Addendum to Habitats Regulations Assessment of the Monmouthshire Replacement Local Development Plan

Nutrient Neutrality Addendum

Monmouthshire Council

Project number: 60609986

July 2026

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Quality information

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Revision History

Revision	Revision date	Details	Authorized	Name	Position
1	April 2026	Draft	JR	Dr James Riley	Technical Director
2	April 2026	Update following further work on the Strategic Mitigation Opportunities Report and Nutrient Mitigation Action Plan	JR	Dr James Riley	Technical Director
3	July 2026	Update following consultation with Natural Resources Wales and questions from PEDW	JR	Dr James Riley	Technical Director

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1. Background

Introduction

AECOM was appointed by Monmouthshire County Council (MCC) to undertake a Habitats Regulations Assessment (HRA) of its Replacement Local Development Plan (RLDP). The objective of this assessment was to identify any aspects of the RLDP that may cause an adverse effect on the integrity of Habitats Sites, including Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and, as a matter of Government policy, Ramsar sites, either alone or in-combination with other plans and projects, and to advise on appropriate policy mechanisms for delivering mitigation where such effects are identified.

One of the main impact pathways identified in the RLDP HRA was a deterioration in water quality, primarily as a result of nutrient enrichment through the release of treated effluent from Wastewater Treatment Works (WwTWs). While limits on the discharge of effluent volumes / pollutant concentrations are assigned to each WwTW (typically determined accounting for the Conservation Objectives of Habitats Sites), in many designated estuarine and freshwater habitats across the UK, poor water quality due to excessive nutrient concentrations is one of the main reasons for Habitats Sites to be in unfavourable condition. Nutrient enrichment can lead to the excessive growth of algal species through a process known as eutrophication. This in turn is associated with various knock-on impacts, such as reduced dissolved oxygen (DO) concentration, increased turbidity and reduced overall biodiversity. To reduce environmental nutrient loadings and in line with rulings from the European Court of Justice in combined cases C-923/17 and C294-17 (the Dutch Nitrogen case), new developments in the hydrological catchments of relevant Habitats Sites must demonstrate that they are ‘nutrient neutral’ prior to obtaining planning consent. In their role as a Competent Authority, MCC cannot legally approve plans or projects that will result in adverse effects on the integrity of Habitats Sites, including from adverse water quality impacts.

Requirements to ensure no adverse effect on the integrity from phosphorus are in place for various Habitats Sites across the UK, but the two sites that are relevant to development proposed in the RLDP are the River Wye SAC and River Usk SAC. Both are riverine SACs that flow through Monmouthshire on a north-south axis, ultimately having their confluence with the Severn Estuary. Potential nutrient impacts of developments are typically determined using calculations to determine an overall nutrient budget. The Welsh Government has developed calculation methodologies for both Total Nitrogen (TN) and Total Phosphorus (TP) budgets, which have both been adopted by MCC.

While the issue of nutrient management from new development and relevant policy mitigation was discussed in the original Monmouthshire RLDP HRA, Inspectors examining the Plan and associated submission documents have requested further evidence to investigate the potential nutrient impacts of RLDP allocations on the two riverine SACs. MCC in turn have requested this additional evidence to be set out in an Addendum to the HRA, which is the purpose of this document. The Inspectors have raised the following points to be included / expanded upon:

- Further information on the potential increase in nutrient loading resulting from the RLDP;
- Additional evidence on the mitigation approach on a ‘year by year’ and catchment basis;
- Detail on the steps taken to implement and secure mitigation measures;
- Considering the recent judgement of CG Fry & Sons Ltd v SSHCLG [2025] UKSC 35 in relation to committed developments and windfall associated with the RLDP; and
- Appraising whether nutrient contributions from non-residential developments require consideration.

