reduced flow releases from reservoirs to river systems. These effects are only likely to be significant where the boundary of the scheme extends within the same ground or surface water catchment as the European site. However, these effects are dependent on hydrological continuity between the scheme and the European site, and sometimes, whether the scheme is up or down stream from the European site.
Toxic contamination: • Water pollution • Soil contamination • Air Pollution	Reduced dilution in downstream or receiving waterbodies due to changes in abstraction or reduced compensation flow releases to river systems.

[10] British Standards Institute (BSI) (2009) BS5228 - Noise and Vibration Control on Construction and Open Sites. BSI, London.

[11] Institute of Lighting Professionals (2011) Guidance Notes for the Reduction of Obtrusive Light GN01:2011

[12] Environment Agency (2013 Bird Disturbance from Flood and Coastal Risk Management Construction Activities. Overarching Interpretive Summary Report. Prepared by Cascade Consulting and Institute of Estuarine and Coastal Studies.

[13] Cutts N, Hemingway K and Spencer J (2013) The Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning and Construction Projects. Produced by the Institute of Estuarine and Coastal Studies (IECS). Version 3.2.

Broad categories of potential impacts on European sites, with examples	Examples of operations responsible for impacts (distance assumptions in italics)
	These effects are only likely to be significant where the boundary of the scheme extends within the same ground or surface water catchment as the European site. However, these effects are dependent on hydrological continuity between the scheme and the European site, and sometimes, whether the scheme is up or down stream from the European site. Air emissions associated with plant and vehicular traffic during construction and operation of schemes. The effect of dust is only likely to be significant where site is within or in proximity to the boundary of the European site[14,15]. Without mitigation, dust and dirt from the construction site may be transported onto the public road network and then deposited/spread by vehicles on roads up to 500m from large sites, 200m from medium sites, and 50m from small sites as measured from the site exit. Effects of road traffic emissions from the transport route to be taken by the project traffic are only likely to be significant where the protected site falls within 200 metres of the edge of a road affected[16].
Non-toxic contamination: • Nutrient enrichment (e.g. of soils and water) • Algal blooms • Changes in salinity • Changes in water chemistry (e.g. pH, calcium balance etc) • Changes in thermal regime • Changes in turbidity • Changes in sedimentation/silting	Changes to water salinity, nutrient levels, turbidity, thermal regime due to increased water abstraction, storage, or reduced compensation flow releases to river systems. These effects are only likely to be significant where the boundary of the scheme extends within the same ground or surface water catchment as the European Site. However, these effects are dependent on hydrological continuity between the scheme and the European site, and sometimes, whether the scheme is up or down stream from the European site.
Biological disturbance: • Direct mortality • Changes to habitat availability • Out-competition by non-native species • Selective extraction of species • Introduction of disease • Rapid population fluctuations • Natural succession	Potential for changes to habitat availability, for example reductions in wetted width of rivers leading to desiccation of macrophyte beds due to changes in abstraction or reduced compensation flow releases to river systems. In addition, via removal of vegetation (including hedgerows and trees) used by based as foraging, roosting and hibernation sites and birds as roosting and nesting sites. Creation of new pathway of non-native invasive species. This effect is only likely to be significant where the scheme is situated within the European site or an upstream tributary of the European site (or affects groundwater levels supporting these sites or tributaries) Entrapment during in-river or terrestrial construction works causing injury and/or mortality of mobile species Likely to be a risk of entrapment, injury and/or mortality where the boundary of the option extends within or is directly adjacent to the boundary of a European site or within/adjacent to offsite functionally linked habitat. Mobile species could include fish, bats and European otters for example. Potential for changes to habitat availability via removal of vegetation (including hedgerows and trees) to facilitate construction activities and potential entrapment, injury and/or mortality of breeding birds and roosting/hibernating bats. This effect is dependent on the requirement to remove vegetation (if it cannot be avoided), ecological surveys to determine species presence and timing of removal based on species specific ecological considerations.

[14] Highways Agency (2003) Design Manual for Roads and Bridges (DMRB), Volume 11.
[15] Institute of Air Quality Management (2014) Guidance on the assessment of dust from demolition and construction v1.1.
[16] NE Internal Guidance – Approach to Advising Competent Authorities on Road Traffic Emissions and HRAs V1.4 Final - June 2018

3. ENVIRONMENTAL ASSESSMENT OF THE DROUGHT PLAN 2025

For the Drought Plan 2025, environmental assessments of each drought option have been undertaken, culminating in the production of Environmental Assessment Reports (EARs) as described below. The outcomes of these assessments have informed this HRA.

NRW's DPG, Drought Plan reporting requirements include undertaking significant environmental assessment which can be aligned to fulfil wider reporting requirements, such as those for HRA (and SEA if applicable). This approach ensures any duplication of work between HRA, SEA and the Drought Plan itself can be minimised.

DCWW has undertaken environmental assessment of the Drought Plan 2025 supply options in line with NRW's DPG and for England the July 2020 'Environmental Assessment for Water Company Drought Plans - supplementary guidance'. This is reported in the EARs. For each drought option, the assessment included the following stages:

1. an assessment of the likely changes in flow/level regime due to implementing the drought permit/order ;
2. identification of the environmental features that are sensitive to these changes and an assessment of the likely impacts on these features;
3. identification of mitigation that may be required to prevent or reduce impacts on sensitive features; and
4. recommendations for baseline, in-drought and post-drought permit monitoring requirements.

The initial stage determined the zone and extent of hydrological influence of each drought option both on an individual basis, and taking into account cumulative effects of simultaneous option deployment where options were located within the same catchment, and across catchments. The assessment also considered cumulative effects of other discharges and abstractions using abstraction licence and discharge consent information supplied by NRW.

The sensitivity assessment used these outputs and together with GIS, identified sites and features which could be impacted by drought option implementation. These included European sites (SAC, SPA and RAMSAR). The assessment considered the susceptibility of each site/feature to hydrological impacts (flow/level changes) in order to conclude the sensitivity of each site/feature, and whether it should be taken forward for further consideration in the environmental assessment. Consideration of susceptibility in the case of SACs and SPAs took account of qualifying interests and whether, or to what extent, they were water dependent, and likely to be impacted by a drought option's implementation, taking into account the appropriate baseline conditions against which an impact would be likely to arise (often severe drought conditions).

Drought options within the Drought Plan 2025 comprise reservoir compensation release reductions, river abstraction licence changes, dead storage use, pumping to raw water mains, and recommissioning of unused or under-utilised licensed water sources.

3.1 CONSIDERATION OF IN COMBINATION EFFECTS

The hydrological impact assessment described above and documented in the EARs considered cumulative hydrological impacts of simultaneous deployment of options within the same catchments, and across different catchments. Cumulative impacts that could arise with other non-public water supply abstractions are also considered, as are indirect impacts on water quality as a result of reduced dilution.

In accordance with the Habitats Regulations the review has therefore considered the in-combination effects of the drought options in the DCWW Drought Plan 2025, and the in-combination effects of the final Drought Plan 2025 and a number of plans and projects, that could have an impact on the European sites identified within this HRA of the Drought Plan 2025. The following plans and projects have been considered in the cumulative effects assessment:

- Inter-option effects within the DCWW Drought Plan 2025
- Welsh Water's Revised Draft Water Resources Management Plan 2024;
- Neighbouring water company WRMP and Drought Plans including:
    - United Utilities Water
    - Severn Trent Water
    - Bristol Water
    - Hafren Dyfrdwy ; and
- National Policy Statements (NPS) and Nationally Significant Infrastructure Projects (NSIPs).

The assessment has used all publicly available information. It should also be noted that the water companies are at different stages of updating their WRMPs and Drought Plans and therefore further updates may be required to the HRA cumulative assessment as these become available between the draft and final submissions.

Full details of the plans and projects reviewed as part of this in-combination assessment are presented in Section 4.10 of the Strategic Environmental Assessment. The findings of the in-combination impact assessments between each drought option and the schemes above can be found in **Table A1.1 in Appendix A**, column 6: 'Effect in combination with other options, plans and projects'. Only those plans or projects with a potential impact pathway are presented in more detail in **Table 3.3**.

3.2 HRA SCREENING REPORTS

3.2.1 POTENTIAL EFFECTS OF DROUGHT OPTIONS

The HRA has screened all of DCWW's 25 drought options, a (demand side and supply side drought permit/order options) were screened. This provided an indication of the schemes that may be likely to have a significant effect on a European site(s). The HRA screening matrix for this assessment is presented in **Appendix A**.

Effects in combination with other drought options within DCWW's Drought Plan 2025 were assessed and are documented in the matrix.

Table 3.2 indicates that apart from Llwyn Onn, Pontsticill, Crowhill, and Crai drought options, all of the other options within DCWW's Drought Plan 2025 are not considered to have likely significant effects on the qualifying features of European sites.

Table 3.1: Screening of Demand Side Drought Options for Impacts on European Sites

Option	Likely Significant Effect and Potential for Alteration of Measure to Avoid Effects?	Further HRA Assessment Required?
DM1: Leak Management	None – it is envisaged that leakage detection and repair schemes will largely be undertaken primarily in urban areas. No impacts on designated sites are anticipated, other than to acknowledge that decreased consumer demand will have a net positive effect in combination with existing abstraction and/or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No
DM2: Water Efficiency	None - it is envisaged that water efficiency schemes will largely be undertaken primarily in urban areas. No impacts on designated sites are anticipated, other than to acknowledge that decreased consumer demand will have a net positive effect in combination with existing abstraction and/or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No
DM3: Introduction of TUBs	None – a hose pipe ban, or any restrictions on consumer water use are demand management measures and as such, are not anticipated to have impacts on European sites. It is acknowledged that decreased consumer demand will have a net positive effect in combination with existing abstraction and/or drought option sites that have the potential to impact European sites, due to reduced pressure on water resources and reduced abstraction at source.	No
DM4: Introduction of a drought order to ban NEUBs (defined in the Drought Direction 2011)	None – a non-essential use ban and its components are demand management measures and as such are not anticipated to have impacts on European sites. It is acknowledged that decreased consumer demand will have a net positive effect in combination with existing abstraction and/or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No
DM5: Extreme Measures	None – an emergency drought order includes extreme demand management measures and as such are not anticipated to have impacts on European sites. It is acknowledged that decreased consumer demand will have a net positive effect in combination with existing abstraction and/or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No

Table 3.2: HRA Screening summary of Supply Side Drought Options

Option(s)	Screening Results	Designated sites to which screening applies	Effect in combination with other options, plans and projects?
North Eryri Ynys Mon (NEYM)			
8001-2: Removal of Llyn Cwellyn -10Ml/d abstraction limit.	Screened Out	N/A	No – 8001-7 would be operated as a second stage to 8001-2. Antecedent conditions would be reviewed at the time of application of 8001-7 to ensure the conclusions of the assessment remain valid.
8001-7: Llyn Cwellyn – Abstraction below licensed intake	Screened Out	N/A	No – 8001-2 would be operated as pre-cursor to implementation of 8001-7. Antecedent conditions would be reviewed at the time of application of 8001-7 to ensure the conclusions of the assessment remain valid.
8001-4: Ffynnon Llugwy – reduce compensation release	Screened Out	N/A	No
Lleyn Harlech Barmouth			
8033-34-2: Llyn Bodlyn – reduce compensation release (June – November)	Screened Out	N/A	No
8033-34-4: Llyn Cwmystradllyn – Retain part of the freshet bank	Screened Out	N/A	No
8033-34-1: Llyn Cwmystradllyn – Reduce compensation release	Screened Out	N/A	No
Clwyd Coastal			
8012-2: y Isaf – Reduction of the regulation release and modification of the Hands Off Flow at Bryn Aled	Screened Out	N/A	No
8012-4: Afon Aled – Relaxation of the annual licenses on Afon Aled and the Plas Uchaf and Dolwen Reservoirs	Screened Out	N/A	No
8012-6: Aled Isaf to Llyn Aled – Pumped (winter) refill from Aled Isaf to Llyn Aled	Screened Out	N/A	No
8012-1: Llyn Aled – Use dead storage	Screened Out	N/A	No
SEWCUS			
8121-1: Llwyn Onn – Reduce compensation release	Screened In – Impacts to migratory fish (specifically salmon)	Severn Estuary Ramsar (42km d/s)	Yes - 8121-2: Pontsticill – Reduce compensation release

Option(s)	Screening Results	Designated sites to which screening applies	Effect in combination with other options, plans and projects?
8121-2: Pontsticill – Reduce compensation release	Screened In – Impacts to migratory fish (specifically salmon)	Severn Estuary Ramsar (42km d/s)	Yes - 8121-1: Llwyn Onn – Reduce compensation release compensation release
8121-3: Shon Sheffrey – Reduce compensation release	Screened Out	N/A	No
8121-4: Grwyne Reservoir – Reservoir release, to support Prioress Mill or Llantrisant	Screened Out	N/A	No
Twyi CUS			
8201-1(ii): Crai – Reduce compensation release.	Screened In - Atlantic salmon, brook and river lamprey and bullhead	River Usk/ Afon Wysg SAC (0km D/S)	No
8201-2(i): Ystradfellte – Reduce compensation release	Screened Out	N/A	No
North Ceredigion			
8203-2: Nantymoch – Pumped abstraction from Nantymoch (a HEP reservoir operated by Statkraft) into raw water main between Llyn Llygad Rheidol Reservoir and Bontgoch WTW	Screened Out	N/A	No
8203-3: Llyn Craig Y Pistyll – Reduce compensation release	Screened Out	N/A	No
Pembrokeshire (without/with planned WRMP19 scheme)			
8206-1: Crowhill – Reduce the required downstream flow.	Screened In - excluding active raised bogs, alluvial forests and otter and marine habitat features.	Afonydd Cleddau/ Cleddau Rivers SAC (0m) Pembrokeshire Marine / Dir Benfro SAC (2km)	No
8206-7: Llys y Fran – Retain part of the freshet bank.	Screened Out	N/A	No

3.3 INFORMATION TO INFORM THE APPROPRIATE ASSESSMENT

HRA Guidance indicates that the Plan making authority (in this case DCWW) shall adopt, or otherwise give effect to the Plan, only after having ascertained that it will not cause a likely significant effect on the integrity of a European site. Stage 1 HRA screening of the Drought Plan 2025 has indicated that likely significant effects on the River Severn/Môr Hafren SAC/Ramsar, River Usk/ Afon Wysg SAC, the Afonydd Cleddau/ Cleddau Rivers SAC and Pembrokeshire Marine/ Sir Benfro SAC could not be ruled out. Impacts on the River Severn/Môr Hafren SAC are a result of the implementation of the Llwyn Onn and Pontsticill drought options. Impacts on the River Usk/ Afon Wysg SAC are as a result of the Crai drought option. Impacts on the Afonydd Cleddau/ Cleddau Rivers SAC and Pembrokeshire Marine/ Sir Benfro SAC are a result of the implementation of the Crowhill. As such, a Stage 2 HRA was required to determine whether the implementation of the drought options could impact on the conservation objectives and subsequently site integrity of these European sites. The full Screening Assessment is provided in **Appendix A**.

The Information to Inform the Appropriate Assessment is provided in full as **Appendix B**, with conclusions summarised below.

3.4 POTENTIAL IN-COMBINATION EFFECTS OF DROUGHT OPTIONS

Individually, apart from the Llwyn Onn, Pontsticill, Crai and Crowhill, all of the other options within DCWW's Drought Plan 2025 are not considered to have likely significant effects on the qualifying features of European sites (see **Appendix A)**. Two drought options (Llwyn Onn and Pontsticill) with the same hydrological reaches could be used at a similar time, should they be required, and therefore an assessment has been completed to determine the potential for LSEs, as detailed in **Appendix A** column 6.

In addition, **Table 3.3** shows the cumulative effects assessment for the River Severn/Môr Hafren SAC/Ramsar. through implementation of the Llwyn Onn and Pontsticill drought options concurrently and with other plans and projects. No other plans or projects were identified that could potentially impact the River Usk/ Afon Wysg SAC or the Afonydd Cleddau/ Cleddau Rivers SAC and Pembrokeshire Marine/ Sir Benfro SAC, so no cumulative assessment was required for the Crai and Crowhill drought options.

In summary, no cumulative or in-combination impacts of operating the drought options with other relevant plans and projects, on European Sites have been identified. However, there is a cumulative impact from operating the Llwyn Onn and Pontsticill drought options concurrently on the River Severn/Môr Hafren SAC/Ramsar.

Table 3.3: Cumulative Effects Assessment

Option	European Site or SSSI within zone of minor, moderate or major hydrological impact	Qualifying features (European sites) and main habitats (SSSI)	Potential for cumulative effects on qualifying features/main habitats?	Potential cumulative effect?	Are the cumulative effects of schemes likely to have a significant effect on European sites?
Llwyn Onn and Pontsticill	River Severn Ramsar/SAC	Ramsar Crit. 1 - sites containing representative, rare or unique wetland types Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity Crit. 4 - supports plant/animal species at a critical stage in their life cycles, or provides refuge Crit. 5 - regularly supports 20,000 or more waterbirds Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds Crit. 8 - important source of food for fishes, spawning ground, nursery and/or migration path SAC Sandbanks which are slightly covered by sea water all the time Estuaries Mudflats and sandflats not covered by seawater at low tide Reefs Atlantic salt meadows (Glauco-Puccinellietalia maritimae) Sea lamprey Petromyzon marinus River lamprey Lampetra fluviatilis Twaite shad Alosa fallax	The DCWW draft Drought Plan has identified potential impacts to the Severn Estuary Ramsar and Severn Estuary/ Môr Hafren SAC through impacts to migratory salmon potentially using Reaches 1 and 2, the Afon Taff, as a migratory corridor and for juvenile habitat, for the Llwyn Onn (8121-1) and Ponsticill (8121-2) drought options. Through operation of both of these drought options together, Reach 3 will subject to moderate hydrological impacts, previously assessed as negligible for each option alone. LSE in combination is predicted for all three reaches due to the declining status of salmon *salmo salar* populations in the Severn Estuary and migratory water courses. Due to the absence of data there is uncertainty regarding the level of impact the options will have on salmon in combination. Until further data is collected and the scale of the potential impact from the drought options better understood (including in Reach 3), we must conclude adverse effect on integrity in combination.	Yes	Yes

Option	European Site or SSSI within zone of minor, moderate or major hydrological impact	Qualifying features (European sites) and main habitats (SSSI)	Potential for cumulative effects on qualifying features/main habitats?	Potential cumulative effect?	Are the cumulative effects of schemes likely to have a significant effect on European sites?
Llwyn Onn and Severn Trent Water Drought Plan 2022	River Severn Ramsar/ SAC	As above	The DCWW draft Drought Plan has identified potential impacts to the Severn Estuary Ramsar and Severn Estuary/ Môr Hafren SAC through impacts to migratory salmon potentially using Reaches 1 and 2, the Afon Taff, as a migratory corridor and for juvenile habitat, for the Llwyn Onn (8121-1) and Ponsticill (8121-2) drought options. In the absence of data for this species in these reaches, on a precautionary basis, adverse effect on integrity has been concluded in the HRA. Given the levels on uncertainty for the assessment alone, the potential for in-combination impacts is also uncertain. Severn Trent's previous drought plan did not conclude adverse effects from their drought options impacting the River Severn/Severn Estuary, largely due to operation of the River Severn Regulation Scheme. However, since the previous assessment the status of salmon in the Severn has further declined and the population has become more vulnerable. On the basis of the previous assessment, there are no cumulative impacts between the DCWW drought options and the options in Severn Trent's Drought Plan, however, this assessment should be revisited when Severn Trent update their Drought Plan and accompanying assessments.	Yes	No
Pontsticill and Severn Trent Water Drought Plan 2022				Yes	No
Llwyn Onn and United Utilities (UU) Drought Plan 2022	River Severn Ramsar/ SAC	As above	The DCWW draft Drought Plan has identified potential impacts to the Severn Estuary Ramsar and Severn Estuary/ Môr Hafren SAC through impacts to migratory salmon potentially using Reaches 1 and 2, the Afon Taff, as a migratory corridor and for juvenile habitat, for the Llwyn Onn (8121-1) and Ponsticill (8121-2) drought options. In the absence of data for this species in these reaches, on a precautionary basis, adverse effect on integrity has been concluded in the HRA. Given the	Yes	No
Pontsticill and United Utilities Drought Plan 2022				Yes	No

Option	European Site or SSSI within zone of minor, moderate or major hydrological impact	Qualifying features (European sites) and main habitats (SSSI)	Potential for cumulative effects on qualifying features/main habitats?	Potential cumulative effect?	Are the cumulative effects of schemes likely to have a significant effect on European sites?
			levels on uncertainty for the assessment alone, the potential for in-combination impacts is also uncertain. UU's only drought option in Wales is Lake Vyrnwy which is hydrologically connected to the River Severn. However, an Environmental Assessment Report (EAR) has been prepared for this drought option which identified the zone of hydrological influence ending at the Vyrnwy confluence. Based on the conclusions of this EAR, there are no cumulative impacts with DCWWs drought options. However, this assessment should be revisited when UU update their Drought Plan and accompanying assessments.		
Llwyn Onn and Bristol Water Drought Plan	River Severn Ramsar/ SAC	As above	The DCWW draft Drought Plan has identified potential impacts to the Severn Estuary Ramsar and Severn Estuary/ Môr Hafren SAC through impacts to migratory salmon potentially using Reaches 1 and 2, the Afon Taff, as a migratory corridor and for juvenile habitat, for the Llwyn Onn (8121-1) and Ponsticill (8121-2) drought options. In the absence of data for this species in these reaches, on a precautionary basis, adverse effect on integrity has been concluded in the HRA. Given the levels on uncertainty for the assessment alone, the potential for in-combination impacts is also uncertain. The Bristol Water Drought Plan 2022 included four drought options which are hydrologically linked to the Severn Estuary designated sites. A HRA Stage 2 Appropriate Assessment was undertaken which concluded no adverse effects to site integrity either alone or in-combination providing the mitigation measures are implemented as set out.	Yes	No
Ponsticill and Bristol Water Drought Plan				Yes	No