AECOM have produced a detailed technical note addressing the Inspectors’ comments, which will be referred to throughout this HRA Addendum where relevant and forms Appendix A of the document. Furthermore, given that the RLDP HRA was prepared in 2024, the HRA Addendum highlights any changes in background evidence and guidance notes that have taken place since the work was undertaken originally. This includes the following:

- Latest Natural Resources Wales (NRW) guidance on the issue (version 5.1)[1];
- Latest status of NRW's review process of discharge consents at relevant WwTWs;
- Current position of Dwr Cymru Welsh Water (DCWW) infrastructure upgrades at relevant WwTWs;
- MCC's Phosphates Position Paper, which details the Council's latest position on the topic[2];
- Consideration of the updated caveat and wording of Policy NR3 of the RLDP (Protection of Water Sources and the Water Environment);
- A briefing note from Monmouthshire Council that sets out the restoration measures relevant to the River Usk Special Area of Conservation (SAC), including delivery mechanisms, timescales, monitoring arrangements and their relationship to environmental improvement and RLDP phasing (July 2026); and
- Welsh Government Position Statement Monmouthshire County Council Replacement LDP – Nutrients (June 2026).

[1] Natural Resources Wales. February 2026. Advice to planning authorities for planning applications affecting nutrient sensitive Special Areas of Conservation. Version 5.1. Available at: Natural Resources Wales / Advice to planning authorities for planning applications affecting nutrient sensitive Special Areas of Conservation [Accessed on 19/03/2026]
[2] Monmouthshire County Council. April 2026. Monmouthshire Replacement Local Development Plan 2018-2033 – Phosphate Position Paper. 60pp. Available at: Monmouthshire-Phosphate-Position-Paper-Update-April-2026.pdf [Accessed on 30/07/2026]

2. Relevant Habitats Sites

River Usk SAC

Introduction

The River Usk SAC originates in the west of the Bannau Brycheiniog National Park and flows south-east, joining the Severn Estuary at Newport. The overall form of the catchment is long and narrow, with steep tributaries inflowing along the way to the Severn Estuary. The underlying geology is primarily Devonian Old Red Sandstone resulting in well buffered low-acidity waters. This geology also drives the low-moderate nutrient that characterises the SAC. However, along its course the nutrient status of the SAC is significantly modified by land use within the catchment, which is mainly pastoral and occasional woodland forestry.

The ecological structure and function of the site is highly dependent on hydrological and geomorphological processes, as well as the quality and connectivity of riparian habitats. This is especially the case for mobile animals, such as migratory fish and otters that move throughout the site. For example, the maintenance of a good hydrological regime (i.e. water quality and flows) and a consequent maintenance of current velocity, water depth, dissolved oxygen levels and nutrient status are integral for fish to move around the river.

Examples of the species that the SAC is designated for include the sea lamprey *Petromyzon marinus*, Atlantic salmon *Salmo salar* and bullhead *Cottus gobio*. Especially the Atlantic salmon requires unmodified river channels and an obstruction-free migratory route to its spawning gravels. The River Usk SAC is also an important site for otters, acting as a refuge for the species in the 1950s and subsequently as a source population for the re-colonisation of south-east Wales. This SAC river flows through Monmouthshire.

Qualifying Features[3]

The site has been designated as a SAC for the following features:

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

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

Annex II species that are a primary reason for selection of this site:

- Sea lamprey *Petromyzon marinus*
- Brook lamprey *Lampetra planeri*
- River lamprey *Lampetra fluviatilis*
- Twaite shad *Alosa fallax*
- Atlantic salmon *Salmo salar*
- Bullhead *Cottus gobio*
- Otter *Lutra lutra*

Annex II species present as a qualifying feature, but not a primary reason for site selection:

- Allis shad *Alosa alosa*

[3] Available at: https://sac.jncc.gov.uk/site/UK0013007 [Accessed on 18/03/2026]

Conservation Objectives[4]

The overarching conservation objectives are outlined in the Core Management Plan for the River Usk SAC published by Natural Resources Wales. While this document provides conservation vision statements for all Annex II species, only the conservation objectives for the water course are presented here, as this is essential to maintain the species in favourable conservation status.