Option	European Site or SSSI within zone of minor, moderate or major hydrological impact	Qualifying features (European sites) and main habitats (SSSI)	Potential for cumulative effects on qualifying features/main habitats?	Potential cumulative effect?	Are the cumulative effects of schemes likely to have a significant effect on European sites?
			However, since the previous assessment the status of salmon in the Severn has further declined and the population has become more vulnerable. On the basis of the previous assessment, there are no cumulative impacts between the DCWW drought options and the options in Bristol Water's Drought Plan, however, this assessment should be revisited when Bristol Water update their Drought Plan and accompanying assessments.		
Llwyn Onn and Severn to Thames Transfer SRO	River Severn Ramsar/ SAC	As above	The Severn to Thames Transfer (STT) SRO involves the transfer of raw water to the South East region, utilising excess flows in the River Severn. Additional water sources will supplement flows in the River Severn, including: releases from Vyrnwy Reservoir into the River Severn via the River Vyrnwy and a pipeline; diversion of treated water from Oswestry WTW (allowing a reduction in current abstractions on the River Severn); a reduction in licensed abstraction at Mythe; and the transfer of treated wastewater from Minworth and Netheridge WwTWs. STT SRO is currently on the adaptive plan, with implementation no earlier than 2033, therefore, there is no potential for cumulative impacts with Llwyn Onn and Pontsticill drought options during this drought plan period.	Yes	No
Pontsticill and Severn to Thames Transfer SRO				Yes	No
Llwyn Onn/Pontsticill and Hinkley Point C New Nuclear Power Station / Hinkley Point C New Nuclear Power Station	Severn Estuary Ramsar and SAC	As above	The DCWW draft Drought Plan has identified potential impacts to the Severn Estuary Ramsar and Severn Estuary/ Môr Hafren SAC through impacts to migratory salmon potentially using Reaches 1 and 2, the Afon Taff, as a migratory corridor and for juvenile habitat, for the Llwyn Onn (8121-1) and Ponsticill (8121-2) drought options. The Hinkley Point project has concluded Likely Significant Effect on fish populations within the Severn	Yes	No

Option	European Site or SSSI within zone of minor, moderate or major hydrological impact	Qualifying features (European sites) and main habitats (SSSI)	Potential for cumulative effects on qualifying features/main habitats?	Potential cumulative effect?	Are the cumulative effects of schemes likely to have a significant effect on European sites?
Material Change 1			Estuary SAC/Ramsar. However, a compensatory measures package has been implemented through HRA Stage 4 IROPI to enhance habitat for designated features including salmon. With this package in place likely significant effects from the project should be removed. Therefore, there is no potential for cumulative impacts with the DCWW drought options.		
Llwyn Onn/Pontsticill and Portishead Branch Line – MetroWest Phase 1	Severn Estuary Ramsar and SAC	As above	The Portishead Branch Line is in close proximity to the Severn Estuary designated sites, however, the HRA undertaken to inform the DCO application concluded no LSEs on qualifying fish assemblage during construction or operation. Therefore, there is no potential for cumulative impacts with the DCWW drought options.	Yes	No

4. CONCLUSIONS

4.1 HRA SCREENING AND REQUIREMENT FOR APPROPRIATE ASSESSMENT

Stage 1 HRA screening of the Drought Plan 2025 has indicated that likely significant effects on the River Severn/Môr Hafren SAC, River Usk/ Afon Wysg SAC, the Afonydd Cleddau/ Cleddau Rivers SAC and Pembrokeshire Marine / Sir Benfro SAC could not be ruled out. Impacts on the River Severn/Môr Hafren SAC are a result of the implementation of the Llwyn Onn and Pontsticill drought options. Impacts on the River Usk/ Afon Wysg SAC are as a result of the Crai drought option. Impacts on the Afonydd Cleddau/ Cleddau Rivers SAC and Pembrokeshire Marine / Sir Benfro SAC are a result of the implementation of the Crowhill. As such, a Stage 2 HRA was required to determine whether the implementation of the drought options could impact on the conservation objectives and subsequently site integrity of these European sites. An Appropriate Assessment for each option has been undertaken and are provided as **Appendix B**. The Appropriate Assessment for the River Severn/Môr Hafren SAC/Ramsar concludes that the Llyn Onn and Pontsticill drought option will lead to adverse effects on site integrity. The Crai drought option will likely have adverse effects on the site integrity of the River Usk/ Afon Wysg. With implementation of the mitigation measures proposed, the Appropriate Assessment for the Crowhill drought option concluded no impacts to site integrity of the Afonydd Cleddau/ Cleddau Rivers SAC.

Table 3.2 shows the assessment for each drought option and **Table 3.3** shows the cumulative effects assessment for the Severn Estuary SAC/Ramsar. Accordingly, it is concluded that there are no other requirements for Appropriate Assessment.

4.2 IN-COMBINATION IMPACTS

4.2.1 BETWEEN DCWW DROUGHT OPTIONS

As identified in **Table 3.3** above, cumulative impacts have been assessed between the Llwyn Onn and Pontsticill drought options.

4.2.2 WITH NEIGHBOURING WATER COMPANIES

As identified in **Table 3.3** above, no cumulative impacts have been identified between DCWWs Drought Plan and neighbouring water company drought plans. However, these drought plans have not been

updated since 2022 and this assessment should be revisited as the neighbouring water companies undertake updated assessments.

4.2.3 WITH OTHER PLANS AND PROJECTS

As identified in **Table 3.3** above, no cumulative impacts have been identified between DCWWs Drought Plan and other known plans or projects.

APPENDICES

Appendix A: HRA Screening Table

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
North Eryri Ynys Mon (NEYM)						
8001-2: Removal of Llyn Cwellyn - 10Ml/d abstraction limit.	Afon Gwyrfai a Llyn Cwellyn SAC (0km)	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoeto-Nanojuincetea Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Atlantic salmon *Salmo salar* Floating water-plantain *Luronium natans* Otter *Lutra lutra*	Minor construction components are required to install a pump to aid eel passage. However, disruption to habitat connectivity is considered unlikely due to the pipeline being only a few tens of metres in length. Furthermore, any impacts would be short term in nature and, assuming good construction practice (such as the use of sediment traps) is followed, will not result in significant and effects on these designated sites (e.g. no above ground permanent infrastructure will result). It is assumed that wherever possible, Welsh Water will locate temporary pumping infrastructure and pipeline on existing areas of hardstanding (roads, parking areas, tracks etc.). This site is likely to be directly affected by the scheme although these effects will be negligible. The operation of the scheme will maintain compensation releases to the Afon Gwyrfai, and freshet releases would not be impacted. The maintenance of the compensation release will ensure that that the Afon Gwyrfai is protected during any drought period and the interest features of the lake (Oligotrophic to mesotrophic standing waters; and	No	None – 8001-7 would be operated independently of 8001-2.	No

[17] The distance given is to the nearest element of the drought option (e.g., impacted reaches or constructional element) and the designated site.

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			Floating Water Plantain) are likely to be reasonably resilient to fluctuating levels, particularly given the normal range of lake levels due to abstraction, and the overall depth of the lake. The impact of the drought order on water levels in Llyn Cwellyn is a reduction of about 3% in the lowest water level based on the scenario assessed. Taking into consideration the small percentage reductions in minimum water levels and small percentage increases in durations of drawdown periods which the drought order has on the theoretical baseline drought, we have assessed the hydrological impact of the drought order on Llyn Cwellyn as negligible.			
	Glynllifon SAC (2km)	Lesser horseshoe bat *Rhinolophus hipposideros*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site features are not hydrologically dependent. The designated site features are not hydrologically dependent.	None	None – 8001-7 would be operated independently of 8001-2.	No
	Eryri/ Snowdonia SAC (3km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the I*soëto-Nanojuncetea* Siliceous alpine and boreal grasslands Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*)	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected. There is no hydrological connectivity between the option and the designated site as the designated site is upstream of this option.	None	None – 8001-7 would be operated independently of 8001-2.	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Calcareous rocky slopes with chasmophytic vegetation Siliceous rocky slopes with chasmophytic vegetation Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Alpine and Boreal heaths Alpine and subalpine calcareous grasslands Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) Blanket bogs (* if active bog) Depressions on peat substrates of the Rhynchosporion Petrifying springs with tufa formation (Cratoneurion)Alkaline fens Alpine pioneer formations of the *Caricion bicoloris-atrofuscae* Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus* Floating water-plantain *Luronium natans*				
	Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC (8km)	Water courses of plain to montane levels with the *Ranunculion fluitantis* and Callitricho-Batrachion vegetation Northern Atlantic wet heaths with *Erica tetralix*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected.	None	None – 8001-7 would be operated independently of 8001-2.	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		European dry heaths *Tilio-Acerion* forests of slopes, screes and ravines Old sessile oak woods with *Ilex* and *Blechnum* in the Biritsh Isles Alluvial forests with Alnus glutinosa and Fraxinus excelsior (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) Lesser horseshoe bat *Rhinolophus hipposideros*	There is limited hydrological connectivity between the option and the designated site as the designated site is upstream of this option and over 8km away.			
	Corsydd Eifionydd SAC (10km)	Transition mires and quaking bogs Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia* Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected The marsh fritillary butterfly is not a hydrologically dependent species and as such will not be impacted by this Option. There is no hydrological connectivity between the option and the designated site as the designated site is upstream of this option and 10km away.	None	None – 8001-7 would be operated independently of 8001-2.	No
	Llyn Idwal Ramsar (9km)	Crit. 1 - sites containing representative, rare or unique wetland types Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected. There is no hydrological connectivity between the option and the designated site as the designated site is upstream of this option and approximately 9km away.	None	None – 8001-7 would be operated independently of 8001-2.	No
	Y Fenai a Bae Conwy/ Menai Strait and	Sandbanks which are slightly covered	Minor construction components are required to install a pump to aid eel	None	None – 8001-7 would be	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Conwy Bay SAC (10km D/S)	by sea water all the time Mudflats and sandflats not covered by seawater at low tide Large shallow inlets and bays Reefs Submerged or partially submerged sea caves	passage. The site is sufficiently distant from construction works. There is hydrological connectivity between the option and the designated site although the hydrological impacts will cease prior to the tidal limit.		operated independently of 8001-2.	
	Twyni o Abermenai i Aberffraw/ Abermenai to Aberffraw Dunes SAC (11km)	Embryonic shifting dunes Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes") Fixed coastal dunes with herbaceous vegetation ("grey dunes") Dunes with Salix repens ssp. argentea (*Salicion arenariae* Humid dune slacks Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation Petalwort *Petalophyllum ralfsii* Shore dock *Rumex rupestris*	Minor construction components are required to install a pump to aid eel passage. The site is sufficiently distant from construction works. There is hydrological connectivity between the option and the designated site although the hydrological impacts will cease prior to the tidal limit.	None	None – 8001-7 would be operated independently of 8001-2.	No
	Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC (13km)	Estuaries Mudflats and sandflats not covered by seawater at low tide Salicornia and other annuals colonizing mud and sand Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected. There is no hydrological connectivity between the option and the designated site as the site is located on the southwestern coast of Anglesey approximately 13km away.	None	None – 8001-7 would be operated independently of 8001-2.	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Anglesey Terns / Morwenoliaid Ynys Môn SPA (18km)	Sandwich tern *Sterna sandvicensis* Roseate tern *Sterna dougalli* Common tern *Sterna hirundo* Arctic tern *Sterna paradisaea*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected. The site is located 18km north of the Option on the coast of Anglesey and is therefore not hydrologically connected to the site.	None	None – 8001-7 would be operated independently of 8001-2.	No
	Glan-traeth SAC (18km)	Great crested newt *Triturus cristatus*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected. No LSE are predicted due to distance, absence of hydrological connectivity to the site and due to the lack of mobility of the site feature, with GCN generally accepted to travel no further than on average 500m from their breeding ponds.	No	None – 8001-7 would be operated independently of 8001-2.	No
	Northern Cardigan Bay / Gogledd Bae Ceredigion SPA (18km)	Red-throated diver *Gavia stellata*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is sufficiently distant from any construction works. The Option is restricted to June-November. Red-throated divers overwinter in marine environments and are not dependent on freshwater flows.	No	None – 8001-7 would be operated independently of 8001-2.	No
	Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC	Sandbanks which are slightly covered by seawater all the time	Minor construction components are required to install a pump to aid eel passage. No construction impacts have	None	None – 8001-7 would be operated	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	(18km)	Estuaries Mudflats and sandflats not covered by seawater at low tide Coastal lagoons Large shallow inlets and bays Reefs Salicornia and other annuals colonizing mud and sand Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Submerged or partly submerged sea caves Bottlenosed dolphin *Tursiops truncates* Otter *Lutra lutra* Grey seal *Halichoerus grypus*	been identified as the site is sufficiently distant from any construction works. All marine features have been screened out as they are not dependent on freshwater inputs. Although otters are hydrologically dependent, they are not dependent on flow regime. Otters are highly mobile and are opportunistic foragers. Due to distance the Option will not have an impact on otters. Due to the above information, this Option will not lead to LSE.		independently of 8001-2.	
	Traeth Lafan/ Lavan Sands, Conway Bay SPA (18km)	Great crested grebe *Podiceps cristatus* Red-breasted merganser *Mergus serrator* Eurasian oystercatcher *Haematopus ostralegus* Eurasian curlew *Numenius Arquata* Common redshank *Tringa totanus*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected. The Option is located in the Llyn and Eryri Management Catchment which does not discharge into Conwy Bay, thus there is no hydrological connectivity between the site and the Option.	None	None – 8001-7 would be operated independently of 8001-2.	No
	Coedydd Aber SAC (20km)	Old sessile oak woods with Ilex and Blechnum in the British Isles Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected.	None	None – 8001-7 would be operated independently of 8001-2.	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			The Site is located approximately 20km from the Option on the north-western side of the Eryri mountains. This site can be screened out due to distance and lack of hydrological connectivity.			
	Morfa Harlech a Morfa Dyffryn SAC (20km)	Embryonic shifting dunes Shiftin dunes along the shoreline with Ammophila arenaria ("white dunes") Dunes with *Salix repens* ssp (*Salicion arenariae*) Humid dune slacks Petalwort *Petalophyllum ralfsii*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is sufficiently distant from any construction works. The designated site features are not hydrologically dependent on freshwater inputs.	None	None – 8001-7 would be operated independently of 8001-2.	No
8001-7: Llyn Cwellyn – Abstraction below licensed intake	Afon Gwyrfai a Llyn Cwellyn SAC (0km)	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoeto-Nanojuincetea Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Atlantic salmon *Salmo salar* Floating water-plantain *Luronium natans* Otter *Lutra lutra*	Minor construction components are required to install a pump to aid eel passage. However, disruption to habitat connectivity is considered unlikely due to the pipeline being only a few tens of metres in length. Furthermore, any impacts would be short term in nature and, assuming good construction practice (such as the use of sediment traps) is followed, will not result in significant and effects on these designated sites (e.g. no above ground permanent infrastructure will result). It is assumed that wherever possible, Welsh Water will locate temporary pumping infrastructure and pipeline on existing areas of hardstanding (roads, parking areas, tracks etc.). This site is likely to be directly affected by the scheme although these effects will be negligible. The operation of the scheme	None	None – 8001-2 would be operated independently of 8001-7.	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			will maintain compensation releases to the Afon Gwyrfai, and freshet releases would not be impacted. The maintenance of the compensation release will ensure that that the Afon Gwyrfai is protected during any drought period and the interest features of the lake (Oligotrophic to mesotrophic standing waters; and Floating Water Plantain) are likely to be reasonably resilient to fluctuating levels, particularly given the normal range of lake levels due to abstraction, and the overall depth of the lake. The impact of the drought order on water levels in Llyn Cwellyn is a reduction of about 3% in the lowest water level based on the scenario assessed. Taking into consideration the small percentage reductions in minimum water levels and small percentage increases in durations of drawdown periods which the drought order has on the theoretical baseline drought, we have assessed the hydrological impact of the drought order on Llyn Cwellyn as negligible			
	Glynllifon SAC (2km)	Lesser horseshoe bat *Rhinolophus hipposideros*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site features are not hydrologically dependent. The designated site features are not hydrologically dependent.	None	None – 8001-2 would be operated independently of 8001-7.	No
	Eryri/ Snowdonia SAC (3km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the Isoëto-*Nanojuncetea*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have	None	None – 8001-2 would be operated	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Siliceous alpine and boreal grasslands Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) Calcareous rocky slopes with chasmophytic vegetation Siliceous rocky slopes with chasmophytic vegetation Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Alpine and Boreal heaths Alpine and subalpine calcareous grasslands Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) Blanket bogs (* if active bog) Depressions on peat substrates of the Rhynchosporion Petrifying springs with tufa formation (Cratoneurion)Alkaline fens Alpine pioneer formations of the *Caricion bicoloris-atrofuscae* Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	been identified as the site is not hydrologically connected. There is no hydrological connectivity between the option and the designated site as the designated site is upstream of this option.		independently of 8001-7.	

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus* Floating water-plantain *Luronium natans*				
	Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC (8km)	Water courses of plain to montane levels with the *Ranunculion fluitantis* and Callitricho-Batrachion vegetation Northern Atlantic wet heaths with *Erica tetralix* European dry heaths *Tilio-Acerion* forests of slopes, screes and ravines Old sessile oak woods with *Ilex* and *Blechnum* in the Biritsh Isles Alluvial forests with Alnus glutinosa and Fraxinus excelsior (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) Lesser horseshoe bat *Rhinolophus hipposideros*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected. There is no hydrological connectivity between the option and the designated site as the designated site is upstream of this option and over 8km away.	None	None – 8001-2 would be operated independently of 8001-7.	No
	Corsydd Eifionydd SAC (10km)	Transition mires and quaking bogs Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia* Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected. The marsh fritillary butterfly is not a hydrologically dependent species and as such will not be impacted by this Option. There is no hydrological connectivity between the option and the designated site as the designated site is upstream of this option and 10km away.	None	None – 8001-2 would be operated independently of 8001-7.	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Llyn Idwal Ramsar (9km)	Crit. 1 - sites containing representative, rare or unique wetland types Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected. There is no hydrological connectivity between the option and the designated site as the designated site is upstream of this option and approximately 9km away.	None	None – 8001-2 would be operated independently of 8001-7.	No
	Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC (10km D/S)	Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Large shallow inlets and bays Reefs Submerged or partially submerged sea caves	Minor construction components are required to install a pump to aid eel passage. The site is sufficiently distant from construction works. There is hydrological connectivity between the option and the designated site although the hydrological impacts will cease prior to the tidal limit.	None	None – 8001-2 would be operated independently of 8001-7.	No
	Y Twyni o Abermenai i Aberffraw/ Abermenai to Aberffraw Dunes SAC	Embryonic shifting dunes Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes") Fixed coastal dunes with herbaceous vegetation ("grey dunes") Dunes with Salix repens ssp. argentea (*Salicion arenariae* Humid dune slacks Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation Petalwort *Petalophyllum ralfsii*	Minor construction components are required to install a pump to aid eel passage. The site is sufficiently distant from construction works. There is hydrological connectivity between the option and the designated site although the hydrological impacts will cease prior to the tidal limit.	None	None – 8001-2 would be operated independently of 8001-7.	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Shore dock *Rumex rupestris*				
	Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC (13km)	Estuaries Mudflats and sandflats not covered by seawater at low tide Salicornia and other annuals colonizing mud and sand Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected. There is no hydrological connectivity between the option and the designated site as the site is located on the southwestern coast of Anglesey approximately 13km away.	None	None – 8001-2 would be operated independently of 8001-7.	No
	Anglesey Terns / Morwenoliaid Ynys Môn SPA (18km)	Sandwich tern *Sterna sandvicensis* Roseate tern *Sterna dougalli* Common tern *Sterna hirundo* Arctic tern *Sterna paradisaea*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected. The site is located 18km north of the Option on the coast of Anglesey and is therefore not hydrologically connected to the site.	None	None – 8001-2 would be operated independently of 8001-7.	No
	Glan-traeth SAC (18km)	Great crested newt *Triturus cristatus*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected. No LSE are predicted due to distance, absence of hydrological connectivity to the site and due to the lack of mobility of the site feature, with GCN generally	None	None – 8001-2 would be operated independently of 8001-7.	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			accepted to travel no further than on average 500m from their breeding ponds.			
	Northern Cardigan Bay / Gogledd Bae Ceredigion SPA (18km)	Red-throated diver *Gavia stellata*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is sufficiently distant from any construction works. The Option is restricted to June-November. Red-throated divers overwinter in marine environments and hydrological impact ceases prior to the Cardigan Bay.	None	None – 8001-2 would be operated independently of 8001-7.	No
	Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC (18km)	Sandbanks which are slightly covered by seawater all the time Estuaries Mudflats and sandflats not covered by seawater at low tide Coastal lagoons Large shallow inlets and bays Reefs Salicornia and other annuals colonizing mud and sand Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Submerged or partly submerged sea caves Bottlenosed dolphin *Tursiops truncates* Otter *Lutra lutra* Grey seal *Halichoerus grypus*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is sufficiently distant from any construction works. All marine features have been screened out as they are not dependent on freshwater inputs. Although otters are hydrologically dependent, they are not dependent on flow regime. Otters are highly mobile and are opportunistic foragers. Due to distance the Option will not have an impact on otters.	None	None – 8001-2 would be operated independently of 8001-7.	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Traeth Lafan/ Lavan Sands, Conway Bay SPA (18km)	Great crested grebe *Podiceps cristatus* Red-breasted merganser *Mergus serrator* Eurasian oystercatcher *Haematopus ostralegus* Eurasian curlew *Numenius Arquata* Common redshank *Tringa totanus*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected. The Option is located in the Llyn and Eryri Management Catchment which does not discharge into Conwy Bay, thus there is no hydrologicial connectivity between the site and the Option.	None	None – 8001-2 would be operated independently of 8001-7.	No
	Coedydd Aber SAC (20km)	Old sessile oak woods with Ilex and Blechnum in the British Isles Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is not hydrologically connected. The Site is located approximately 20km from the Option on the north-western side of the Eryri mountains. This site can be screened out due to distance and lack of hydrological connectivity.	None	None – 8001-2 would be operated independently of 8001-7.	No
	Morfa Harlech a Morfa Dyffryn SAC (20km)	Embryonic shifting dunes Shiftin dunes along the shoreline with Ammophila arenaria (“white dunes”) Dunes with *Salix repens* ssp (*Salicion arenariae*) Humid dune slacks Petalwort *Petalophyllum ralfsii*	Minor construction components are required to install a pump to aid eel passage. No construction impacts have been identified as the site is sufficiently distant from any construction works. All features of this site are marine and will not be impacted by the Option as hydrological impact ceases prior to the Menai Strait.	None	None – 8001-2 would be operated independently of 8001-7.	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
8001-4: Ffynnon Llugwy – reduce compensation release	Eryri/ Snowdonia SAC (0km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the Is*oëto-Nanojuncetea* Siliceous alpine and boreal grasslands Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) Calcareous rocky slopes with chasmophytic vegetation Siliceous rocky slopes with chasmophytic vegetation Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Alpine and Boreal heaths Alpine and subalpine calcareous grasslands Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) Blanket bogs (* if active bog) Depressions on peat substrates of the Rhynchosporion Petrifying springs with tufa formation (Cratoneurion)Alkaline fens Alpine pioneer formations of the *Caricion bicoloris-atrofuscae*	There is no construction required for this option, therefore no construction impacts have been identified. All montane and non-hydrologically dependent features will not be impacted by this option due to lack of hydrological connectivity. Hydrologically dependent features of this site are not present within the SAC management plan for the units in which the Afon Llugwy occurs.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus* Floating water-plantain *Luronium natans*				
	Llyn Idwal Ramsar (5km)	Crit. 1 - sites containing representative, rare or unique wetland types Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities	There is no construction required for this option, therefore no construction impacts have been identified. The site is located in the Llyn and Eryri Management Catchment and the Option is located in the Conwy Management Catchment. As such, there is lno hydrological connectivity between the site and the Option.	None	None	No
	Coedydd Aber SAC (7km)	Old sessile oak woods with Ilex and Blechnum in the British Isles Alluvial forests with Alnus glutinosa and Fraxinus excelsior (*Alno-Padion, Alnion incanae, Salicion albae)*	There is no construction required for this option, therefore no construction impacts have been identified. The site is located in the Llyn and Eryri Management Catchment and the Option is located in the Conwy Management Catchment. The site sufficiently distant from operational impacts. As such, there is no hydrological connectivity between the site and the Option and no LSE will occur.	None	None	No
	Mwyngloddiau Fforest Gwydir/ Gwydyr Forest Mines SAC (7km)	Calaminarian grasslands of the *Violetalia calaminariae* Lesser horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent and therefore operation will not lead to LSE.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC (9km)	Water courses of plain to montane levels with the *Ranunculion* fluitantis and *Callitricho-Batrachion* vegetation Northern Atlantic wet heaths with Erica tetralix European dry heaths *Tilio-Acerion* forests of slopes, screes and ravines Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles Bog woodland Alluvial forests with Alnus glutinosa and Fraxinus excelsior (*Alno-Padion, Alnion incanae, Salicion albae*) Lesser horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. Non-hydrologically dependent features (European dry heaths, Tilio-Acerion forest slopes, screes and ravines, and lesser horseshoe bats) will not be impacted by this Option. Impacts on hydrologically dependent features are unlikely as the site is 9km downstream of the site.	None	None	No
	Traeth Lafan/ Lavan Sands, Conway Bay SPA (12km d/s)	Great crested grebe *Podiceps cristatus* Red-breasted merganser *Mergus serrator* Eurasian oystercatcher *Haematopus ostralegus* Eurasian curlew *Numenius Arquata* Common redshank *Tringa totanus*	There is no construction required for this option, therefore no construction impacts have been identified. The Option is located in the Llyn and Eryri Management Catchment which does not discharge into Conwy Bay, thus there is no hydrological connectivity between the site and the Option.	None	None	No
	Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC (12km d/s)	Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Large shallow inlets and bays Reefs Submerged or partially submerged sea caves	There is no construction required for this option, therefore no construction impacts have been identified. All features of this site are marine and will not be impacted by the Option as hydrological impact ceases prior to the Menai Strait.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Afon Gwyrfai a Llyn Cwellyn SAC (13km)	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Atlantic salmon *Salmo salar* Otter *Lutra lutra* Floating water-plantain *Luronium natans*	There is no construction required for this option, therefore no construction impacts have been identified. The Afon Gwyrfai has no hydrological connectivity with the Afon Llugwy (isolated by the Eryri / Snowdonia mountains), therefore, hydrologically dependent features of this site will not be impacted by this option.	None	None	No
	Liverpool Bay / Bae Lerpwl SPA (13km)	Red-throated diver *Gavia stellata* Black common) scoter *Melanitta nigra* Little gull *Larus minutus* Common tern *Sterna hirundo* Little tern *Sterna albifrons* Waterbird assemblage Waterfowl assemblage	There is no construction required for this option, therefore no construction impacts have been identified. All features of this site are marine and will not be impacted by the Option as hydrological impact ceases prior to Liverpool Bay.	None	None	No
	Migneint-Arenig-Dduallt SPA (16km)	Hen harrier Circus cyaneus Merlin Falco columbarius Peregrine falcon Falco peregrinus	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent and therefore operation will not lead to LSE.	None	None	No
	Glynllifon SAC (18km)	Lesser horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent and therefore operation will not lead to LSE.	None	None	No
	Anglesey Terns / Morwenoliaid Ynys Môn SPA	Sandwich tern *Sterna sandvicensis* Roseate tern *Sterna dougallii*	There is no construction required for this option, therefore no construction impacts have been identified.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Common tern *Sterna hirundo* Arctic tern *Sterna paradisaea*	The site is located 19km north of the Option on the coast of Anglesey and is therefore not hydrologically connected to the site. As such, no LSE will occur.			
	Coedwigoedd Penrhyn Creuddyn/ Creuddyn Peninsula Woods SAC (19km)	Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) *Tilio-Acerion* forests of slopes, screes and ravines *Taxus baccata* woods of the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Ynys Seiriol / Puffin Island SPA (19km)	Great cormorant *Phalacrocorax carbo*	There is no construction required for this option, therefore no construction impacts have been identified. The site is located on a marine island, 19km away, and is therefore not hydrologically connected to the site.	None	None	No
Barmouth (As now connected to Lleyn Harlech)**						
8033-34-2: Llyn Bodlyn – reduce compensation release (June – November)	Rhinog SAC (1km)	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Alpine and boreal heaths Blanket bogs (*if active bog) Depressions on peat substrate of the Rhynchosporion Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. The site is located upstream of the Option, therefore, is not hydrologically connected.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Floating water-plantain *Luronium natans*				
	Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC (2km d/s)	Watercourses of plain to montane levels with the *Ranunculion fluitanis* and *Callitricho-Batrachion* vegetation Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Ilio-Acerion forests of slopes, screes and ravines Old sessile oak woodlands with *Ilex* and *Blechnum* in the British Isles Bog woodland Alluvial forests with *Alun glutinosa* and *Fraxinus excelsior* Less horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. None of the hydrologically dependent site features are present in the Afon Ysgethin or the Coed-y-Gadol woodlands.	None	None	No
	Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC (5km d/s)	Sandbanks which are slightly covered by sea water all the time Estuaries Mudflats and sandflats not covered by seawater at low tide Coastal lagoons Large shallow inlets and bays Reefs Salicornia and other annuals colonising mud and sand Atlantic salt meadows (*Glauco-Puccunellietalia maritimae*) Submerged or partially submerged sea caves Bottlenosed dolphin *Tursiops truncates*	There is no construction required for this option, therefore no construction impacts have been identified. All marine features have been screened out as they are not dependent on freshwater inputs from the Afon Ysgethin. The nearest habitat feature (reefs) is located approximately 600m offshore. In addition to this, the reduction in flow at the mouth of the Afon Ysgethin will be supplemented by the inputs of a number of streams in Reach 2. Although otters are hydrologically dependent, they are not dependent on flow regime. Otters are highly mobile and are opportunistic foragers.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Otter *Lutra lutra* Grey seal *Halichoerus grypus*				
	Northern Cardigan Bay / Gogledd Bae Ceredigion SPA (7km)	Red-throated diver *Gavia stellata*	There is no construction required for this option, therefore no construction impacts have been identified. The Option is restricted to June-November. Red-throated divers overwinter in marine environments and as hydrological impact ceases prior to Cardigan Bay.	None	None	No
	Morfa Harlech a Morfa Dyffryn SAC (7km d/s)	Embryonic shifting dunes Shifting dunes along the shoreline with *Ammophilia arenaria* (“white dunes”)	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent on freshwater and therefore operation will not lead to LSE.	None	None	No
	Afon Eden – Cors Goch Trawsfynydd SAC (8km)	Active raised bogs Freshwater pearl mussel *Margaritifera margaritafera* Atlantic salmon *Salmo salar* Otter *Lutra lutra* Floating water-plantain *Luronium natans*	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected and is located 8km inland from this Option.	None	None	No
	Cadair Idris SAC (10km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanoju*ncetea Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Molinia meadows on calcareous, peaty, or clayey-silt laden soils (*Molinion*	There is no construction required for this option, therefore no construction impacts have been identified. The site is located 3km inland on the southern side of the Afon Mawddach/Mawddach Estuary. The site is not hydrologically connected to this Option.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		caerulae) Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels Blanket bogs (*if active bog) Alkaline fens Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) Calcareous rocky slopes with chasmophytic vegetation Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles Marsh fritillary *Eurodryas/Hypoedryas aurinia* Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus*				
	Migneint-Arenig-Dduallt SAC (15km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanoju*ncetea Natural dystrophic lakes and ponds Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Blanket bogs (*if active bog) Old sessile oak woods with *Ilex* and Blechnum in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Wnion Catchment and the Option is located in the Mawddach Estuary Catchment.	None	None	No
	Migneint-Arenig-Dduallt SPA (15km)	Hen harrier *Circus cyaneus* Merlin *Falco columbarius*	There is no construction required for this option, therefore no construction impacts have been identified.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Peregrine falcon *Falco peregrinus*	Qualifying features are not hydrologically dependent.			
	Craig yr Aderyn (Bird's Rock) SPA (16km)	Red-billed chough *Pyrrhocorax pyrrhocorax*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
Lleyn Harlech (As now connected to Barmouth)**						
8033-34-4: Llyn Cwmystradllyn – Retain part of the freshet bank	Coedydd Derw a Safleoedd Ystlumod Meirion / Meirionnydd Oakwoods and Bat Sites SAC (3km)	Water courses of plain to montane levels with the *Ranunculion fluitantis* and Callitricho-Batrachion vegetation Northern Atlantic wet heaths with *Erica tetralix* European dry heaths *Tilio-Acerion* forests of slopes, screes and ravines Old sessile oak woods with *Ilex* and *Blechnum* in the Biritsh Isles Alluvial forests with Alnus glutinosa and Fraxinus excelsior (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) Lesser horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the site is located 2km upstream from the Option	None	None	No
	Pen Llyn a'r Sarnau / Lleyn Peninsula and the Sarnau SAC (6km d/s)	Sandbanks which are slightly covered by sea water all the time Estuaries Mudflats and sandflats not covered by sea water at low tide Coastal lagooins Large shallow inlets and bays Reefs	There is no construction required for this option, therefore no construction impacts have been identified. All marine features have been screened out as hydrological impacts will cease at the Afon Ddu, confluence prior to the Peninsula.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Salicornia and other annuals colonising mud and sand Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Submerged or partially submerged caves Bottlenose dolphin *Tursops truncatus* Otter *Lutra lutra* Grey seal *Halichoerus grypus*	Although otters are hydrologically dependent, they are not dependent on flow regime and are highly mobile.			
	Corsydd Eifionydd / Eifionydd Fens SAC (6km)	Transition mires and quaking bogs Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia* Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the site is located upstream 2km away from the Option	None	None	No
	Northern Cardigan Bay / Gogledd Bae Ceredigion SPA (8km d/s)	Red-throated diver *Gavia stellata*	There is no construction required for this option, therefore no construction impacts have been identified. Red-throated divers overwinter in marine environments and as the hydrological impact ceases at the Afon Ddu confluence, prior to Cardigan Bay, there is no impact pathway.	None	None	No
	Morfa Harlech a Morfa Dyffryn SAC (7km)	Embryonic shifting dunes Shiftin dunes along the shoreline with Ammophila arenaria (“white dunes”) Dunes with *Salix repens* ssp (*Salicion arenariae*) Humid dune slacks Petalwort *Petalophyllum ralfsii*	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected as hydrological impact ceases at the Afon Ddu confluence, prior to Cardigan Bay. .	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Eryri / Snowdonia SAC (7km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the Isoëto-*Nanojuncetea* Siliceous alpine and boreal grasslands Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) Calcareous rocky slopes with chasmophytic vegetation Siliceous rocky slopes with chasmophytic vegetation Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Alpine and Boreal heaths Alpine and subalpine calcareous grasslands Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) Blanket bogs (* if active bog) Depressions on peat substrates of the Rhynchosporion Petrifying springs with tufa formation (Cratoneurion)Alkaline fens Alpine pioneer formations of the *Caricion bicoloris-atrofuscae*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the site is located upstream 6km from the Option. .	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus* Floating water-plantain *Luronium natans*				
	Afon Gwyrfai a Llyn Cwellyn SAC (9km)	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoeto-Nanojuincetea Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Atlantic salmon *Salmo salar* Floating water-plantain *Luronium natans* Otter *Lutra lutra*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity. Although both are located in the Llyn and Eryri catchment, the option is located in an unconnected operational catchment (Dwyfor) and the site is located in the Gwyrfai Seiont 9km away.	None	None	No
	Glynllifon SAC (9km)	Lesser horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Corsydd Llyn / Lleyn Fens SAC (12km)	Transition mires and quaking bogs Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia* Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity between the Site and the Option. Although both the Site and the Option are located in the Llyn and Eryri catchment, the Site is located in a tributary 12km west of the option.	None	None	No
	Clogwyni Pen Llyn / Seacliffs of Lleyn SAC (12km)	Vegetated sea cliffs of the Atlantic and Baltic Coasts	There is no construction required for this option, therefore no construction impacts have been identified.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			Qualifying features are not hydrologically dependent.			
	Corsydd MÃ´n a Llyn / Anglesey and Llyn Fens Ramsar (12km)	Crit. 1 - sites containing representative, rare or unique wetland types Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the site is located in Anglesey.	None	None	No
	Rhinog SAC (13km)	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Alpine and boreal heaths Blanket bogs (*if active bog) Depressions on peat substrate of the Rhynchosporion Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles Floating water-plantain *Luronium natans*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity between the option and the site. The site is located on the southern side of the estuary approximately 13km away.	None	None	No
	Migneint-Arenig-Dduallt SPA (15km)	Hen harrier Circus cyaneus Merlin Falco columbarius Peregrine falcon Falco peregrinus	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Migneint-Arenig-Dduallt SAC (15km)	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea Natural dystrophic lakes and ponds Northern Atlantic wet heaths with *Erica*	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected as the site is located upstream 14km away.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		tetralix European dry heaths Blanket bags (* if active) Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles				
	Afon Eden - Cors Goch Trawsfynydd SAC (17km)	Active raised bogs Freshwater pearl mussel *Margaritifera margaritafera* Atlantic salmon *Salmo salar* Otter *Lutra lutra* Floating water-plantain *Luronium natans*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the hydrological impacts are restricted to the Afon Henwy.	None	None	No
	Llyn Idwal Ramsar (17km)	Crit. 1 - sites containing representative, rare or unique wetland types Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the site is located upstream 17km away.	None	None	No
	Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA (19km)	Red-billed chough Pyrrhocorax pyrrhocorax	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Y Fenai a Bae Conwy / Menai Strait and Conwy Bay SAC (19km)	Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Large shallow inlets and bays Reefs Submerged or partially submerged sea caves	There is no construction required for this option therefore no construction impacts have been identified. There is no hydrological connectivity as the site is located in the Menai Strait.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Y Twyni o Abermenai i Aberffraw / Abermenai to Aberffraw Dunes SAC (19km)	Embryonic shifting dunes Shifting dunes along the shoreline with Ammophila arenaria (“white dunes”) Fixed coastal dunes with herbaceous vegetation (“grey dunes”) Dunes with *Salix repens* ssp. *Argentea* (Salicion arenariae) Humid dune slacks Natural eutrophic lakes with Magnopotamion or Hydracharition type vegetation Petalwort *Petalphyllum ralfsii* Shore dock *Rumex rupestris*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the Site is located in the Menai Strait.	None	None	No
	West Wales Marine / Gorllewin Cymru Forol SAC (20km)	Harbour porpoise *Phocoena phocoena*	There is no construction required for this option, therefore no construction impacts have been identified. The harbour porpoise is highly mobile and restricted to marine environments. Hydrological are within the Afon Henwy only, therefore, there is no impact pathway.	None	None	No
8033-34-1: Llyn Cwmystradllyn – Reduce compensation release	Coedydd Derw a Safleoedd Ystlumod Meirion / Meirionnydd Oakwoods and Bat Sites SAC (2km)	Water courses of plain to montane levels with the *Ranunculion fluitantis* and Callitricho-Batrachion vegetation Northern Atlantic wet heaths with *Erica tetralix* European dry heaths *Tilio-Acerion* forests of slopes, screes and ravines Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles Alluvial forests with Alnus glutinosa and Fraxinus excelsior (*Alno-Padion*, *Alnion*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the site is located upstream of the Option 2km away.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		incanae, *Salicion albae*) Lesser horseshoe bat *Rhinolophus hipposideros*				
	Pen Llyn a'r Sarnau / Lleyn Peninsula and the Sarnau SAC (2km)	Sandbanks which are slightly covered by sea water all the time Estuaries Mudflats and sandflats not covered by sea water at low tide Coastal lagoons Large shallow inlets and bays Reefs Salicornia and other annuals colonising mud and sand Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Submerged or partially submerged caves Bottlenose dolphin *Tursops truncatus* Otter *Lutra lutra* Grey seal *Halichoerus grypus*	There is no construction required for this option therefore no construction impacts have been identified. All marine features have been screened out as thehydrological impacts will cease at the Afon Ddu, confluence prior to tjhe Peninsula i. Although otters are hydrologically dependent, they are not dependent on flow regime. Otters are highly mobile and are opportunistic foragers	None	None	None
	Corsydd Eifionydd / Eifionydd Fens SAC (2km)	Transition mires and quaking bogs Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia* Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the site is located upstream of the Option 2km away.	None	None	No
	Northern Cardigan Bay / Gogledd Bae Ceredigion SPA (2km)	Red-throated diver *Gavia stellata*	There is no construction required for this option therefore no construction impacts have been identified. Red-throated divers overwinter in marine environments and as the hydrological	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			impact ceases at the confluence of the Afon Ddu, prior to Cardigan Bay, there is no impact pathway.			
	Morfa Harlech a Morfa Dyffryn SAC (7km)	Embryonic shifting dunes Shiftin dunes along the shoreline with Ammophila arenaria (“white dunes”) Dunes with *Salix repens* ssp (*Salicion arenariae*) Humid dune slacks Petalwort *Petalophyllum ralfsii*	There is no construction required for this option, therefore no construction impacts have been identified. Hydrological impacts are restricted to the Afon Henwy.	None	None	No
	Eryri / Snowdonia SAC (6km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the Isoëto-*Nanojuncetea* Siliceous alpine and boreal grasslands Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) Calcareous rocky slopes with chasmophytic vegetation Siliceous rocky slopes with chasmophytic vegetation Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Alpine and Boreal heaths Alpine and subalpine calcareous grasslands Species-rich Nardus grasslands, on	There is no construction required for this option, therefore no construction impacts have been identified. , . There is no hydrological connectivity as the site is located upstream 6km from the Option	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		silicious substrates in mountain areas (and submountain areas in Continental Europe) Blanket bogs (* if active bog) Depressions on peat substrates of the Rhynchosporion Petrifying springs with tufa formation (Cratoneurion)Alkaline fens Alpine pioneer formations of the *Caricion bicoloris-atrofuscae* Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus* Floating water-plantain *Luronium natans*				
	Afon Gwyrfai a Llyn Cwellyn SAC (9km)	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoeto-Nanojuincetea Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Atlantic salmon *Salmo salar* Floating water-plantain *Luronium natans* Otter *Lutra lutra*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity. Although both are located in the Llyn and Eryri catchment, the option is located in an unconnected operational catchment (Dwyfor) and the site is located in the Gwyrfai Seiont 9km away.	None	None	No
	Glynllifon SAC (9km)	Lesser horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Corsydd Llyn / Lleyn Fens SAC (12km)	Transition mires and quaking bogs Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia* Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity between the Site and the Option. Although both the Site and the Option are located in the Llyn and Eryri catchment, the Site is located in a tributary 12km west of the option.	None	None	No
	Clogwyni Pen Llyn / Seacliffs of Lleyn SAC (12km)	Vegetated sea cliffs of the Atlantic and Baltic Coasts	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Corsydd MÃ´n a Llyn / Anglesey and Llyn Fens Ramsar (12km)	Crit. 1 - sites containing representative, rare or unique wetland types Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the site is located in Anglesey.	None	None	No
	Rhinog SAC (13km)	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Alpine and boreal heaths Blanket bogs (*if active bog) Depressions on peat substrate of the Rhynchosporion Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles Floating water-plantain *Luronium natans*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity between the option and the designated site. The site is located on the southern side of the estuary approximately 13km away.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Migneint-Arenig-Dduallt SPA (14km)	Hen harrier Circus cyaneus Merlin Falco columbarius Peregrine falcon Falco peregrinus	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Migneint-Arenig-Dduallt SAC (14km)	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea Natural dystrophic lakes and ponds Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Blanket bags (* if active) Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the hydrological impacts are restricted to the Afon Henwy. The site is not hydrologically connected as the site is located upstream 14km away.	None	None	No
	Afon Eden - Cors Goch Trawsfynydd SAC (16km)	Active raised bogs Freshwater pearl mussel *Margaritifera margaritafera* Atlantic salmon *Salmo salar* Otter *Lutra lutra* Floating water-plantain *Luronium natans*	There is no construction required for this option therefore no construction impacts have been identified. There is no hydrological connectivity as the hydrological impacts are restricted to the Afon Henwy.	None	None	No
	Llyn Idwal Ramsar (17km)	Crit. 1 - sites containing representative, rare or unique wetland types Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the site is located upstream 17km away.	None	None	No
	Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA (19km)	Red-billed chough Pyrrhocorax pyrrhocorax	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Y Fenai a Bae Conwy / Menai Strait and Conwy Bay SAC (20km)	Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Large shallow inlets and bays Reefs Submerged or partially submerged sea caves	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the site is located in the Menai Strait.	None	None	No
	Y Twyni o Abermenai i Aberffraw / Abermenai to Aberffraw Dunes SAC (20km)	Embryonic shifting dunes Shifting dunes along the shoreline with Ammophila arenaria (“white dunes”) Fixed coastal dunes with herbaceous vegetation (“grey dunes”) Dunes with *Salix repens* ssp. *Argentea* (Salicion arenariae) Humid dune slacks Natural eutrophic lakes with Magnopotamion or Hydracharition type vegetation Petalwort *Petalphyllum ralfsii* Shore dock *Rumex rupestris*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the Site is located in the Menai Strait.	None	None	No
	West Wales Marine / Gorllewin Cymru Forol SAC (20km)	Harbour porpoise *Phocoena phocoena*	There is no construction required for this option, therefore no construction impacts have been identified. The harbour porpoise is highly mobile and restricted to marine environments. Hydrological are within the Afon Henwy only, therefore, there is no impact pathway.	None	None	No
Clwyd Coastal						

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
8012-2: y Isaf – Reduction of the regulation release and modification of the Hands Off Flow at Bryn Aled	Mwyngloddiau Fforest Gwydir/ Gwydyr Forest Mines SAC (11km)	Calaminarian grasslands of the *Violetalia calaminariae* Lesser horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Coedwigoedd Dyffryn Elwy/ Elwy Valley Woods SAC (13km)	*Tilio-Acerion* forests of slopes, screes and ravines	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Migneint-Arenig-Dduallt SAC (13km)	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea Natural dystrophic lakes and ponds Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Blanket bags (* if active) Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Conwy Catchment and the Option is located in the Clwyd Catchment.	None	None	No
	Migneint-Arenig-Dduallt SPA (13km)	Hen harrier *Circus cyaneus* Merlin *Falco columbarius* Peregrine falcon *Falco peregrinus*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Eryri/ Snowdonia SAC (16km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the Is*oëto-Nanojuncetea* Siliceous alpine and boreal grasslands Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Llyn and Eryri Catchment and the Option is located in the Clwyd Catchment.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) Calcareous rocky slopes with chasmophytic vegetation Siliceous rocky slopes with chasmophytic vegetation Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Alpine and Boreal heaths Alpine and subalpine calcareous grasslands Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) Blanket bogs (* if active bog) Depressions on peat substrates of the Rhynchosporion Petrifying springs with tufa formation (Cratoneurion)Alkaline fens Alpine pioneer formations of the *Caricion bicoloris-atrofuscae* Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus* Floating water-plantain *Luronium natans*				

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Llwyn SAC (17km)	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*	There is no construction required for this option, therefore no construction impacts have been identified. The site is sufficiently distant such that no hydrological impacts will occur.	None	None	No
	River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC (18km)	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Sea lamprey *Petromyzon marinus* Brook lamprey *Lampetra planeri* River lamprey *Lampetra fluviatilis* Atlantic salmon *Salmo salar* Bullhead *Cottus gobio* Otter *Lutra lutra* Floating water-plantain *Luronium natans*	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Dee Catchment and the Option is located in the Clwyd Catchment.	None	None	No
	Liverpool Bay / Bae Lerpwl SPA (19km D/S)	Red-throated diver *Gavia stellata* Black common) scoter *Melanitta nigra* Little gull *Larus minutus* Common tern *Sterna hirundo* Little tern *Sterna albifrons* Waterbird assemblage Waterfowl assemblage	There is no construction required for this option, therefore no construction impacts have been identified. All features of this site are marine and will not be impacted by the Option as hydrological impact ceases prior to Liverpool Bay.	None	None	No
8012-4: Afon Aled – Relaxation of the annual licenses on Afon Aled and the Plas Uchaf and Dolwen Reservoirs	Mwyngloddiau Fforest Gwydir/ Gwydyr Forest Mines SAC (11km)	Calaminarian grasslands of the Violetalia calaminariae Lesser horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Coedwigoedd Dyffryn Elwy/ Elwy Valley Woods SAC (13km)	*Tilio-Acerion* forests of slopes, screes and ravines	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Migneint-Arenig-Dduallt SAC (13km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea* Natural dystrophic lakes and ponds Northern Atlantic wet heaths with *Erica tetralin* European dry heaths Blanket bogs (*if active) Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Conwy Catchment and the Option is located in the Clwyd Catchment.	None	None	No
	Migneint-Arenig-Dduallt SPA (13km)	Hen harrier *Circus cyaneus* Merlin *Falco columarius* Peregrine falcon *Falco peregrinus*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Eryri/ Snowdonia SAC (16km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the I*soëto-Nanojuncetea* Siliceous alpine and boreal grasslands Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) Calcareous rocky slopes with chasmophytic vegetation Siliceous rocky slopes with chasmophytic vegetation Northern Atlantic wet heaths with *Erica tetralix*	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Llyn and Eryri Catchment and the Option is located in the Clwyd Catchment.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		European dry heaths Alpine and Boreal heaths Alpine and subalpine calcareous grasslands Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) Blanket bogs (* if active bog) Depressions on peat substrates of the Rhynchosporion Petrifying springs with tufa formation (Cratoneurion)Alkaline fens Alpine pioneer formations of the *Caricion bicoloris-atrofuscae* Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus* Floating water-plantain *Luronium natans*				
	Llwyn SAC (17km)	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Aldo-padion, Alnion incanae, Salicion albae*)	There is no construction required for this option, therefore no construction impacts have been identified. The site is sufficiently distant such that no hydrological impacts will occur.	None	None	No
	River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC (19km)	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Sea lamprey *Petromyzon marinus* Brook lamprey *Lampetra planeri* River lamprey *Lampetra fluviatilis*	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Dee Catchment and the Option is located in the Clwyd Catchment.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Bullhead *Cottus gobio* Otter *Lutra lutra* Floating water-plantain *Luronuim natans*				
	Liverpool Bay / Bae Lerpwl SPA (19km D/S)	Red-throated diver *Gavia stellata* Black common) scoter *Melanitta nigra* Little gull *Larus minutus* Common tern *Sterna hirundo* Little tern *Sterna albifrons* Waterbird assemblage Waterfowl assemblage	There is no construction required for this option, therefore no construction impacts have been identified. All features of this site are marine and will not be impacted by the Option as hydrological impact ceases prior to Liverpool Bay.	None	None	No
8012-6: Aled Isaf to Llyn Aled – Pumped (winter) refill from Aled Isaf to Llyn Aled	Migneint-Arenig-Dduallt SAC (11km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea* Natural dystrophic lakes and ponds Northern Atlantic wet heaths with *Erica tetralin* European dry heaths Blanket bogs (*if active) Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Conwy Catchment and the Option is located in the Clwyd Catchment.	None	None	No
	Migneint-Arenig-Dduallt SPA (11km)	Hen harrier *Circus cyaneus* Merlin *Falco columarius* Peregrine falcon *Falco peregrinus*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Mwyngloddiau Fforest Gwydir/ Gwydyr Forest Mines SAC (11km)	Calaminarian grasslands of the Violetalia calaminariae Lesser horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Coedwigoedd Dyffryn Elwy/ Elwy Valley Woods SAC (15km)	*Tilio-Acerion* forests of slopes, screes and ravines	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Eryri/ Snowdonia SAC (16km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the Isoëto-*Nanojuncetea* Siliceous alpine and boreal grasslands Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) Calcareous rocky slopes with chasmophytic vegetation Siliceous rocky slopes with chasmophytic vegetation Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Alpine and Boreal heaths Alpine and subalpine calcareous grasslands Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) Blanket bogs (* if active bog) Depressions on peat substrates of the Rhynchosporion	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Llyn and Eryri Catchment and the Option is located in the Clwyd Catchment.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Petrifying springs with tufa formation (Cratoneurion)Alkaline fens Alpine pioneer formations of the *Caricion bicoloris-atrofuscae* Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus* Floating water-plantain *Luronium natans*				
	River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC (16km)	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Sea lamprey *Petromyzon marinus* Brook lamprey *Lampetra planeri* River lamprey *Lampetra fluviatilis* Bullhead *Cottus gobio* Otter *Lutra lutra* Floating water-plantain *Luronuim natans*	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Dee Catchment and the Option is located in the Clwyd Catchment.	None	None	No
	Llwyn SAC (18km)	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*	There is no construction required for this option, therefore no construction impacts have been identified. The site is sufficiently distant (18km) such that no hydrological impacts will occur.	None	None	No
	Liverpool Bay / Bae Lerpwl SPA (19km D/S)	Red-throated diver *Gavia stellata* Black common) scoter *Melanitta nigra* Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Blanket bogs (* if active bog) Old sessile oak woods with *Ilex* and	There is no construction required for this option, therefore no construction impacts have been identified. All features of this site are marine and will not be impacted by the Option as hydrological impact ceases prior to Liverpool Bay.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Blechnum in the British Isles				
8012-1: Llyn Aled – Use dead storage	Mwyngloddiau Fforest Gwydir / Gwydyr Forest Mines SAC (10km)	Calaminarian grasslands of the Violetalia calaminariae Lesser horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Migneint-Arenig-Dduallt SAC (12km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea* Natural dystrophic lakes and ponds Northern Atlantic wet heaths with *Erica tetralin* European dry heaths Blanket bogs (*if active) Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Conwy Catchment and the Option is located in the Clwyd Catchment.	None	None	No
	Migneint-Arenig-Dduallt SPA (11km)	Hen harrier *Circus cyaneus* Merlin *Falco columarius* Peregrine falcon *Falco peregrinus*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Coedwigoedd Dyffryn Elwy / Elwy Valley Woods SAC (15km)	*Tilio-Acerion* forests of slopes, screes and ravines	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Eryri / Snowdonia SAC (16km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the I*soëto-Nanojuncetea* Siliceous alpine and boreal grasslands Hydrophilous tall herb fringe communities of plains and of the	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The nearest point of the site is located in the Conwy Catchment and the Option is located in the Clwyd Catchment.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		montane to alpine levels Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) Calcareous rocky slopes with chasmophytic vegetation Siliceous rocky slopes with chasmophytic vegetation Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Alpine and Boreal heaths Alpine and subalpine calcareous grasslands Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) Blanket bogs (* if active bog) Depressions on peat substrates of the Rhynchosporion Petrifying springs with tufa formation (Cratoneurion)Alkaline fens Alpine pioneer formations of the *Caricion bicoloris-atrofuscae* Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus* Floating water-plantain *Luronium natans*				

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC (16km)	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Sea lamprey *Petromyzon marinus* Brook lamprey *Lampetra planeri* River lamprey *Lampetra fluviatilis* Bullhead *Cottus gobio* Otter *Lutra lutra* Floating water-plantain *Luronuim natans*	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Dee Catchment and the Option is located in the Clwyd Catchment.	None	None	No
	Llwyn SAC (17km	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*	There is no construction required for this option, therefore no construction impacts have been identified. The site is sufficiently distant (17km) such that no hydrological impacts will occur.	None	None	No
	Liverpool Bay / Bae Lerpwl SPA (19km D/S)	Red-throated diver *Gavia stellata* Black common) scoter *Melanitta nigra* Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Blanket bogs (* if active bog) Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. All features of this site are marine and will not be impacted by the Option as hydrological impact ceases prior to Liverpool Bay.	None	None	No
SEWCUS						
8121-1: Llwyn Onn – Reduce compensation release	Cwum Cadlan SAC (6km)	Molinia meadows on calcareous, peaty or clayey-silt laden soils (*Molinion caeruleae*) Alkaline fens	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected as it is located in an upstream tributary of the Afon Taf.	None	None	No
	Blaen Cynon SAC (7km)	Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*	There is no construction required for this option, therefore no construction impacts have been identified.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			Qualifying features are not hydrologically dependent.			
	Aberbargoed Grasslands SAC (8km)	Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)* Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent	None	None	No
	Coedydd Nedd a Mellte SAC (10km)	Tilio-Acerion forests of slopes, screes and ravines Old sessile oak woods with Ilex and Blechnum in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Brecon Beacons/ Bannau Brycheiniog SAC (11km)	European dry heaths Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels Calcareous rocky slopes with Chasmophytic vegetation Siliceous rocky slopes with chasmophytic vegetation	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Cardiff Beech Woods SAC (14km)	Asperulo-Fagetum beech forests Tilio-Acerion forests of slopes, screes and ravines	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	River Usk/ Afon Wysg SAC (10km)	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Sea lamprey *Petromyzon marinus* Brook lamprey *Lampetra planeri* River lamprey *Lampetra fluv*iatilis Allis shad *Alosa alos*a Twaite shad *Alosa fallax*	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Usk Catchment and the Option is located in the South East Valleys Catchment.	None	None – no change to hydrological zone of influence cumulatively	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Atlantic salmon *Salmo salar* Bullhead *Cottus gobio* Otter *Lutra lutra*				
	Usk Bat Sites / Safleodd Ystlumod Wysg SAC (15km)	European dry heaths Degraded raised bogs still capable of natural regeneration Blanket bogs (* if active bog) Calcareous rocky slopes with chasmophytic vegetation Caves not open to the public Tilio-Acerion forests of slopes, screes and ravines Lesser horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Usk Catchment and the Option is located in the South East Valleys Catchment.	None	None – no change to hydrological zone of influence cumulatively	No
	Cwm Clydach Woodlands / Coedydd Cwm Clydach SAC (17km)	*Asperulo-Fagetum* beech forests Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (*Quercion robori-petraeae or Ilici-Fagenion)*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Llangorse Lake / Llyn Syfaddan SAC (20km)	Natural Eutrophic Lakes with Magnopotamion or Hydrochariton – type vegetation	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Wye MC Catchment and the Option is located in the South East Valleys Catchment.	None	None – no change to hydrological zone of influence cumulatively	No
	Blackmill Woodlands SAC (20km)	Old sessile oak woods with Ilex and Blechnum in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Severn Estuary/ Môr Hafren SAC (42km d/s)	Sandbanks which are slightly covered by sea water all the time Estuaries Mudflats and sandflats not covered by seawater at low tide Reefs Atlantic salt meadows (Glauco-Puccinellietalia maritimae) Sea lamprey Petromyzon marinus River lamprey Lampetra fluviatilis Twaite shad Alosa fallax	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying fish species were not recorded in any reaches. Lamprey was recorded; however, these are thought to be brook lamprey. Marine habitat features can be screened out as hydrological impacts will cease prior to the Ssevern Estuary.	Yes – Migratory fish (specifically salmon)	Yes - 8121-2: Pontsticill – Reduce compensation release and other plans and projects	Yes
	Severn Estuary Ramsar (42km d/s)	Crit. 1 - sites containing representative, rare or unique wetland types Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity Crit. 4 - supports plant/animal species at a critical stage in their life cycles, or provides refuge Crit. 5 - regularly supports 20,000 or more waterbirds Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds Crit. 8 - important source of food for fishes, spawning ground, nursery and/or migration path	There is no construction required for this option, therefore no construction impacts have been identified. The Afon Taff is an important migratory route for Atlantic salmon, including both upstream-migrating adults and out-migrating smolts. Most Atlantic salmon migration into the Afon Taff likely occurs from October to December, and a drought permit issued between July and December could impact this life stage of the Atlantic salmon. Atlantic salmon were occasionally present in Reach 1 and low numbers were recorded in Reaches 2 and 3 of the drought option, with impacts in the EAR assessed as moderate, moderate and negligible respectively. On this basis, Atlantic salmon has been screened into AA.	Yes – Migratory fish (specifically salmon)	Yes - 8121-1: Llwyn Onn – Reduce compensation release compensation release and other plans and projects	Yes
	Severn Estuary SPA (42km d/s)	Tundra swan *Cygnus columbianus bewickii*	There is no construction required for this option, therefore no construction impacts have been identified.	No	None – no change to hydrological	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Common shelduck *Tadorna tadorna* Gadwall *Anas strepera* Common redshank *Tringa tetanus* Greater white-fronted goose *Anser albifrons albifrons* Dunlin Calidris *alpina alpina* Waterbird assemblage Waterfowl assemblage	Features are sufficiently distant from the Option, the impacted reaches are not considered functionally linked land.		zone of influence cumulatively	
8121-2: Pontsticill – Reduce compensation release	Brecon Beacons/ Bannau Brycheiniog SAC (8km)	European dry heaths Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels Calcareous rocky slopes with Chasmophytic vegetation Siliceous rocky slopes with chasmophytic vegetation	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Cwm Cadlan SAC (9km)	Molinia meadows on calcareous, peaty or clayey-silt laden soils (*Molinion caeruleae*) Alkaline fens	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected as it is located in an upstream tributary of the Afon Taf	None	None	No
	River Usk/ Afon Wysg SAC (10km)	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Sea lamprey *Petromyzon marinus* Brook lamprey *Lampetra planeri* River lamprey *Lampetra fluv*iatilis Allis shad *Alosa alos*a Twaite shad *Alosa fallax* Atlantic salmon *Salmo salar*	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Usk Catchment and the Option is located in the South East Valleys Catchment.	None	None – no change to hydrological zone of influence cumulatively	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Bullhead *Cottus gobio* Otter *Lutra lutra*				
	Usk Bat Sites/ Safleoedd Ystlumod Wysg SAC (11km)	European dry heaths Degraded raised bogs still capable of natural regeneration Blanket bogs (* if active bog) Calcareous rocky slopes with chasmophytic vegetation Caves not open to the public Tilio-Acerion forests of slopes, screes and ravines Lesser horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Usk Catchment and the Option is located in the South East Valleys Catchment.	None	None – no change to hydrological zone of influence cumulatively	No
	Blaen Cynon SAC (12km)	Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Coedydd Nedd a Mellte SAC (12km)	Tilio-Acerion forests of slopes, screes and ravines Old sessile oak woods with Ilex and Blechnum in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Llangorse Lake/ Llyn Syfaddan SAC (14km)	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Wye MC Catchment and the Option is located in the South East Valleys Catchment.	None	None – no change to hydrological zone of influence cumulatively	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Aberbargoed Grasslands SAC (16km)	Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)* Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Severn Estuary/ Môr Hafren SAC (42km d/s)	Sandbanks which are slightly covered by sea water all the time Estuaries Mudflats and sandflats not covered by seawater at low tide Reefs Atlantic salt meadows (Glauco-Puccinellietalia maritimae) Sea lamprey Petromyzon marinus River lamprey Lampetra fluviatilis Twaite shad Alosa fallax	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying fish species were not recorded in any reaches. Lamprey was recorded; however, these are thought to be brook lamprey. Marine habitat features can be screened out as hydrological impacts will cease prior to the Ssevern Estuary.	Yes – Migratory fish (specifically salmon)	Yes - 8121-1: Llwyn Onn – Reduce compensation release compensation release and other plans and projects	Yes
	Severn Estuary Ramsar (42km d/s)	Crit. 1 - sites containing representative, rare or unique wetland types Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity Crit. 4 - supports plant/animal species at a critical stage in their life cycles, or provides refuge Crit. 5 - regularly supports 20,000 or more waterbirds Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds	There is no construction required for this option, therefore no construction impacts have been identified. The Afon Taff is an important migratory route for Atlantic salmon, including both upstream-migrating adults and out-migrating smolts. Most Atlantic salmon migration into the Afon Taff likely occurs from October to December, and a drought permit issued between July and December could impact this life stage of the Atlantic salmon. Atlantic salmon were occasionally present in Reach 1 and low numbers were recorded in Reaches 2 and 3 of the	Yes – Migratory fish (specifically salmon)	Yes - 8121-1: Llwyn Onn – Reduce compensation release compensation release and other plans and projects	Yes

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Crit. 8 - important source of food for fishes, spawning ground, nursery and/or migration path	drought option, with impacts in the EAR assessed as moderate, moderate and negligible respectively. On this basis, Atlantic salmon has been screened into AA.			
	Severn Estuary SPA	Tundra swan *Cygnus columbianus bewickii* Common shelduck *Tadorna tadorna* Gadwall *Anas strepera* Common redshank *Tringa tetanus* Greater white-fronted goose *Anser albifrons albifrons* Dunlin Calidris *alpina alpina* Waterbird assemblage Waterfowl assemblage	There is no construction required for this option, therefore no construction impacts have been identified. Features are sufficiently distant from the Option, the impacted reaches are not considered functionally linked land.	No	None – no change to hydrological zone of influence cumulatively	No
8121-3: Shon Sheffrey – Reduce compensation release	Usk Bat Sites / Safleodd Ystlumod Wysg SAC (5km)	European dry heaths Degraded raised bogs still capable of natural regeneration Blanket bogs (* if active bog) Calcareous rocky slopes with chasmophytic vegetation Caves not open to the public Tilio-Acerion forests of slopes, screes and ravines Lesser horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Usk Catchment and the Option is located in the South East Valleys Catchment.	None	None	No
	Cwm Clydach Woodlands / Coedydd Cwm Clydach SAC (7km)	*Asperulo-Fagetum* beech forests Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (*Quercion robori-petraeae or*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Ilici-Fagenion)				
	River Usk / Afon Wysg SAC (8km)	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Sea lamprey *Petromyzon marinus* Brook lamprey *Lampetra planeri* River lamprey *Lampetra fluv*iatilis Allis shad *Alosa alos*a Twaite shad *Alosa fallax* Atlantic salmon *Salmo salar* Bullhead *Cottus gobio* Otter *Lutra lutra*	There is no construction required for this option, therefore no construction impacts have been identified. This site is hydrologically connected to the impacted reach (Afon Sirhywi) via the Afon Ebbw. However, the features for which the site is designated were not recorded in the fish surveys which indicates the impacted reach is either impassible to the migratory features, or there is no suitable habitat to support the qualifying populations. Therefore, there is no impact pathways to the qualifying features. Furthermore, the hydrological impact ceases at the Nant y Felin confluence meaning no impacts to the watercourses of plain to montane levels features. Finally, otters are highly mobile and are not sensitive to changes in flow regime. No other qualifying features are present within the hydrological zone of influence.	None	None	No
	Aberbargoed Grasslands SAC (9km)	Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)* Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Llangorse Lake / Llyn Syfaddan SAC (13km)	Natural Eutrophic Lakes with Magnopotamion or Hydrochariton – type vegetation	There is no construction required for this option, therefore no construction impacts have been identified.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			The site is not hydrologically connected to the Option. The site is located in the Wye MC Catchment and the Option is located in the South East Valleys Catchment.			
	Brecon Beacons/ Bannau Brycheiniog SAC (13km)	European dry heaths Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels Calcareous rocky slopes with Chasmophytic vegetation Siliceous rocky slopes with chasmophytic vegetation	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Sugar Loaf Woodlands SAC (15km)	Old sessile oak woods with Ilex and Blechnum in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent .	None	None	No
	Cwm Cadlan SAC (16km)	Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)* Alkaline fens	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected as it is located 16km west in an upstream tributary of the Afon Taf and the Option is located on the Afon Sirhwi.	None	None	No
	Coed y Cerrig SAC 19km)	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Usk Catchment and the Option is located in the South East Valleys Catchment.	None	None	No
	Blaen Cynon SAC (20km)	Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*	There is no construction required for this option, therefore no construction impacts have been identified.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			Qualifying features are not hydrologically dependent.			
	Drostre Bank SAC (20km)	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The site is located in the Wye MC Catchment and the Option is located in the South East Valleys Catchment.	None	None	No
8121-4: Grwyne Reservoir – Reservoir release, to support Prioress Mill or Llantrisant	River Usk / Afon Wysg SAC (3km d/s)	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Sea lamprey *Petromyzon marinus* Brook lamprey *Lampetra planeri* River lamprey *Lampetra fluv*iatilis Allis shad *Alosa alos*a Twaite shad *Alosa fallax* Atlantic salmon *Salmo salar* Bullhead *Cottus gobio* Otter *Lutra lutra*	There is no construction required for this option, therefore no construction impacts have been identified. An additional 2 Ml/d flow in Reach 1, released from Grwyne Fawr Reservoir, would represent an increase of approximately 59% in summer low and extreme low flows (summer Q_{95} and summer Q_{99} respectively) assessed against a baseline of the continuing voluntary compensation regime of 3.41 Ml/d in Reach 1, and approximately 8% in summer low flows and 12% in summer extreme low flows for Reach 2. The increased flow is likely to maintain juvenile habitat and gravel spawning areas otherwise exposed in drought conditions. Most Atlantic salmon migration into the River Usk and its tributaries occurs from October to December, therefore, a drought permit issued between August and October could impact this life stage of the Atlantic salmon. However, the increased flow is likely to aid migration at	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			a period of extreme low flows, so is a benefit to this feature. Overall, implementation of the drought option is beneficial for the qualifying features which are migratory and the hydrological change does not extend into the Usk, so there is no impact pathway to the non-migratory features.			
	Usk Bat Sites / Safleodd Ystlumod Wysg SAC (11km)	European dry heaths Degraded raised bogs still capable of natural regeneration Blanket bogs (* if active bog) Calcareous rocky slopes with chasmophytic vegetation Caves not open to the public Tilio-Acerion forests of slopes, screes and ravines Lesser horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. Non-hydrologically dependent features are not sensitive to changes in hydrological regime. Hydrologically dependent features (blanket bog and degraded raised bogs still capable of natural regeneration) will benefit from the scheme as there will be an increase in water, resulting in an overall positive impact on the site.	None	None	No
	Sugar Loaf Woodlands SAC (13km)	Old sessile oak woods with Ilex and Blechnum in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent and therefore operation will not lead to LSE.	None	None	No
	Llangorse Lake/ Llyn Syfaddan SAC (10km)	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The option is located in the Usk Operational catchment and the site is located in the Wye Operational catchment. As such, no LSE will occur.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	River Wye / Afon Gwy (England) SAC (11km)	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Transition mires and quaking bogs White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes Sea lamprey Petromyzon marinus Brook lamprey Lampetra planeri River lamprey Lampetra fluviatilis Allis shad Alosa alosa Twaite shad Alosa fallax Atlantic salmon Salmo salar Bullhead Cottus gobio Otter Lutra lutra	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected to the Option. The option is located in the Usk Operational catchment and the site is located in the Wye Operational catchment. As such, no LSE will occur.	None	None	No
	Coed y Cerrig SAC	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	There is no construction required for this option, therefore no construction impacts have been identified. Hydrologically dependent features will benefit from the scheme as there will be an increase in water resulting in an overall positive impact on the site. As such, no LSE will occur.	None	None	No
	Drostre Bank SAC (13km)	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	There is no construction required for this option, therefore no construction impacts have been identified. No hydrological connectivity, the option is located in the Usk Operational catchment and the site is located in the Wye Operational catchment. As such, no LSE will occur.	None	None	No
	Cwm Clydach Woodlands /	*Asperulo-Fagetum* beech forests Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the	There is no construction required for this option, therefore no construction impacts have been identified.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Coedydd Cwm Clydach SAC	shrublayer (*Quercion robori-petraeae or Ilici-Fagenion)*	Qualifying features are not hydrologically dependent and therefore operation will not lead to LSE.			
	Rhos Goch SAC (17km)	Active raised bogs Transition mires and quaking bogs Molinia meadows on calcareous or clayey-silt-laden soils (*Molinion caeruleae)* Bog woodland Alluvial forets with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)	There is no construction required for this option, therefore no construction impacts have been identified. No hydrological connectivity, the option is located in the Usk Operational catchment and the site is located in the Wye Operational catchment. As such, no LSE will occur.	None	None	No
Twyi CUS						
8201-1(ii): Crai – Reduce compensation release.	River Usk/ Afon Wysg SAC (0km D/S)	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Sea lamprey *Petromyzon marinus* Brook lamprey *Lampetra planeri* River lamprey *Lampetra fluv*iatilis Allis shad *Alosa alos*a Twaite shad *Alosa fallax* Atlantic salmon *Salmo salar* Bullhead *Cottus gobio* Otter *Lutra lutra*	There is no construction required for this option, therefore no construction impacts have been identified. A review of the Core Management Plan has confirmed the likely absence of the following species from Units 9 and 6 which could be impacted by the drought order; sea lamprey, twaite shad, allis shad and *Ranunculion* habitat. Movement of sea lamprey, twaite shad and allis shad upstream is limited by Crickhowell Bridge and Brecon weir. *Ranunculion* habitat is restricted to Units 2, 3 and 10 on the River Usk between Abergavenny and Chepstow, and the Afon Senni. Otter have also been screened out as there are not anticipated to be any changes to habitat or prey availability for otter as a result of drought order implementation, with a number of tributaries in the River	Yes - Atlantic salmon, brook and river lamprey and bullhead.	No	Yes

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			Usk catchment remaining unaffected by the drought order e.g. Nant Bran and Afon Ysair. There is potential for impacts on the following qualifying features: **Atlantic salmon**: a reduction in flow (resulting in delayed or cessation of adult upstream migration and smolt migration) and the related reduction in wetted width (reduction in juvenile habitat) could result in an impact on breeding successes and consequently the conservation status of the designated features. **Brook and river lamprey**: a reduction in flow (resulting in delayed or interrupted migration and an increase in siltation and suffocation of eggs) and the related reduction in wetted width (reduction or loss of spawning habitats and juvenile survival) could result in an impact on breeding successes and consequently the conservation status of the designated features. **Bullhead**: the species is known to be flow sensitive and reduced flows (and likely reduced water quality) associated with implementation of a drought order may have a limited impact on bullhead populations.			
	Brecon Beacons/ Bannau Brycheiniog SAC (6km)	European dry heaths Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels Calcareous rocky slopes with	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent .	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Chasmophytic vegetation Siliceous rocky slopes with chasmophytic vegetation				
	Coedydd Nedd a Mellte SAC (8km)	Tilio-Acerion forests of slopes, screes and ravines Old sessile oak woods with Ilex and Blechnum in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Mynydd Epynt SAC (13km)	Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus*	There is no construction required for this option, therefore no construction impacts have been identified. The site is hydrologically connected to the site via the River Usk, however, the Site is located upstream approximately 13km from the Option.	None	None	No
	Cwm Cadlan SAC(14km)	Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)* Alkaline fens	There is no construction required for this option, therefore no construction impacts have been identified. No hydrological connectivity, the option is located in the Usk catchment and the site is located in the South East Valleys catchment.	None	None	No
	Blaen Cynon SAC (15km)	Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Afon Tywi/ River Tywi SAC (17km)	Sea lamprey Petromyzon marinus Brook lamprey Lampetra planeri River lamprey Lampetra fluviatilis Allis shad Alosa alosa Twaite shad Alosa fallax Bullhead Cottus gobio Otter Lutra lutra	There is no construction required for this option, therefore no construction impacts have been identified. No hydrological connectivity, the option is located in the Usk catchment and the site is located in theTywi catchment.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	River Wye/ Afon Gwy SAC (19km)	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Transition mires and quaking bogs White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes Sea lamprey Petromyzon marinus Brook lamprey Lampetra planeri River lamprey Lampetra fluviatilis Allis shad Alosa alosa Twaite shad Alosa fallax Atlantic salmon Salmo salar Bullhead Cottus gobio Otter Lutra lutra	There is no construction required for this option, therefore no construction impacts have been identified. No hydrological connectivity, the option is located in the Usk catchment and the site is located in the Wye catchment.	None	None	No
8201-2(i): Ystradfellte – Reduce compensation release.	Coedydd Nedd a Mellte SAC (0km)	Tilio-Acerion forests of slopes, screes and ravines Old sessile oak woods with Ilex and Blechnum in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. Notable bryophytes were identifed within reach 3, *Rhytidiadelphus subpinnatus,* and *Jamesoniellaalis* species of special interest, and is a good example of the wooded limestone gorge sites that drain south from the Brecon Beacons and are of significant bryological importance in a south Wales context. Mosses like *Rhytidiadelphus subpinnatus* rely heavily on external water sources, absorbing moisture through their entire surface rather than having roots to draw water from the soil. Flow reductions in their habitats can cause significant stress to mosses. The hydrological impacts in Reach 3 will be negligible as	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			reductions of up to 8% in river flows throughout the reach during the summer period and 2% year round are expected.			
	Cwm Cadlan SAC (3km)	Molinia meadows on calcareous, peaty or clayey-silt laden soils (*Molinion caeruleae*) Alkaline fens	There is no construction required for this option, therefore no construction impacts have been identified. Not hydrologically connected, the option is located in the Neath Operational catchment and the site is located in the Cynon Operational catchment. As such, no LSE will occur.	None	None	No
	Blaen Cynon SAC (3km)	Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*	There is no construction related to this option, therefore no construction impacts have been identified.. Designated site feature is not hydrologically dependent. As such, no LSE is predicted.	None	None	No
	River Usk/ Afon Wysg SAC (3km)	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Sea lamprey *Petromyzon marinus* Brook lamprey *Lampetra planeri* River lamprey *Lampetra fluv*iatilis Allis shad *Alosa alos*a Twaite shad *Alosa fallax* Atlantic salmon *Salmo salar* Bullhead *Cottus gobio* Otter *Lutra lutra*	There is no construction required for this option, therefore no construction impacts have been identified. No hydrological connectivity, the option is located in the Neath Operational catchment and the site is located in the Usk Operational catchment therefore there is no hydrological connectivity. As such, no LSE will occur.	None	None	No
	Brecon Beacons/ Bannau Brycheiniog SAC (4km)	European dry heaths Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels Calcareous rocky slopes with	There is no construction required for this option, therefore no construction impacts have been identified.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Chasmophytic vegetation Siliceous rocky slopes with chasmophytic vegetation	The designated site is located upstream of the option and is not hydrologically connected.			
	Usk Bat Sites / Safleodd Ystlumod Wysg SAC (20km)	European dry heaths Degraded raised bogs still capable of natural regeneration Blanket bogs (* if active bog) Calcareous rocky slopes with chasmophytic vegetation Caves not open to the public Tilio-Acerion forests of slopes, screes and ravines Lesser horseshoe bat *Rhinolophus hipposideros*	There is no construction required for this option, therefore no construction impacts have been identified. The option is located in the Neath catchment and the site is located in the Usk catchment therefore there is no hydrological connectivity.	None	None	No
North Ceredigion						
8203-2: Nantymoch – Pumped abstraction from Nantymoch (a HEP reservoir operated by Statkraft) into raw water main between Llyn Llygad Rheidol Reservoir and Bontgoch WTW	Coedydd a Cheunant Rheidol/ Rheidol Woods and Gorge SAC (6km)	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Elenydd – Mallaen SPA (6km)	Red kite *Milvus milvus* Merlin *Falco columbarius*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Coed Cwm Einion SAC (7km)	Tilio-Acerion forests of slopes, screens and ravines	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Cors Fochno and Dyfi Ramsar (10km)	Crit. I – sites containing representative, rare or unique wetland types	There is no construction required for this option, therefore no construction impacts have been identified.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			The option is located in the Teifi and Ceredigion North catchment and the site is located in the Dyfi Estuary, therefore there is no hydrological connectivity.			
	Cors Fochno SAC (10km d/s)	Active raised bogs Degraded raised bogs still capable of natural regeneration Depressions on peat substrates of the Rhynchosporion	There is no construction required for this option, therefore no construction impacts have been identified. The Site is hydrologically connected to the Option via the Afon Leri. Hydrological impacts are restricted to the reservoir itself	None	None	No
	Dyfi Estuary / Aber Dyfi SPA (10km)	Greenland white-fronted goose *Answer albifrons flavirostris*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrologically connectivity between the Site and the Option. The option is located in the Teifi and Ceredigion North catchment and the site is located in the Dyfi Estuary, therefore there is no hydrological connectivity.	None	None	No
	Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC (10km)	Sandbanks which are slightly covered by sea water all the time Estuaries Mudflats and sandflats not covered by sea water at low tide Coastal lagooins Large shallow inlets and bays Reefs Salicornia and other annuals colonising mud and sand Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Submerged or partially submerged	All marine features have been screened out as hydrological impacts are constrained to the reservoir itself. The nearest habitat feature (reefs) is located approximately 600m offshore. Although otters are hydrologically dependent, they are not dependent on flow regime. Otters are highly mobile and are opportunistic foragers.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		caves Bottlenose dolphin *Tursops truncatus* Otter *Lutra lutra* Grey seal *Halichoerus grypus*				
	River Wye / Afon Gwy SAC (10km)	Water courses of plain to montaine levels with *Ranunculion fluitanis* and *Callitricho-Batrachion* vegetation Transition mires and quaking bogs White clawed crayfish *Austropotamobius pallipes* Sea lamprey *Petromyzon marinus* Brook lamprey *Lampetra planeri* River lamprey *Lampetra fluviatilis* Alis shad *Alosa alosa* Twaite shad *Alosa fallax* Atlantic salmon *Salmo salar* Bullhead *Cottus gobio* Otter *Lutra lutra*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrologically connectivity between the Site and the Option. The option is located in the Teifi and Ceredigion North catchment and the site is located in the Wye MC catchment.	None	None	No
	Elenydd SAC (11km)	European dry heaths Calaminarian grasslands of the *Violetalia calaminariae* Blanket bogs (*if active bog) Floating water-plantain *Luronium natans*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the option is located upstream 11km from the Option.	None	None	No
	Nothern Cardigan Bay / Gogledd Bae Ceredigion SPA (14km)	Red-throated diver *Gavia stellata*	There is no construction required for this option, therefore no construction impacts have been identified. Red-throated divers overwinter in marine environments and as hydrological impact is restricted to the reservoir itself, the marine environment will not be impacted.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	West Wales Marine / Gorllewin Cymru Forol SAC (14km	Harbour porpoise *Phocoena phocoena*	There is no construction required for this option, therefore no construction impacts have been identified. The harbour porpoise is highly mobile and restricted to marine environments. Hydrological impacts cease within the reservoir itself	None	None	No
	Grogwynion SAC (16km)	European dry heaths Calaminarian grasslands of the *Violetalia calaminariae*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Coedydd Llawr-y-glyn SAC (14km)	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Afon Teifi / River Teifi SAC (20km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the Isoëto-*Nanojuncetea* Water courses of plain to montaine levels with *Ranunculion fluitanis* and *Callitricho-Batrachion* vegetation Sea lamprey *Petromyzon marinus* Brook lamprey *Lampetra planeri* River lamprey *Lampetra fluviatilis* Alis shad *Alosa alosa* Twaite shad *Alosa fallax* Atlantic salmon *Salmo salar* Bullhead *Cottus gobio* Otter *Lutra lutra*	There is no construction required for this option therefore no construction impacts have been identified. There is no hydrological connectivity as the option is located upstream 20km from the Option.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Floating water-plantain *Luronium natans*				
	Cors Caron Ramsar (20km)	Crit. 2 – Supports vulnerable, endangered or critically endangered species or threatened eco communities Crit. 3 – Supports populations of plant/animal species important for maintaining regional biodiversity Crit. 6 – Regularly supports 1% of the individuals in a population of one species/subspecies of waterbird	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the option is located up stream 20km from the Option.,	None	None	No
	Cors Caron SAC (20km)	Active raised bogs Degraded raised bogs still capable of natural regeneration Transition mires and quaking bogs Depression on peat substrates of Rhychosporion Bog woodland Otter *Lutra lutra*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the option is located upstream 20km from the Option.	None	None	No
8203-3: Llyn Craig Y Pistyll – Reduce compensation release	Cors Fochno and Dyfi Ramsar (500m)	Crit. I – sites containing representative, rare or unique wetland types	There is no construction required for this option, therefore no construction impacts have been identified. The site is hydrologically connected to the Option. Although there would be reductions inside Reach 1, the impact of the flow reduction would be expected to lessen, due to flow accretion increasing the natural catchment flows in the river. The zone of influence extends to the point at which the effect of the drought permit flow reduction has been assessed as negligible, and this has been identified as the flow addition of the Afon Cyneiniog.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Cors Fochno SAC (500m)	Active raised bogs Degraded raised bogs still capable of natural regeneration Depressions on peat substrates of the Rhynchosporion	There is no construction required for this option, therefore no construction impacts have been identified. The site is hydrologically connected to the Option Although there would be reductions inside Reach 1, the impact of the flow reduction would be expected to lessen, due to flow accretion increasing the natural catchment flows in the river, The zone of influence extends to the point at which the effect of the drought permit flow reduction has been assessed as negligible, and this has been identified as the flow addition of the Afon Cyneiniog	None	None	No
	Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC (4km)	Sandbanks which are slightly covered by seawater all the time Estuaries Mudflats and sandflats not covered by seawater at low tide Coastal lagoons Large shallow inlets and bays Reefs Salicornia and other annuals colonizing mud and sand Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Submerged or partly submerged sea caves Bottlenosed dolphin *Tursiops truncates* Otter *Lutra lutra* Grey seal *Halichoerus grypus*	There is no construction required for this option therefore no construction impacts have been identified. Site features are marine and hydrological impacts will cease prior to the peninsula in the Dyfi Estuary as they are limited to the Afon Leri The zone of influence of the drought permit commences at the Llyn Craig y Pistyll Reservoir and extends 7.2 km along the Afon Leri to the Afon Cyneiniog confluence.. Although otters are hydrologically dependent, they are not dependent on flow regime. Otters are highly mobile and are opportunistic foragers	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Coedydd a Cheunant Rheidol / Rheidol Woods and Gorge SAC (5km)	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	West Wales Marine / Gorllewin Cymru Forol SAC (5km)	Harbour porpoise *Phocoena phocoena*	There is no construction required for this option, therefore no construction impacts have been identified. The harbour porpoise is highly mobile and restricted to marine environments. Hydrological impacts are restricted to the Afon Leri.	None	None	No
	Coed Cwm Einion SAC (6km)	Tilio-Acerion forests of slopes, screens and ravines	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Northern Cardigan Bay / Gogledd Bae Ceredigion SPA (6km)	Red-throated diver *Gavia stellata*	There is no construction required for this option therefore no construction impacts have been identified. Red-throated divers overwinter in marine environments and as hydrological impact ceases prior to Cardigan Bay.	None	None	No
	Dyfi Estuary / Aber Dyfi SPA (6km)	Greenland white-fronted goose *Answer albifrons flavirostris*	There is no construction required for this option, therefore no construction impacts have been identified. Hydrological impacts are restricted to the Afon Leri.	None	None	No
	Elenydd – Mallaen SPA (12km)	Red kite *Milvus milvus* Merlin *Falco columbarius*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Elenydd SAC (12km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the	There is no construction required for this option therefore no construction impacts have been identified.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Isoëto-*Nanojuncetea* European dry heaths Calaminarian grasslands of the *Violetalia calaminariae* Blanket bogs (*if active bog) Floating water-plantain *Luronium natans*	There is no hydrologically connectivity between the Site and the Option. The option is located in the Meirionnydd catchment and the site is located in the Teifi and Ceredigion North 16 km away.			
	Grogwynion SAC (12km)	European dry heaths Calaminarian grasslands of the *Violetalia calaminariae*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	River Wye / Afon Gwy (Wales) SAC (16km)	Water courses of plain to montaine levels with *Ranunculion fluitanis* and *Callitricho-Batrachion* vegetation Transition mires and quaking bogs White clawed crayfish *Austropotamobius pallipes* Sea lamprey *Petromyzon marinus* Brook lamprey *Lampetra planeri* River lamprey *Lampetra fluviatilis* Alis shad *Alosa alosa* Twaite shad *Alosa fallax* Atlantic salmon *Salmo salar* Bullhead *Cottus gobio* Otter *Lutra lutra*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrologically connectivity between the Site and the Option. The option is located in the Meirionnydd catchment and the site is located in the Wye MC 16 km away.	None	None	No
	Craig yr Aderyn (Bird's Rock) SPA (18km)	Red-billed chough *Pyrrhocorax pyrrhocorax*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Cadair Idris SAC (20km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanoju*ncetea Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Molinia meadows on calcareous, peaty, or clayey-silt laden soils (*Molinion caerulae*) Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels Blanket bogs (*if active bog) Alkaline fens Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) Calcareous rocky slopes with chasmophytic vegetation Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles Marsh fritillary *Eurodryas/Hypoedryas aurinia* Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrologically connectivity between the Site and the Option. Although both the site and the option are located in the Meirionnydd catchment, the Site is located 20km away and tributaries flow into the northern side of the estuary.	None	None	No
	Afon Teifi / River Teifi SAC (20km)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the I*soëto-Nanojuncetea* Water courses of plain to montaine levels with *Ranunculion fluitanis* and	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the option is located upstream 20km from the Option.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Callitricho-Batrachion vegetation Sea lamprey *Petromyzon marinus* Brook lamprey *Lampetra planeri* River lamprey *Lampetra fluviatilis* Alis shad *Alosa alosa* Twaite shad *Alosa fallax* Atlantic salmon *Salmo salar* Bullhead *Cottus gobio* Otter *Lutra lutra* Floating water-plantain *Luronium natans*				
	Cors Caron Ramsar (20km)	Crit. 2 – Supports vulnerable, endangered or critically endangered species or threatened eco communities Crit. 3 – Supports populations of plant/animal species important for maintaining regional biodiversity Crit. 6 – Regularly supports 1% of the individuals in a population of one species/subspecies of waterbird	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the option is located up stream 20km from the Option.	None	None	No
	Cors Caron SAC (20km)	Active raised bogs Degraded raised bogs still capable of natural regeneration Transition mires and quaking bogs Depression on peat substrates of Rhychosporion Bog woodland Otter *Lutra lutra*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the option is located up stream 20km from the Option.	None	None	No
Pembrokeshire (without/with planned WRMP19 scheme)						
8206-1: Crowhill – Reduce the	Afonydd Cleddau/ Cleddau Rivers SAC (0m)	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation	There is no construction required for this option, therefore no construction impacts have been identified.	Yes – excluding active raised bogs,	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
required downstream flow.		Active raised bogs Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* ((Alno-*Padion, Alnion incanae, Salicion albae*) Sea lamprey *Petromyzon marinus* Brook lamprey Lampetra planeri River lamprey *Lampetra fluviatilis* Bullhead *Cottus gobio* Otter *Lutra lutra*	Brook, river and sea lamprey: a reduction in flow (resulting in delayed or interrupted migration and an increase in siltation and suffocation of eggs) and the related reduction in wetted width (reduction or loss of spawning habitats) could result in an impact on breeding successes and consequently the conservation status of the designated features. Bullhead: the species is known to be flow sensitive and reduced flows (and likely reduced water quality) associated with implementation of a drought order may have a limited impact on bullhead populations. Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation: as a result of a reduction in flow, flow velocity, wetted width and depth of the river, there is a potential to expose plants to desiccation. In addition, any significant reduction in the frequency of higher flows is considered likely to reduce the 'cleansing' functioning of the river, whereby high and moderate flows remove any build-up of filamentous algae and fine sediments on the river substrate; and algae and epiphytes growing on submerged plants. Any reduction in this cleansing function could potentially affect macrophytes, especially slower-growing taxa, and in extreme cases these could be smothered by algae.	alluvial forests and otter.		

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			Due to their location within the SAC, Alluvial forests can be screened out due to lack of hydrological connectivity. Finally, otters are highly mobile and are not sensitive to changes in flow regime.			
	Pembrokeshire Marine/ Sir Benfro Forol SAC (2km d/s)	Sandbanks which are slightly covered by sea water all the time Estuaries Mudflats and sand flats not covered by seawater at low tide Coastal lagoons Large shallow inlets and bays Reefs Atlantic salt meadows *Glauco-Puccinellietalia maritimae* Submerged or partially submerged sea caves Sea lamprey *Petromyzon marinus* *River lamprey Lampetra fluviatilis* Alis shad *Alosa alosa* Twaite shad *Alosa fallax* Otter *Lutra lutra* Grey seal *Halichoerus grypus* Shore dock *Rumex rupestris*	There is no construction required for this option, therefore no construction impacts have been identified. The zone of hydrological influence of the Drought Order does not extend below the tidal limit of the Western Cleddau. The implementation of the Drought Order has the potential to impact upstream and downstream migration, and reduce the suitability of nursery and feeding habitats with changes in the salinity gradient, water quality and sedimentation patterns.	Yes – excluding estuaries, Atlantic salt meadows, mudflats and sandflats not covered by seawater at low tide, large shallow inlets and bays; reefs; grey seal; coastal lagoons; submerged or partially submerged sea caves; sandbanks which are slightly covered by seawater all the time; and shore dock	None	No
	Pembrokeshire Bat Sites and Bosherston Lakes/ Safleoedd Ystlum Sir Benfro a Llynnoedd Bosherston SAC (8km)	Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. Lesser horseshoe bat Rhinolophus hipposideros Greater horseshoe bat *Rhinolophus ferrumequinum* Otter *Lutra lutra*	There is no construction required for this option, therefore no construction impacts have been identified. Non-hydrologically dependent (lesser horseshoe and greater horseshoe bat) features will not be impacted by the Option. Due to the location of the lakes on	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			the southern side of Pembroke, there is no hydrological connectivity.			
	Yerbeston Tops SAC (12km)	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Ramsey and St David`s Peninsula Coast SPA (13km)	Red-billed chough Pyrrhocorax pyrrhocorax	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	St David`s / Ty Ddewi SAC (13km)	Vegetated sea cliffs of the Atlantic and Baltic Coasts European dry heaths Floating water-plantain *Luronium natans*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the option is located upstream 13km from the Option.	None	None	No
	Preseli SAC (15km)	Northern Atlantic heaths with *Erica tetralix* European dry heaths Depressions on peat substrates of the Rhynchosproion Alkaline fens Southern damselfly *Coenagrion mercuriale* Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia* Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the option is located upstream 15km from the Option.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Castlemartin Coast SPA (17km)	Red-billed chough *Pyrrhocorax pyrrhocorax*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	Limestone Coast of South West Wales / Arfordir Calchfaen de Orllewin Cymru SAC (17km)	Vegetated sea cliffs of the Atlantic and Baltic Coasts Fixed coastal dines with herbaceous vegetation (“grey dunes”) European dry heaths Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia)* (*Important orchid site) Caves not open to the public Submerged or partially submerged sea caves Greater horseshoe bat *Rhinolophus ferrumequinum* Petalwort *Petalophyllum ralfsii* Early gentian *Gentianella anglica*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the Site is located on the southern coast of Carmarthen Bay.	None	None	No
	Skomer, Stokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro SPA (17km)	Manx shearwater *Puffinus puffinus* European storm-petrel H*ydrobates pelagicus* Lesser black backed gull *Larus fuscus* Atlantic puffin *Fratercula arctica* Short-eared owl *Asio flammeus* Red-billed chough *Pyrrhocorax pyrrhocorax* Seabird assemblage	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrologically connectivity between the Site and the Option. The zone of hydrological influence of the Drought Order does not extend below the tidal limit of the Western Cleddau.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	North Pembrokeshire Woodlands/Coedydd Gogledd Sir Benfro SAC (18km)	Old sessile oak woods with Ilex and Blechnum in the British Isles Alluvial forests with *Alnus glutinosa* and Fraxinus excelsior (Alno-Padion, *Alnion incanae*, *Salicion albae* Barbastelle *Barbastella barbastellus*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	North West Pembrokeshire Commons/ Comins Gogledd Orllewin Sir Benfro SAC (18km)	Northern Atlantic wet heaths with Erica tetralix European dry heaths Molinia meadows on calcareoud, peaty or clayey-silt ldean soils (*Molinion caeruleae*) Transition mores and quaking bogs Floating water plantain *Luronium natans*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the option is located upstream 18km from the Option.	None	None	No
8206-7: Llys y Fran – Retain part of the freshet bank.	Afonydd Cleddau/ Cleddau Rivers SAC (0km)	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Active raised bogs Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) Sea lamprey *Petromyzon marinus* Brook lamprey *Lampetra planeri* River lamprey *Lampetra fluviatilis* Bullhead *Cottus gobio* Otter *Lutra lutra*	There is no construction required for this option, therefore no construction impacts have been identified. This site is likely to be directly affected by the scheme although these effects will be negligible. The operation of the scheme will maintain compensation releases to the Afon Cleddau, and freshet releases would not be impacted. The freshet releases to the downstream watercourse, for example for fisheries management, could still take place on up to three separate occasions during the duration of the drought permit. The maintenance of the compensation release will ensure that the Afon Cleddau is protected during any drought period and	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
			the interest features of the lake (Otter) are likely to be reasonably resilient to fluctuating levels, particularly given the normal range of lake levels due to abstraction, and the overall depth of the lake. Llys-y-Fran Reservoir does not meet the JNCC (2015)[18] criteria for macrophytes of 'oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoeto Nanojuncetea*' possessing only one of the characteristic species required: *Littorella uniflora* and therefore cannot be considered to contribute to the Welsh resource of this habitat type. Taking into consideration that the drought permit involves retaining approximately 40% of the total volume of the freshet bank, the drought permit has on the theoretical baseline drought, we have assessed the hydrological impact of the drought permit on Llys-y-Fran as negligible.			
	Preseli SAC (6km)	Northern Atlantic heaths with *Erica tetralix* European dry heaths Depressions on peat substrates of the	There is no construction required for this option, therefore no construction impacts have been identified.	None	None	No

[18] Joint Nature Conservation Committee (JNCC). 2015. Common Standards Monitoring Guidance for Freshwater Lakes (Version March 2015). Interagency Freshwater Group Report, JNCC, Peterborough. An electronic version of this report is available at: http://jncc.defra.gov.uk/pdf/0315_CSM_Freshwater_lakes.pdf

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Rhynchosproion Alkaline fens Southern damselfly *Coenagrion mercuriale* Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia* Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus*	There is no hydrological connectivity as the site is located upstream 6km away.			
	North Pembrokeshire Woodlands/ Coedydd Gogledd Sir Benfro SAC (9km)	Old sessile oak woods with Ilex and Blechnum in the British Isles Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) Barbastelle *Barbastella barbastellus*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the site is located upstream 6km away.	None	None	No
	Pembrokeshire Bat Sites and Bosherston Lakes/ Safleoedd Ystlum Sir Benfro a Llynnoedd Bosherston SAC (10km)	Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. Lesser horseshoe bat *Rhinolophus hipposideros* Greater horseshoe bat Rhinolophus ferrumequinum Otter *Lutra lutra*	There is no construction required for this option, therefore no construction impacts have been identified. The site is not hydrologically connected as hydrological features are located inland on the south side of Pembroke.	None	None	No
	Pembrokeshire Marine/ Sir Benfro Forol SAC (10km d/s)	Sandbanks which are slightly covered by sea water at all times Estuaries Mudflats and sandflats not covered by seawater at low tide Coastal lagoons Large shallow inlets and bays	There is no construction required for this option, therefore no construction impacts have been identified. Hydrological impacts will be negligible and cease prior to the estuary.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
		Reefs Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Submerged or partially submerged sea caves Sea lamprey *Petromyzon marinus* River lamprey *Lampetra fluviatilis* Allis shad *Alosa alosa* Twaite shad *Alosa fallax* Otter *Lutra lutra* Grey seal *Halichoerus grypus* Shore dock *Rumex rupestris*				
	Gweunydd Blaencleddau SAC (12km)	Northern Atlantic wet heaths *with Erica tetralix* Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae* Blanket bogs (* if active bog) Transition mires and quaking bogs Alkaline fens Southern damselfly *Coenagrion mercurial* Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the site is located upstream 12km away.	None	None	No
	Yerbeston Tops SAC (14km)(	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No

Option(s)	European Site within zone of minor, moderate or major hydrological impact[17]	Qualifying features (European sites)	Potential for effects on qualifying features/main habitats?	Potential likely significant effect of scheme on European site(s) alone?	Effect in combination with other options, plans and projects?	Is scheme likely to have a significant effect on European site(s)?
	Ramsey and St David`s Peninsula Coast SPA (19km)	Red-billed chough *Pyrrhocorax pyrrhocorax*	There is no construction required for this option, therefore no construction impacts have been identified. Qualifying features are not hydrologically dependent.	None	None	No
	St David`s / Ty Ddewi SAC (19km)	Vegetated sea cliffs of the Atlantic and Baltic Coasts European dry heaths Floating water-plantain *Luronium natans*	There is no construction required for this option, therefore no construction impacts have been identified. There is no hydrological connectivity as the site is located upstream 19km away.	None	None	No

APPENDIX B: INFORMATION TO INFORM THE APPROPRIATE ASSESSMENT

Introduction

Requirement for Habitats Regulations Assessment

This Appendix presents the information required to inform the Appropriate Assessment of the following drought permit/orders:

- 8121-1 Llywn Onn
- 8121-2 Pontsticill
- 8201-1 Crai
- 8206-1 Crowhill

The Appropriate Assessment must be undertaken by the competent authorities, in this case DCWW. This Appendix represents Stage 2 of the Habitats Regulations Assessment (HRA) process.

The Stage 2 assessment is required as screening has indicated likely significant effects on the following designations:

- 8121-1 – Severn Estuary/ Môr Hafren SAC
- 8121-2 – Severn Estuary/ Môr Hafren SAC
- 8201-1 – River Usk/ Afon Wysg SAC
- 8206-1 – Afonydd Cleddau/ Cleddau Rivers SAC
- 8206-1 – Pembrokeshire Marine / Sir Benfro SAC

HRA Guidance for the appraisal of Plans[19], summarises the Habitats Regulations. Regulation 63(5) states that the Plan making authority (in this case DCWW) shall adopt, or otherwise give effect to the Plan, only after having ascertained that it will not cause a likely significant effect on the integrity of a European site, subject to Regulation 64 or 105 of the Habitats Regulations.

Regulation 64 of the Habitats Regulations states:

- If the competent authority is satisfied that, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest (which, subject to paragraph (2), may be of a social or economic nature), it may agree to the plan or project

[19] Tyldesley, D. & Chapman, C. (2015) The Habitats Regulations Assessment Handbook. DTA Publications. Version 4.

notwithstanding a negative assessment of the implications for the European site or the European offshore marine site (as the case may be).

- (2) Where the site concerned hosts a priority natural habitat type or a priority species, the reasons referred to in paragraph (1) must be either—

    a) reasons relating to human health, public safety or beneficial consequences of primary importance to the environment; or

    b) any other reasons which the competent authority, having due regard to the opinion of the European Commission, considers to be imperative reasons of overriding public interest.

Regulation 105 of the Habitats Regulations states:

- Where a land use plan –

    a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and

    b) is not directly connected with or necessary to the management of the site, the plan-making authority for that plan must, before the plan is given effect, make an appropriate assessment of the implications for the site in view of that site's conservation objectives.

- (2) The plan-making authority must for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority specifies.

- (3) The plan-making authority must also, if it considers it appropriate, take the opinion of the general public, and if it does so, it must take such steps for that purpose as it considers appropriate.

- (4) In the light of the conclusions of the assessment, and subject to regulation 107, the plan-making authority must give effect to the land use plan only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).

- (5) A plan-making authority must provide such information as the appropriate authority may reasonably require for the purposes of the discharge by the appropriate authority of its obligations under this Chapter.

- (6) This regulation does not apply in relation to a site which is –

    a) (a)European site by reason of regulation 8(1)(c), or

b) (b)a European offshore marine site by reason of regulation 18(c) of the Offshore Marine Conservation Regulations (site protected in accordance with Article 5(4) of the Habitats Directive).

Article 6 of the Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna) states:

- 6(3). Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

- 6(4). If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

The Integrity test

The integrity test is the conclusion of the Stage 2 HRA (Appropriate Assessment) and requires the competent authority to ascertain whether the Plan (either alone or in-combination with other plans or projects), will not have an adverse effect on site integrity. The following definition of site integrity is provided by Defra; the integrity of the site is:

"the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the level of populations of the species for which it was classified"20.

Aims and content of this Appendix

This assessment considers the potentially damaging aspects of the Llwyn Onn, Pontsticill, Crai, Crowhill and Llyn Cwellyn drought options and the potential effects on the European sites' qualifying features and achievement of the conservation objectives.

The potential for adverse effect on the integrity of the site depends on the scale and magnitude of the proposed activity and its predicted impacts, taking into account the distribution of the designated features across the site in relation to the predicted impact and the location, timing and duration of the proposed activity and the level of understanding of the effect, such as whether it has been recorded

20 Defra Circular 01/2005.

before and, based on current ecological knowledge, whether it can be expected to operate at the site in question. Where qualitative and/or quantitative information is available, this has been used to inform the assessment. Where this information is not available, professional judgement has been used.

This report aims to set out, in sufficient detail for it to be transparent and understandable, what the effects of the Llwyn Onn, Pontsticill, Crai, and Crowhill drought options are likely to be on the internationally-designated site's qualifying feature, referring to relevant background documents and other information on which these judgements, which are essentially ecological judgements, rely. Guidance states that the size or complexity of the HRA Stage 2 report to inform the Appropriate Assessment will not necessarily reflect the scale of the project or plan, but rather the complexity of potential effects. The length of the report may not reflect the complexity of ecological judgements made to arrive at the necessary conclusions. Very complex ecological analysis and judgements may be expressed succinctly, with detailed supporting analyses contained in appendices or clearly referenced separate documents.

The following sections describe the European sites and their associated conservation objectives, the location of the SAC and the Ramsar in relation to the drought options, the potential impacts on the European sites and the findings of the integrity test.

Potential Impacts of the Llwyn Onn Drought Option

Drought Option

The proposed scheme is to reduce the compensation flow normally required from the reservoir to conserve reservoir storage, to ensure it can continue to support provision of essential public water supplies through the drought.

The scheme will require a drought permit to be granted to allow it to be implemented. This will require an application to NRW to temporarily vary abstraction license 21/57/21/0004. A drought permit application will seek the following changes to the reservoir compensation release:

- during the period July to December inclusive
- reduce the compensation release normally required from Llwyn Onn Reservoir by up to 20%. That is, reduce the compensation release by up to 3.62 Ml/d, reducing it from 18.18 Ml/d to 14.56 Ml/d.

Severn Estuary/ Môr Hafren SAC

The site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following Annex I habitats as a primary reason for selection of this site:

- 1130 Estuaries
- 1140 Mudflats and sandflats not covered by seawater at low tide
- 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)

The site hosts the following Annexe I habitat present as a qualifying feature, but not a primary reason for selection of this site:

- 1110 Sandbanks which are slightly covered by sea water all the time
- 1170 Reefs

The site hosts the following Annexe II species that are a primary reason for selection of this site:

- 1095 Sea lamprey Petromyzon marinus
- 1099 River lamprey Lampetra fluviatilis

Conservation objectives

Favourable conservation status as defined in Articles 1(e) and 1(i) of the Habitats Directive is to ensure that the integrity of the site is maintained or restored as appropriate by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of qualifying species
- The structure and function (including typical species) of qualifying natural habitats
- The structure and function of the habitats of qualifying species
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- The populations of qualifying species, and,

- The distribution of qualifying species within the site.

Severn Estuary Ramsar

The following Ramsar Criterion apply to the Severn Estuary:

- Ramsar criterion 4: This site is important for the run of migratory fish between sea and river via estuary. Species include Salmon Salmo salar, sea trout S. trutta, sea lamprey Petromyzon marinus, river lamprey Lampetra fluviatilis, allis shad Alosa alosa, twaite shad A. fallax, and eel Anguilla anguilla. It is also of particular importance for migratory birds during spring and autumn.
- Ramsar criterion 8: The fish of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. Salmon Salmo salar, sea trout S. trutta, sea lamprey Petromyzon marinus, river lamprey Lampetra fluviatilis, allis shad Alosa alosa, twaite shad A. fallax, and eel Anguilla anguilla use the Severn Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary. The site is important as a feeding and nursery ground for many fish species particularly allis shad Alosa alosa and twaite shad A. fallax which feed on mysid shrimps in the salt wedge.

HRA Screening Outcomes

The hydrological impacts of the drought option do not extend to the estuary, therefore, there are no impacts to those features that exist in the estuary only, as follows:

- 1130 Estuaries;
- 1140 Mudflats and sandflats not covered by seawater at low tide;
- 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae);
- 1110 Sandbanks which are slightly covered by sea water all the time;
- 1170 Reefs;
- 1095 Sea lamprey Petromyzon marinus; and
- 1103 Twaite shad Alosa fallax.

River lamprey is a migratory species and are reliant on habitat outside of the designation to support their populations (known as functionally linked land), however, the lamprey species recorded in reach 1 are assumed to be brook lamprey due to the barriers present downstream, preventing upstream migration. There was an absence of lamprey from surveys undertaken in reaches 2 and 3 indicating that the habitat is unsuitable. Therefore, this feature can also be screened out of further assessment.

While Atlantic salmon *Salmo salar* is not a qualifying feature of the SAC, it is part of the wider fish assemblage, it is also part of the Ramsar criterion noted above.

Atlantic salmon are also a migratory species using tributaries of the Severn to spawn and support the populations for which the Ramsar is designated. Therefore, these tributaries are considered functionally linked land and the habitats of importance to the feature are afforded the same level of protection as the designated site itself.

Atlantic salmon were occasionally present in Reach 1 and low numbers were recorded in Reaches 2 and 3 of the drought option, with impacts in the EAR assessed as moderate, moderate and negligible respectively. On this basis, Atlantic salmon has been screened into AA.

Effect Pathways

The hydrological impacts are as follows in each Reach:

- Reach 1 - Moderate reductions of up to 20% in river flows throughout the reach at any time of year that the drought permit is implemented.
- Reach 2 - Moderate reductions of up to 10% in river flows throughout the reach during the summer period. With minor reductions during the autumn/winter period.
- Minor reductions of up to 10% in river flows throughout the reach during the summer period. With negligible reductions during the autumn/winter period.

The following impact pathways were identified for Atlantic salmon: delays and potential cessation of adult upstream migration due to reduced flows, delays and potential cessation of smolt migration due to reduced flows, reduced water quality and loss of spawning and juvenile habitat as a result of reduced river levels.

Table B.1 below sets out the potential effects, mitigation (which also includes monitoring recommendations to reduce uncertainty in the potential effects) and the overall significance of effect.

Table 0.1: below sets out the potential effects, mitigation (which also includes monitoring recommendations to reduce uncertainty in the potential effects) and the overall significance of effect.

DESIGNATED SITE: Severn Estuary Ramsar / Severn Estuary/ Môr Hafren SAC **REF: UK11081 / UK0013030**			
Qualifying Feature	**Potential Effects**	**Mitigation**	**Significance of Effect (on conservation objectives and site integrity)**
Atlantic salmon (*Salmo salar*)	Available data suggest that the Afon Taf Fawr within the hydrological zone of influence (Reaches 1-3) constitutes an essential migratory pathway for Atlantic salmon with the potential to provide important spawning and nursery habitat. The full assessment on the Afon Taf Fawr is provided in Appendix B of the Llwyn Onn EAR, specifically section B4.2.4. ''Principal' Atlantic salmon *Salmo salar* rivers (numbering 64 in England in England and Wales) are assessed annually with the most recent report[21], published in 2024. The River Taff and Ely are classified as a Principal salmon river. The status of individual river stocks in England and Wales is evaluated annually against their stock conservation limits (CLs) and management targets (MTs). In England and Wales, CLs have been developed that indicate the minimum spawning stock levels below which stocks should not be allowed to fall. The CL for each river is set at a stock size (defined in terms of eggs deposited) below which further reductions in spawning numbers are likely to result in significant reductions in the number of juvenile fish produced in the next generation. In reviewing management options and regulations, NRW also use an over-arching management objective that a river's stock should be meeting or exceeding its CL in at least four years out of five (i.e. >80% of the time) on average. A management target (MT) is set for each river, representing a spawning stock level for managers to aim at in order to meet this objective.	Identification of all potential migration barriers through walkovers and consultation with NRW. The introduction of a freshet release regime during October would mitigate against impact on migration. Until the above data is collected, on a precautionary basis, impacts to migrating salmon are anticipated. A qualitative habitat assessment would be required to inform the risk to juvenile habitat within the impacted reaches. HABSCORE should be calculated for Reaches 1 and 2 to determine expected densities. Detailed cross-sectional data to inform impacts on hydraulics would be required. Until the above data is collected, on a precautionary basis, impacts to juveniles are anticipated.	Significant adverse effects to conservation objectives and site integrity.

[21] Cefas. 2024. Annual Assessment of Salmon Stocks and Fisheries in England and Wales 2023. Preliminary assessment prepared for ICES, March 2024.

DESIGNATED SITE: Severn Estuary Ramsar / Severn Estuary/ Môr Hafren SAC REF: UK11081 / UK0013030			
Qualifying Feature	**Potential Effects**	**Mitigation**	**Significance of Effect (on conservation objectives and site integrity)**
	The Taff and Ely are classified as currently 'At risk' (<5% probability of meeting the management objective) with a predicted classification of 'At risk' (<5% probability of meeting the management objective) by 2028. The 2023 CL achieved just 1%; the lowest level since 2009. Maintaining migratory corridors and spawning and nursery areas for salmon is recognised as particularly important in this instance." *Migration* The Afon Taff is an important migratory route for Atlantic salmon, including both upstream-migrating adults and out-migrating smolts. Most Atlantic salmon migration into the Afon Taff likely occurs from October to December, and a drought permit issued between July and December could impact this life stage of the Atlantic salmon. Data indicates that Reach 1 experiences moderate adverse impacts on flow from September to December, significantly affecting Atlantic salmon migration. In Reach 2, the flow impact is moderate adverse during the summer and minor during the winter, resulting in a low magnitude, short-term, temporary, and reversible impact on migration. Out-migrating smolts are expected to migrate between mid-March and mid-May, typically outside of the drought permit implementation period, minimising the impact on this migration phase. In the absence of a more detailed understanding of the passibility of structures in drought conditions and with implementation of the drought option and given the status of salmon in the Taff, a reduction in flows has the potential to compromise the populations ability to distribute, access essential spawning ground and maintain their population. Juveniles Reduced flow may lead to decreased river levels and wetted width, potentially resulting in the loss or degradation of juvenile habitat and gravel spawning areas.		

DESIGNATED SITE: Severn Estuary Ramsar / Severn Estuary/ Môr Hafren SAC REF: UK11081 / UK0013030			
Qualifying Feature	**Potential Effects**	**Mitigation**	**Significance of Effect (on conservation objectives and site integrity)**
	If minimum low flows are maintained, juvenile Atlantic salmon may relocate to suitable habitats as river levels decrease, though competition and stress are likely to increase. Since gravels containing alevins and early-stage fry (present in April and May) are not expected to be significantly impacted. Given the status of salmon in the Usk, this mortality is anticipated to compromise the populations ability to maintain itself on a long-term basis as a viable component of its natural habitats, this is considered to be an adverse effect on integrity.		

Summary of impacts

In summary, the evidence provided above shows that the impacts from the Llwyn Onn drought option in the Afon Taf (Reaches 1 and 2) would have an adverse impact on the integrity of the European site. Further data is required to better understand the distribution of habitats in this reach to improve certainty on the scale of the impacts and therefore the likelihood of an adverse effect on integrity. Until that data is collected, on a precautionary basis, the conclusion of adverse impact on the integrity of the Severn Estuary Ramsar remains.

Integrity Test

In conclusion, the Llwyn Onn drought option will likely have an impact on the conservation objectives or the qualifying features of the Severn Estuary Ramsar. As such, the Llwyn Onn drought option will have a likely significant effect on the integrity of the European site.

Potential Impacts of the Pontsticill Drought Option

Drought Option

The proposed scheme is to reduce the compensation flow normally required from the reservoir, to conserve reservoir storage, to ensure it can continue to support provision of essential public water supplies through the drought, and to improve the prospect of reservoir recovery over the winter.

The scheme will require a drought permit to be granted to allow it to be implemented. This will require an application to be made to NRW to temporarily vary abstraction licence 21/57/21/0002. (Noting the earlier governance of the Taf Fechan Water Supply Act 1955, and the Merthyr Tydfil Corporation Water Act, 1911 with respect to the licence). A drought permit application will seek the following changes to the reservoir compensation release:

- during the period July to December, inclusive
- reduce the compensation release normally required from Pontsticill Reservoir by 20%. That is, reduce the compensation release by 3.8 Ml/d, reducing it from the licensed requirement of not less than 19.1 Ml/d, to not less than 15.3 Ml/d.

Severn Estuary/ Môr Hafren SAC

The site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following Annex I habitats as a primary reason for selection of this site:

- 1130 Estuaries
- 1140 Mudflats and sandflats not covered by seawater at low tide
- 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)

The site hosts the following Annexe I habitat present as a qualifying feature, but not a primary reason for selection of this site:

- 1110 Sandbanks which are slightly covered by sea water all the time
- 1170 Reefs

The site hosts the following Annexe II species that are a primary reason for selection of this site:

- 1095 Sea lamprey Petromyzon marinus
- 1099 River lamprey Lampetra fluviatilis

Conservation objectives

Favourable conservation status as defined in Articles 1(e) and 1(i) of the Habitats Directive is to ensure that the integrity of the site is maintained or restored as appropriate by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of qualifying species
- The structure and function (including typical species) of qualifying natural habitats
- The structure and function of the habitats of qualifying species
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

Severn Estuary Ramsar

The following Ramsar Criterion apply to the Severn Estuary:

- **Ramsar criterion 4**: This site is important for the run of migratory fish between sea and river via estuary. Species include Salmon *Salmo salar*, sea trout S. trutta, sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis*, allis shad *Alosa alosa,* twaite shad *A. fallax,* and eel *Anguilla anguilla*. It is also of particular importance for migratory birds during spring and autumn.
- **Ramsar criterion 8**: The fish of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. Salmon *Salmo salar*, sea trout *S. trutta*, sea lamprey Petromyzon marinus, river lamprey *Lampetra fluviatilis*, allis shad *Alosa alosa*, twaite shad *A. fallax,* and eel *Anguilla anguilla* use the Severn Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary. The site is important as a feeding and nursery ground for many fish species particularly allis shad *Alosa alosa* and twaite shad *A. fallax* which feed on mysid shrimps in the salt wedge.

HRA Screening Outcomes

The hydrological impacts of the drought option do not extend to the estuary, therefore, there are no impacts to those features that exist in the estuary only, as follows:

- 1130 Estuaries;
- 1140 Mudflats and sandflats not covered by seawater at low tide;
- 1330 Atlantic salt meadows (G*lauco-Puccinellietalia maritimae*);
- 1110 Sandbanks which are slightly covered by sea water all the time;
- 1170 Reefs;
- 1095 Sea lamprey *Petromyzon marinus*; and
- 1103 Twaite shad *Alosa fallax.*

River lamprey is a migratory species and are reliant on habitat outside of the designation to support their populations (known as functionally linked land), however, the lamprey species recorded in reach 1 are assumed to be brook lamprey due to the barriers present downstream, preventing upstream migration. There was an absence of lamprey from surveys undertaken in reaches 2 and 3 indicating that the habitat is unsuitable. Therefore, this feature can also be screened out of further assessment.

While Atlantic salmon *Salmo salar* is not a qualifying feature of the SAC, it is part of the wider fish assemblage, it is also part of the Ramsar criterion noted above.

Atlantic salmon are also a migratory species using tributaries of the Severn to spawn and support the populations for which the Ramsar is designated. Therefore, these tributaries are considered functionally linked land and the habitats of importance to the feature are afforded the same level of protection as the designated site itself.

Atlantic salmon were occasionally present in Reach 1 and low numbers were recorded in Reaches 2 and 3 of the drought option, with impacts in the EAR assessed as moderate, moderate and negligible respectively. On this basis, Atlantic salmon has been screened into AA.

Effect Pathways

The hydrological impacts are as follows in each Reach:

- Reach 1 - Moderate reductions of up to 20% in river flows throughout the reach at any time of year that the drought permit is implemented.
- Reach 2 - Moderate reductions of up to 10% in river flows throughout the reach during the summer period. With minor reductions during the autumn/winter period.
- Reach 3 - Minor reductions of up to 10% in river flows throughout the reach during the summer period. With negligible reductions during the autumn/winter period.

The following impact pathways were identified for Atlantic salmon: delays and potential cessation of adult upstream migration due to reduced flows, delays and potential cessation of smolt migration due to reduced flows, reduced water quality and loss of spawning and juvenile habitat as a result of reduced river levels.

Table B.2 below sets out the potential effects, mitigation (which also includes monitoring recommendations to reduce uncertainty in the potential effects) and the overall significance of effect.

DESIGNATED SITE: Severn Estuary Ramsar / Severn Estuary/ Môr Hafren SAC **REF: UK11081 / UK0013030**			
Qualifying Feature	**Potential Effects**	**Mitigation**	**Significance of Effect (on conservation objectives and site integrity)**
Atlantic salmon (*Salmo salar*)	Available data suggest that the Afon Taf Fawr within the hydrological zone of influence (Reaches 1-3) constitutes an essential migratory pathway for Atlantic salmon with the potential to provide important spawning and nursery habitat. The full assessment on the Afon Taf Fawr is provided in Appendix B of the Llwyn Onn EAR, specifically section B4.2.4. ''Principal' Atlantic salmon *Salmo salar* rivers (numbering 64 in England in England and Wales) are assessed annually with the most recent report[22], published in 2024. The River Taff and Ely are classified as a Principal salmon river. The status of individual river stocks in England and Wales is evaluated annually against their stock conservation limits (CLs) and management targets (MTs). In England and Wales, CLs have been developed that indicate the minimum spawning stock levels below which stocks should not be allowed to fall. The CL for each river is set at a stock size (defined in terms of eggs deposited) below which further reductions in spawning numbers are likely to result in significant reductions in the number of juvenile fish produced in the next generation. In reviewing management options and regulations, NRW also use an over-arching management objective that a river's stock should be meeting or exceeding its CL in at least four years out of five (i.e. >80% of the time) on average. A management target (MT) is set for each river, representing a spawning stock level for managers to aim at in order to meet this objective.	Identification of all potential migration barriers through walkovers and consultation with NRW. The introduction of a freshet release regime during October would mitigate against impact on migration. Until the above data is collected, on a precautionary basis, impacts to migrating salmon are anticipated. A qualitative habitat assessment would be required to inform the risk to juvenile habitat within the impacted reaches. HABSCORE should be calculated for Reaches 1 and 2 to determine expected densities. Detailed cross-sectional data to inform impacts on hydraulics would be required. Until the above data is collected, on a precautionary basis, impacts to juveniles are anticipated.	Significant adverse effects to conservation objectives and site integrity.

[22] Cefas. 2024. Annual Assessment of Salmon Stocks and Fisheries in England and Wales 2023. Preliminary assessment prepared for ICES, March 2024.

DESIGNATED SITE: Severn Estuary Ramsar / Severn Estuary/ Môr Hafren SAC REF: UK11081 / UK0013030			
Qualifying Feature	**Potential Effects**	**Mitigation**	**Significance of Effect (on conservation objectives and site integrity)**
	The Taff and Ely are classified as currently 'At risk' (<5% probability of meeting the management objective) with a predicted classification of 'At risk' (<5% probability of meeting the management objective) by 2028. The 2023 CL achieved just 1%; the lowest level since 2009. Maintaining migratory corridors and spawning and nursery areas for salmon is recognised as particularly important in this instance." *Migration* The Afon Taff is an important migratory route for Atlantic salmon, including both upstream-migrating adults and out-migrating smolts. Most Atlantic salmon migration into the Afon Taff likely occurs from October to December, and a drought permit issued between July and December could impact this life stage of the Atlantic salmon. Data indicates that Reach 1 experiences moderate adverse impacts on flow from September to December, significantly affecting Atlantic salmon migration. In Reach 2, the flow impact is moderate adverse during the summer and minor during the winter, resulting in a low magnitude, short-term, temporary, and reversible impact on migration. Out-migrating smolts are expected to migrate between mid-March and mid-May, typically outside of the drought permit implementation period, minimising the impact on this migration phase. In the absence of a more detailed understanding of the passibility of structures in drought conditions and with implementation of the drought option and given the status of salmon in the Taff, a reduction in flows has the potential to compromise the populations ability to distribute, access essential spawning ground and maintain their population. Juveniles Reduced flow may lead to decreased river levels and wetted width, potentially resulting in the loss or degradation of juvenile habitat and gravel spawning areas.		

DESIGNATED SITE: Severn Estuary Ramsar / Severn Estuary/ Môr Hafren SAC REF: UK11081 / UK0013030			
Qualifying Feature	**Potential Effects**	**Mitigation**	**Significance of Effect (on conservation objectives and site integrity)**
	If minimum low flows are maintained, juvenile Atlantic salmon may relocate to suitable habitats as river levels decrease, though competition and stress are likely to increase. Since gravels containing alevins and early-stage fry (present in April and May) are not expected to be significantly impacted. Given the status of salmon in the Usk, this mortality is anticipated to compromise the populations ability to maintain itself on a long-term basis as a viable component of its natural habitats, this is considered to be an adverse effect on integrity.		

Summary of impacts

In summary, the evidence provided above shows that the impacts from the Pontsticill drought option in the Afon Taf (Reaches 1 and 2) would have an adverse impact on the integrity of the European site. Further data is required to better understand the distribution of habitats in this reach to improve certainty on the scale of the impacts and therefore the likelihood of an adverse effect on integrity. Until that data is collected, on a precautionary basis, the conclusion of adverse impact on the integrity of the Severn Estuary Ramsar remains.

Integrity Test

In conclusion, the Pontsticill drought option will likely have an impact on the conservation objectives or the qualifying features of the Severn Estuary Ramsar. As such, the Pontsticill drought option will have a likely significant effect on the integrity of the European site.

Potential impacts of the Crai Drought Option

Drought Option

The proposed scheme is to reduce the compensation flow normally required from the reservoir, to conserve reservoir storage, ensuring it can continue to support the provision of essential public water supplies through the drought, and to improve the prospect of reservoir recovery over the winter.

During the period June to October inclusive, the compensation release normally required from Crai Reservoir will be reduced by up to 20%. That is, reduce the compensation release by up to 1.36 Ml/d, reducing it from 6.82 Ml/d to 5.46 Ml/d.

River Usk/ Afon Wysg SAC

The site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following Species listed in Annex II as a primary reason for selection of this site:

- 1095 Sea lamprey *Petromyzon marinus*
- 1096 Brook lamprey *Lampetra planeri*
- 1099 River lamprey *Lampetra fluviatilis*
- 1103 Twaite shad *Alosa fallax*
- 1106 Atlantic salmon *Salmo salar*
- 1163 Bullhead *Cottus gobio*
- 1355 Otter *Lutra lutra*

The site hosts the following Annexe I habitat present as a qualifying feature, but not a primary reason for selection of this site:

- 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation

The site hosts the following Annexe II species present as a qualifying feature, but not a primary reason for site selection:

- 1102 Allis shad *Alosa alosa*

Conservation Status

Favourable conservation status as defined in Articles 1(e) and 1(i) of the Habitats Directive: "The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- its natural range and areas it covers within that range are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The conservation status of a species is the sum of the influences acting on the species that may affect the long-term distribution and abundance of its populations. The conservation status will be taken as 'favourable' when:

- population dynamics data on the species indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.[23]"

Table B.3: Conservation Objectives for the Features of the River Usk/ Afon Wysg SAC

DESIGNATED SITE: Afon Usk **REF: UK0013007**			
Qualifying Feature	**Conservation Objective/Site Condition:**	**Attribute**	**Specific Limit**
Atlantic salmon (*Salmo salar*)	Unclassified. Monitoring of Atlantic salmon in the Usk relies on two methods, i. Estimation of adult run size from angling catch returns, ii. Electro-fishing for juveniles in nursery areas.	Adult run size	Conservation Limit (CL) complied with at least four years in five
		Juvenile densities	Expected densities for each sample site using HABSCORE
		Biological quality	Biological GQA class A
Brook lamprey (*Lampetra planeri*) and River lamprey (*Lampetra fluviatilis*)	Favourable. Brook/river lamprey monitoring showed that overall catchment mean ammocoete density considerably exceeded the JNCC target threshold and also complied with targets for ammocoete distribution.	Age/size structure of ammocoete population	Samples < 50 ammocoetes ~ 2 size classes Samples > 50 ammocoetes ~ at least 3 size classes
		Distribution of ammocoetes within	Present at not less that 2/3 of sites surveyed within natural range No reduction in distribution of

[23] NRW (2022) CORE MANAGEMENT PLAN INCLUDING CONSERVATION OBJECTIVES FOR Afon Wysg / River Usk SAC

DESIGNATED SITE: Afon Usk REF: UK0013007 Qualifying Feature	Conservation Objective/Site Condition:	Attribute	Specific Limit
		catchment	ammocoetes
		Ammocoete density	Optimal habitat: >10m-2 Overall catchment mean: >5m-2
Bullhead (*Cottus gobio*)	Unfavourable: Unclassified. The current unfavourable status results from the presence of adverse factors, in particular flow depletion and localised water quality failures. Records obtained from juvenile salmon monitoring show that bullhead are widespread in the main river and tributaries. There is a need for quantitative information on bullhead abundance, which will be addressed by targeted monitoring in 2007	Adult densities	No less than 0.2 m^{-2} in sampled reaches
		Distribution	Bullheads should be present in all suitable reaches. As a minimum, no decline in distribution from current.
		Reproduction / age structure	Young-of-year fish should occur at densities at least equal to adults

HRA Screening Outcomes

The HRA Screening concluded that implementation of a drought order has the potential to result in likely significant effects on the River Usk SAC. The following qualifying features were screened in for further assessment through an Appropriate Assessment:

- 1096 Brook lamprey *Lampetra planeri*
- 1099 River lamprey *Lampetra fluviatilis*
- 1106 Atlantic salmon *Salmo salar*
- 1163 Bullhead *Cottus gobio*

A review of the Core Management Plan has confirmed the likely absence of the following species from Units 9 and 6 which could be impacted by the drought order; sea lamprey, twaite shad, allis shad and *Ranunculion* habitat. Movement of sea lamprey, twaite shad and allis shad upstream is limited by Crickhowell Bridge and Brecon weir. *Ranunculion* habitat is restricted to Units 2, 3 and 10 on the River Usk between Abergavenny and Chepstow, and the Afon Senni. Otter have also been screened as there are not anticipated to be any changes to habitat or prey availability for otter as a result of drought order implementation, with a number of tributaries in the River Usk catchment remaining unaffected by the drought order e.g. Nant Bran and Afon Ysair.

Effect Pathways

The hydrological impacts in Reach 1 (Afon Crai from Crai reservoir to the River Usk) are a 20% reduction in flows, resulting proportionately lower water level and lessened wetted perimeter in channels potentially impacting fish nursery habitat (though possibly these consequent effects may be overridden by downstream hydraulic controls).

The following impact pathways were identified for those features screened into the AA:

- **Atlantic salmon**: a reduction in flow (resulting in delayed or cessation of adult upstream

migration and smolt migration) and the related reduction in wetted width (reduction in juvenile habitat) could result in an impact on breeding successes and consequently the conservation status of the designated features.

- **Brook and river lamprey**: a reduction in flow (resulting in delayed or interrupted migration and an increase in siltation and suffocation of eggs) and the related reduction in wetted width (reduction or loss of spawning habitats and juvenile survival) could result in an impact on breeding successes and consequently the conservation status of the designated features.
- **Bullhead**: the species is known to be flow sensitive and reduced flows associated with implementation of a drought order may have a limited impact on bullhead populations.

Table B.4 below sets out the potential effects, mitigation (which also includes monitoring recommendations to reduce uncertainty in the potential effects) and the overall significance of effect.

Table B.4: Assessment of adverse effects on River Usk/ Afon Wysg SAC

DESIGNATED SITE: Afon Usk **REF: UK0013007**			
Qualifying Feature	**Potential Effects**	**Mitigation**	**Significance of Effect (on conservation objectives and site integrity)**
Atlantic salmon (*Salmo salar*)	Available data suggest that the River Usk within the hydrological zone of influence (Reach 2) constitutes an essential migratory pathway for Atlantic salmon whilst Afon Crai (Reach 1) provides important spawning and nursery habitat. The full assessment on the River Usk/ Afon Wysg SAC is provided in Appendix B of the Crai EAR, specifically sections B4.1.1 and B4.2.4. ''Principal' Atlantic salmon *Salmo salar* rivers (numbering 64 in England in England and Wales) are assessed annually with the most recent report[24], published in 2024. The River Usk is classified as a Principal salmon river. The status of individual river stocks in England and Wales is evaluated annually against their stock conservation limits (CLs) and management targets (MTs). In England and Wales, CLs have been developed that indicate the minimum spawning stock levels below which stocks should not be allowed to fall. The CL for each river is set at a stock size (defined in terms of eggs deposited) below which further reductions in spawning numbers are likely to result in significant reductions in the number of juvenile fish produced in the next generation. In reviewing management options and regulations, NRW also use an over-arching management objective that a river's stock should be meeting or exceeding its CL in at least four years out of five (i.e. >80% of the time) on average. A management target (MT) is set for each river, representing a spawning stock level for managers to aim at in order to meet this objective. The Usk is classified as currently 'At risk' (<5% probability of meeting the management objective) with a predicted classification of 'At risk' (<5% probability	The introduction of a freshet release regime during October would mitigate against impact on migration. The addition of freshet releases in the period mid-August to mid-September would reduce potential impacts during the key migration period for salmon. The freshet releases would aim to allow for increased flows during the key salmon migration to mitigate against ecological sensitivity by improving the passability of barriers in drought conditions and providing clean, cool water vital to Atlantic salmon. A qualitative habitat assessment would be required to inform the risk to juvenile habitat within the impacted reaches. HABSCORE should be calculated for Reach 1 to determine expected densities. Detailed cross-sectional data to inform impacts on hydraulics would be required. Until the above data is collected, on a precautionary basis, impacts to juveniles are anticipated.	Significant adverse effects to conservation objectives and site integrity.

[24] Cefas. 2024. Annual Assessment of Salmon Stocks and Fisheries in England and Wales 2023. Preliminary assessment prepared for ICES, March 2024.

DESIGNATED SITE: Afon Usk REF: UK0013007			
Qualifying Feature	**Potential Effects**	**Mitigation**	**Significance of Effect (on conservation objectives and site integrity)**
	of meeting the management objective) by 2028. The 2023 CL achieved just 37%, the estimated egg deposition had previously continued to increase, however, since 2018 estimates have followed a decreasing trend and reached the lowest level in the recent period. Both egg deposition and salmon stocks in the Usk will continue to decline (uncertain)[25]. Maintaining migratory corridors and spawning and nursery areas for salmon is recognised as particularly important in this instance. *Migration* The River Usk, like the nearby River Wye, is known for its modest spring run (April to June) of often very large Atlantic salmon, however, the majority of migrating Atlantic salmon are likely to enter the hydrological zone of influence later in the year (from September to December) and there is the potential for drought order to coincide with this upstream migration period. A decrease in wetted width will have limited impact on migrating adults, and channel obstructions and habitat fragmentation are of greater relevance. The hydrological impact on the Afon Usk, downstream of the confluence with the Afon Crai has been accessed as negligible and limited impacts on migration is expected in Reach 2. *Juveniles* The reduction in compensation flow could also affect Atlantic salmon juveniles. National Fish Classification Scheme (NFCS) grades for the Afon Crai[26] and NRW fisheries data shows high abundances of both salmon fry and parr in the Afon Crai near the village of Crai. Limited habitat distribution data was available, but based on the available fisheries data it is assumed that Atlantic salmon spawn along the entire reach of the river and migration will not be limited to the lower reaches of the Afon Crai. There is clear evidence that salmon are successfully spawning in		

[25] Natural Resources Wales – Know Your River – Usk. Salmon & Sea Trout Catchment Summary: 2019
[26] Know Your Rivers - Salmon and Sea Trout Catchment Summary River Usk, 2015

DESIGNATED SITE: Afon Usk REF: UK0013007			
Qualifying Feature	**Potential Effects**	**Mitigation**	**Significance of Effect (on conservation objectives and site integrity)**
	the Afon Crai, with fry survey data suggesting that this river has the most suitable conditions for salmon spawning among the various watercourses being assessed on the Usk. Based on the densities of juveniles present in the Afon Crai, a 20% reduction in compensation flow is anticipated to translate to a minor impact on habitat availability and in turn lead to mortality. Reduced flow may lead to decreased river levels and wetted width, potentially resulting in the loss or degradation of juvenile habitat and gravel spawning areas. If minimum low flows are maintained, juvenile Atlantic salmon may relocate to suitable habitats if river levels drop, although increased competition and stress are likely. Given the status of salmon in the Usk, this mortality is anticipated to compromise the populations ability to maintain itself on a long-term basis as a viable component of its natural habitats, this is considered to be an adverse effect on integrity.		
Brook lamprey (*Lampetra planeri*) and River lamprey (*Lampetra fluviatilis*)	Unlike some diadromous fish species such as Atlantic salmon, lamprey migrations are not always linked to periods of increased flow and, provided minimum low flows are available, migration is unlikely to be significantly affected. Low flows may hinder downstream passage of river lamprey and could also impact on the distribution of both river and brook lamprey from spawning grounds to nursery habitats. Detailed information regarding the impact on hydraulics as a result of the drought order was not available. However, under the precautionary principal, it is assumed that the drought order could have a minor impact on wetted width, wetted depth and velocity. This could in turn result in a fragmentation of habitat in Reach 1. Individual length data provided suggest multiple year classes of river and/or brook lamprey ammocoetes present, suggesting successful ongoing recruitment over time in the hydrological zone of influence. However, limited data on habitat suitability and lamprey density was available to compare density data to ammocoete density targets. A loss of lamprey ammocoetes would impact on the distribution, density and age/size structure of lamprey communities within the SAC unit and could impact on the ability of the SAC to attain favourable condition status. A reduction in wetted perimeter could be of particular significance for juvenile (ammocoetes and transformer) lamprey habitat. Maitland (2003) states that larval	The introduction of a freshet release regime during the months of August and September would mitigate against impacts on the downstream passage of brook and river lamprey and the distribution of ammocoetes to nursery habitats A qualitative habitat assessment would be required to inform the risk to ammocoete nursery habitat within the impacted reaches. Detailed cross-sectional data to inform impacts on hydraulics would be required. Identification of all potential migration barriers through walkovers and consultation with NRW. Where suitable, install temporary structures to aid in the passage of juvenile and adults. This could	Significant adverse effects to conservation objectives and site integrity

DESIGNATED SITE: Afon Usk REF: UK0013007			
Qualifying Feature	**Potential Effects**	**Mitigation**	**Significance of Effect (on conservation objectives and site integrity)**
	nursery beds are at the edges of streams and rivers, well away from the main current, and that the current over them is often not only very slow, but is actually a backwater in reverse of the main current. The sensitivity of wetted perimeter to changes in flow depends to a large extent upon the slope of the banks. Available information suggest steep sided banks at the top of Reach 1 and a reduction in compensation flow is most likely to result in a decrease in depth, with wetted width remaining mostly unaffected. Further downstream in Reach 1 (downstream of the Crai village), the river becomes wider with an increase in the number of areas with shallow banks. There is therefore the potential for a loss or degradation of this habitat. Provided minimum low flows are available, juvenile lamprey may relocate to areas of suitable habitat if river levels decrease, however, competition and stress would increase, and increased mortality is likely. The age/size structure of the ammocoete population gives an indication of recruitment to the population over the several years. Failure of one or more years recruitment may be due to either short or long term impacts or natural factors such as natural flow variability, therefore would trigger further investigation of the cause rather than leading automatically to an unfavourable condition assessment. The drought order is likely to result in hydrological impacts that are considered temporary in nature. However, an extensive loss in nursery habitat or the changes for optimal to sub-optimal habitat could result in a loss of certain ammocoete age classes. While the effects may not be measurable immediately following the implementation of the drought order, there is some uncertainty with regards to the long-term effect on the density and distribution of ammocoetes in Reach 1.	include the use of synthetic substrates such as tiles developed for eels.	
Bullhead (*Cottus gobio*)	The data suggest considerable variability in density between years with figures above the 0.2m^2 target for SAC favourable conservation status in upland streams. Densities varied from 2.08m^2 in 2010 to 26.94m^2 in 2013. No individual length data was made available for bullhead. Given the paucity of the data, and following the precautionary principle of the Habitat Regulations, it is assumed that bullhead are present in suitable habitats along the full length of the Afon Crai. Bullheads spawn from February to June: typically once for females in upland streams, and up to four times in warmer, more productive lowland streams[27].	The introduction of a freshet release regime during the month of August would mitigate against impact on young-of-the year individual's distribution. A qualitative habitat assessment would be required to inform the risk to juvenile habitat within the impacted reaches.	Significant adverse effects to conservation objectives and site integrity

[27] Fox PJ (1978a). Preliminary observations on different reproductive strategies in the bullhead (Cottus gobio L.) in northern and southern England. Journal of Fish Biology 12, 5–11

DESIGNATED SITE: Afon Usk REF: UK0013007			
Qualifying Feature	**Potential Effects**	**Mitigation**	**Significance of Effect (on conservation objectives and site integrity)**
	The bullhead spawning period can extend into the months of September and a reduction in velocity and depths over spawning habitat could impact on the hatching success of eggs, directly impacting on the abundances of bullhead fry. Tomlinson and Perrow (2003) also indicates that bullheads need a coarse, hard substrate of clean gravel and stones to complete their reproductive cycle. This substrate not only provides spawning grounds, but also represent the preferred habitat for young-of-the year individuals. A reduction in velocity and water depth in riffle areas could impact on young-of-the year individuals and the downstream drift of fry following hatching. A reduction in wetted width in the lower reaches could also impact on habitat availability, particularly for adult fish which favour larger substrate and undercut banks in slower flowing areas (Tomlinson and Perrow, 2003). The density of young-of -the year fish gives an indication of successful recruitment and a healthy population structure. Failure of this attribute on its own would not lead to an unfavourable condition assessment, however, impacts on habitat availability and quality for both adult and juvenile bullhead could impact on the population structure and the distribution and density of this feature within the SAC. Detailed habitat mapping is required to improve the current understanding of the distribution spawning and juvenile habitats within the affected reaches along with an assessment of the potential impacts on hydraulics within these sensitive habitats. Until this data is available, on a precautionary basis, an adverse effect on integrity is possible.	Detailed cross-sectional data to inform impacts on hydraulics would be required.	

Summary of impacts

In summary, the evidence provided above shows that the impacts from the Crai drought option in the Afon Crai (Reach 1) would have an adverse impact on the integrity of the European site. Further data is required to better understand the distribution of habitats in this reach to improve certainty on the scale of the impacts and therefore the likelihood of an adverse effect on integrity. Until that data is collected, on a precautionary basis, the conclusion of adverse impact on the integrity of the River Usk/ Afon Wysg SAC remains.

Integrity Test

In conclusion, the Crai drought option will likely have an impact on the conservation objectives or the qualifying features of the River Usk/ Afon Wysg SAC. As such, the Crai drought option will have a likely significant effect on the integrity of the European site.

Potential Impacts of the Crowhill Drought Option

Drought Option

The proposed scheme is to lower the river flow at which abstraction at Crowhill must cease. For the purpose of this description and assessment, we will call this river flow the 'hands-off flow' (HoF). It is the river flow immediately downstream of the abstraction at Crowhill.

The scheme will require a drought order to be granted to allow it to be implemented. This will require an application to be made to Welsh Government. A drought order application will seek to temporarily vary the DCWW abstraction license 22/61/03/0001/v001 (Schedule B) as follows: -

- During the period June to November inclusive,
- Reduce the abstraction license HoF by 20%. That is, a reduction of 7.52 Ml/d, from 37.58 Ml/d to 30.06 Ml/d
- All the other conditions of the abstraction license remain unchanged.

A detailed Appropriate Assessment was undertaken by Ricardo in 2022[28] for a reduction in HoF by 44% to 18.79 Ml/d for the period August to November inclusive, a more extreme drought option that is operated for a shorter period. The assessment concluded 'no likely adverse effects on the conservation objectives of certain qualifying features of the Afonydd Cleddau/Cleddau Rivers SAC or on the overall site integrity are predicted with implementation of the proposed mitigation measures'.

Afonydd Cleddau/ Cleddau Rivers SAC

The site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following Annex I habitats as a primary reason for selection of this site:

The site hosts the following Annexe I habitat present as a qualifying feature, but not a primary reason for selection of this site:

- 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation
- 7110 Active raised bogs * Priority feature
- 91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) * Priority feature

The site hosts the following Annexe II species that are a primary reason for selection of this site:

- 1096 Brook lamprey *Lampetra planeri*
- 1099 River lamprey *Lampetra fluviatilis*
- 1163 Bullhead *Cottus gobio*
- 1355 Otter *Lutra lutra*

The site hosts the following Annexe II species present as a qualifying feature, but not a primary reason for site selection:

- 1095 Sea lamprey Petromyzon marinus

[28] Ricardo (2022) Project-level Habitats Regulations Assessment – Stage 2 Appropriate Assessments: Crowhill, Report for Dŵr Cymru Welsh Water

HRA Screening Outcomes

Impacts to 7110 active raised bogs, 91E0 alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* and 1355 otter were screened out, see Appendix A for details.

Conservation Objectives

The conservation objectives for the hydrologically dependent features of the site are set out in Table B.5 below.

Table B.5: Conservation Objectives for the Features of the Cleddau Rivers SAC

DESIGNATED SITE: Cleddau Rivers **REF: UK0030074**			
Qualifying Feature	**Conservation Objective/Site Condition:**	**Attribute**	**Specific Limit**
Sea lamprey	Overall SAC condition: Unfavourable- Unclassified In the second reporting cycle the sea lamprey failed on two population attributes (distribution & density as no sea lampreys were found) and spawning activity was not assessed. The feature also failed to meet the environmental target for river flow and the feature was reported as Unfavourable – unclassified.	Distribution within catchment	Any silt beds adjacent to or downstream of suitable spawning sites should contain *Pertromyzon* ammocoetes.
		Ammocoete density	Ammocoetes should be present in at least four sampling sites each not less than 5km apart
River and brook lamprey	Overall SAC condition: Unfavourable- Recovering In the second reporting cycle brook & river lamprey met all the population attributes but continued to fail on river flow and was assessed as “Unfavourable – recovering”. The last condition assessment found: • 2 age cohorts at 1 site • 3 age cohorts at 2 sites • 4 age cohorts at 4 sites • 5 age cohorts at 8 sites • 6 age cohorts at 6 sites As such, the lamprey were considered in a favourable condition for age/size structure.	Age/size structure of ammocoete population	Samples <50 ammocoetes 2 size classes Samples >50 ammocoetes at least 3 size classes
		Distribution of ammocoetes within catchment	Present at not less than 2/3 of sites surveyed within natural range No reduction in distribution of ammocoetes
		Ammocoete density	Optimal habitat: >10m^{-2} Overall catchment mean: >5m^{-2}
Bullhead	Overall SAC condition: Unfavourable- Unclassified In the second reporting cycle water quality attributes passed but the flow attribute failed. The population attribute and river morphology were not assessed. Hence the overall assessment was Unfavourable – unclassified.	Adult densities	No less than 0.2 m^{-2} in sampled reaches
		Distribution	Bullheads should be present in all suitable reaches. As a minimum, no decline in distribution from current.
		Reproduction / age structure	Young-of-year fish should occur at densities at least equal to adults
Water courses of plain to montane	Overall SAC condition: Unfavourable- Unclassified	Distribution within catchment	MTR species cover score of at least 50 in any three-representative sample 100m stretches

DESIGNATED SITE: Cleddau Rivers REF: UK0030074			
Qualifying Feature	**Conservation Objective/Site Condition:**	**Attribute**	**Specific Limit**
levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation	The macrophyte distribution and composition was not assessed in the 2nd reporting cycle, however the overarching watercourses conservation objective failed the targets for flow and river habitat structure. Achievement of water quality targets are uncertain as there are limited monitoring sites, but these will be monitored in the 3rd reporting cycle.		of suitable habitat in units 1.
		Typical species	Characteristic plant species should dominate the assemblage
		Native species	Algae indicative of eutrophication (*Enteromorpha* spp., *Cladophora* spp. And *Vaucheria* spp.) should not have an MTR cover value of greater than 5 (ie.10%) in 3 consecutive years in any three-representative sample 100m stretches of suitable habitat in units 1.
		Alien and introduced species	No impact on native biota from alien or introduced species

Pembrokeshire Marine / Sir Benfro SAC

The site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following Annex I habitats as a primary reason for selection of this site:

- 1130 Estuaries
- 1160 Large shallow inlets and bays
- Reefs

The site hosts the following Annexe I habitat present as a qualifying feature, but not a primary reason for selection of this site:

- 1110 Sandbanks which are slightly covered by sea water all the time
- 1140 Mudflats and sandflats not covered by seawater at low tide
- 1150 Coastal lagoons * Priority feature
- 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- 8330 Submerged or partially submerged sea caves

The site hosts the following Annexe II species that are a primary reason for selection of this site:

- 1364 Grey seal *Halichoerus grypus*
- 1441 Shore dock *Rumex rupestris*

The site hosts the following Annexe II species present as a qualifying feature, but not a primary reason for site selection:

- 1095 Sea lamprey Petromyzon marinus
- 1099 River lamprey *Lampetra fluv*iatilis
- 1102 Allis shad *Alosa alosa*
- 1103 Twaite shad *Alosa fallax*

- 1355 Otter *Lutra lutra*

HRA Screening Outcomes

Impacts to 1099 River lamprey and 1095 Sea lamprey were screened in, see Appendix A for details.

Conservation Objectives

The conservation objectives for the hydrologically dependent features of the site are set out in Table B.6 below.

Table B.6: Conservation Objectives for the Features of the Pembrokeshire Marine SAC

DESIGNATED SITE: Pembrokeshire Marine SAC REF: UK0013116			
Qualifying Feature		**Qualifying Feature**	**Qualifying Feature**
Sea and river lamprey	Overall SAC condition: Unfavourable The condition assessment (2018)[29] concluded that the river lamprey freshwater population is in favourable condition, however the marine environment is in unfavourable condition due to levels of dissolved inorganic nitrogen (DIN) and toxic chemicals (tributyltin (TBT) compounds, mercury and its compounds and brominated diphenylether (BDPE)). Barriers to migration are also identified as an issue[30].	Presence & abundance	The population is maintaining itself on a long-term basis as a viable component of its natural habitat
		Distribution	the species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future
		physical, biological and chemical structure	The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing

Effect Pathways

The following impact pathways were identified for those features screened into the AA:

- **Brook, river and sea lamprey:** a reduction in flow (resulting in delayed or interrupted migration and an increase in siltation and suffocation of eggs) and the related reduction in wetted width (reduction or loss of spawning habitats) could result in an impact on breeding successes and consequently the conservation status of the designated features. Use of the estuary varies slightly between species. Adult river lamprey migrate through the estuary between October and December to reach their spawning grounds on the Western Cleddau. Migration downstream into the estuary and inshore areas generally occurs in the spring. However, since river lamprey feed in estuary and inshore

[29] NRW, 2018. *Pembrokeshire Marine / Sir Benfro Forol Special Area of Conservation: Indicative site level feature condition assessments 2018*. NRW Evidence Report Series, Report No: 233, 67pp, NRW, Bangor

[30] Natural Resources Wales (2018) *Pembrokeshire Marine / Sir Benfro Forol Special Area of Conservation: Indicative site level feature condition assessments 2018*. NRW Evidence Report Series, Report No: 233, 67pp, NRW, Bangor.

waters, it should be assumed that they are present all year round.

- **Bullhead**: the species is known to be flow sensitive and reduced flows (and likely reduced water quality) associated with implementation of a drought order may have a limited impact on bullhead populations.
- **Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation**: as a result of a reduction in flow, flow velocity, wetted width and depth of the river, there is a potential to expose plants to desiccation. In addition, any significant reduction in the frequency of higher flows is considered likely to reduce the 'cleansing' functioning of the river, whereby high and moderate flows remove any build-up of filamentous algae and fine sediments on the river substrate; and algae and epiphytes growing on submerged plants. Any reduction in this cleansing function could potentially affect macrophytes, especially slower-growing taxa, and in extreme cases these could be smothered by algae.

Of particular importance for this appropriate assessment is the possible temporary reduction in river flow and associated risk of water quality changes, especially where these changes could impact on:

- The capacity for the habitats in the impacted river reach to support each SAC feature at near-natural population levels, as determined by predominantly unmodified ecological and hydromorphological processes and characteristics.
- The ability of the water environment to maintain a stable or increasing population of each feature. This will include elements of water quantity and quality, physical habitat and community composition and structure. It is anticipated that in most instances these limits will concur with the standards used by the RoC process.
- The flow regime, water quality and physical habitat to such an extent that this could impact on the coherence of ecosystem structure and function across a wider area of the SAC.
- The maintenance of suitable breeding, spawning and nursery sites of species features (except where natural processes cause them to change), especially where these could be impacted by the temporary additional abstraction.
- The favourable condition of river SSSI features.
- The capability of each species features to occupy the full extent of its natural range (noting the requirement to modify identified barriers where necessary to allow passage, e.g. weirs, bridge sills, acoustic barriers).
- Flows during the normal migration periods of sea and river lamprey not being impacted to such an extent that passage upstream to spawning sites is hindered.
- Meeting SAC-specific water quality targets and river flow targets and taking account of the latest version of the revised Common Standards Monitoring Guidance for Rivers.

Section 4.4 of the AA[28] provides a comprehensive assessment of potential impacts from implementation of the drought option, all of which remain applicable to the revised drought option.

The effect on conservation objectives and site integrity is summarised in Table B.6 below.

In order to conclude no adverse effect, the mitigation measures detailed in Section 5 of the AA[28] should be implemented.

Table B.6: Summary of Assessment of adverse effects on Afonydd Cleddau / Cleddau Rivers SAC from 2022 AA, all conclusion considered relevant for this drought option

DESIGNATED SITE: Cleddau Rivers REF: UK0030074				
Qualifying Feature	**Conservation Objective/Site Condition:**	**Attribute**	**Specific Limit**	**Effect (on conservation objectives and site integrity)**
Sea lamprey	Unfavourable: Unclassified	Distribution within catchment	Any silt beds adjacent to or downstream of suitable spawning sites should contain *Pertromyzon* ammocoetes.	No adverse effects to conservation objectives and site integrity
		Ammocoete density	Ammocoetes should be present in at least four sampling sites each not less than 5km apart	
River and brook lamprey	Unfavourable: Recovering	Age/size structure of ammocoete population	Samples <50 ammocoetes 2 size classes Samples >50 ammocoetes at least 3 size classes	No adverse effects to conservation objectives and site integrity
		Distribution of ammocoetes within catchment	Present at not less than 2/3 of sites surveyed within natural range No reduction in distribution of ammocoetes	
		Ammocoete density	Optimal habitat: >10m^{-2} Overall catchment mean: >5m^{-2}	
Bullhead	Unfavourable: Unclassified	Adult densities	No less than 0.2 m^{-2} in sampled reaches	No adverse effects to conservation objectives and site integrity
		Distribution	Bullheads should be present in all suitable reaches. As a minimum, no decline in distribution from current.	
		Reproduction/ age structure	Young-of-year fish should occur at densities at least equal to adults	
Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation	Unfavourable, unclassified	Distribution within catchment	MTR species cover score of at least 50 in any three-representative sample 100m stretches of suitable habitat in units 1.	No adverse effects to conservation objectives and site integrity
		Typical species	Characteristic plant species should dominate the assemblage	
		Native species	Algae indicative of eutrophication (*Enteromorpha* spp., *Cladophora* spp. and *Vaucheria* spp.) should not have an MTR cover value of greater than 5 (ie.10%) in 3 consecutive years in any three-representative sample 100m stretches of suitable	No adverse effects to conservation objectives and site integrity

Qualifying Feature	Conservation Objective/Site Condition:	Attribute	Specific Limit	Effect (on conservation objectives and site integrity)
			habitat in units 1.	
		Alien and introduced species	No impact on native biota from alien or introduced species	No adverse effects to conservation objectives and site integrity
DESIGNATED SITE: Pembrokeshire Marine SAC REF: UK0013116				
Qualifying Feature	**Conservation Objective/Site Condition:**	**Attribute**	**Specific Limit**	**Effect (on conservation objectives and site integrity)**
Sea and river lamprey	Unfavourable: Unclassified	Presence & abundance	The population is maintaining itself on a long-term basis as a viable component of its natural habitat	No adverse effects to conservation objectives and site integrity
		Distribution	the species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future	No adverse effects to conservation objectives and site integrity
		Physical, biological and chemical structure	The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing	No adverse effects to conservation objectives and site integrity

Summary of impacts

In summary, the evidence provided above shows that the impacts from the Crowhill drought option would not have an adverse impact on the integrity of the European site, subject to implementation of the proposed mitigation measures.

Integrity Test

The appropriate assessment has assumed that any identified mitigation measures to minimise impacts upon qualifying features and conservation objectives of the designated sites will be embedded within the final specification of any drought order (and likely to be formally included as part of the Drought Order Statutory Instrument when granted).In conclusion, the Crowhill drought option will not have an impact on the conservation objectives or the qualifying features of the Pembrokeshire Marine SAC. As such, the Crowhill drought option will not have a likely significant effect on the integrity of the European site.

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Addendum to the Habitats Regulations Assessment (HRA) of the Draft Drought Plan 2025

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1. Purpose of Addendum

This addendum records a new commitment by Dŵr Cymru Welsh Water (DCWW) regarding the Habitats Regulations Assessment (HRA) process for drought permits and orders associated with supply-side actions in the Draft Drought Plan 2025.

2. New Commitment

DCWW will undertake a Programme of Works that completes the HRA process for those drought permits and orders (supply side actions) we intend to use.

We also commit to not applying for those drought options until the required HRA assessments are completed, compensatory measures have been agreed and secured where required.

3. Affected Drought Permits and Orders

This affects drought orders and permits for Llyn Cwellyn, Llyn Bodlyn, Shon Sheffrey, Grwyne, Ystradfellte, Crowhill, Llywn Onn, Ponsticill and Crai.

4. Status

This addendum forms part of Welsh Water's updated revised Draft Drought Plan 2025 and should be read in conjunction with the existing Habitats Regulation Assessment Screening Report, produced by Ricardo for Welsh Water's, draft drought plan 2025, Ricardo ref. ED19443