- The capacity of the habitats in the SAC to support each feature at near-natural population levels, as determined by predominantly unmodified ecological and hydromorphological processes and characteristics, should be maintained as far as possible, or restored where necessary;
- The ecological status of the water environment should be sufficient 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 these limits will concur with the relevant standards used by the Review of Consents process given in Annexes 1-3;
- Flow regime, water quality and physical habitat should be maintained in, or restored as far as possible to, a near-natural state, in order to support the coherence of ecosystem structure and function across the whole area of the SAC;
- All known breeding, spawning and nursery sites of species features should be maintained as suitable habitat as far as possible, except where natural processes cause them to change;
- Flows, water quality, substrate quality and quantity at fish spawning sites and nursery areas will not be depleted by abstraction, discharges, engineering or gravel extraction activities or other impacts to the extent that these sites are damaged or destroyed;
- The river planform and profile should be predominantly unmodified. Physical modifications having an adverse effect on the integrity of the SAC, including, but not limited to, revetments on active alluvial riverbanks using stone, concrete or waste materials, unsustainable extraction of gravel, addition or release of excessive quantities of fine sediment, will be avoided;
- River habitat SSSI features should be in favourable condition. In the case of the Usk Tributaries SSSI, the SAC habitat is not underpinned by a river habitat SSSI feature. In this case, the target is to maintain the characteristic physical features of the river channel, banks and riparian zone;
- Artificial factors impacting on the capability of each species feature to occupy the full extent of its natural range should be modified where necessary to allow passage, eg. weirs, bridge sills, acoustic barriers;
- Natural factors such as waterfalls, which may limit the natural range of a species feature or dispersal between naturally isolated populations, should not be modified;
- Flows during the normal migration periods of each migratory fish species feature will not be depleted by abstraction to the extent that passage upstream to spawning sites is hindered;
- Flow objectives for assessment points in the Usk Catchment Abstraction Management Strategy will be agreed between EA and Natural Resources Wales as necessary. It is anticipated that these limits will concur with the standards used by the Review of Consents process given in Annex 1 of this document;
- Levels of nutrients, in particular phosphate, will be agreed between EA and Natural Resources Wales for each Water Framework Directive water body in the Usk SAC, and measures taken to maintain nutrients below these levels. It is anticipated that these limits

[4] Available at: https://naturalresources.wales/media/673384/River_Usk%20SAC%20core%20plan.pdf [Accessed on 18/03/2026]

will concur with the standards used by the Review of Consents process given in Annex 2 of this document;

- Levels of water quality parameters that are known to affect the distribution and abundance of SAC features will be agreed between EA and Natural Resources Wales for each Water Framework Directive water body in the Usk SAC, and measures taken to maintain pollution below these levels. It is anticipated that these limits will concur with the 16 standards used by the Review of Consents process given in Annex 3 of this document;
- Potential sources of pollution not addressed in the Review of Consents, such as contaminated land, will be considered in assessing plans and projects; and
- Levels of suspended solids will be agreed between EA and Natural Resources Wales for each Water Framework Directive water body in the Usk SAC. Measures including, but not limited to, the control of suspended sediment generated by agriculture, forestry and engineering works, will be taken to maintain suspended solids below these levels.

Threats / Pressures to Site Integrity[5]

While there is no Site Improvement Plan for the SAC, the main pressures and threats to site integrity can be inferred from the site's Core Management Plan, which outlines the management techniques that are required to achieve the conservation objectives for the SAC.

The main threats and pressures to the site integrity of the SAC are the following:

- Inappropriate habitat management (e.g. barriers to migration)
- Water quality
- Water flow / level
- Noise / acoustic disturbance
- Non-marine fisheries: recreational and commercial
- Increased sedimentation / siltation

River Wye SAC

Introduction

The River Wye SAC is 25km in length and represents one of the longest near natural rivers in England and Wales, which drains a catchment of 4,136km^2. It is situated within the Forest of Dean and Lower Wye National Character Area, rising at 680m at Plynlimon in mountainous Wales before reaching the English border. The Wye flows through Hay-on-Wye, Hereford and Ross-on-Wye, then past Monmouth and eventually meeting the Severn Estuary below Chepstow. The SAC shows a transition from bryophyte dominated upland areas to crowfoot dominated lower stretches. Notably, in contrast to many other river systems, the Wye has not been significantly straightened or modified by human activity. It is predominantly low-lying, meandering and only falling by 72m between Hay-on-Wye and the sea.

The SAC comprises a variety of substrate types ranging from silt to boulders, which form diverse habitats for a range of species. This substrate diversity has enabled a varied morphology with more active sections of river (with associated back channels and oxbow lakes) and gravel substrate, where pools and riffles are found. The SAC harbours a diverse submerged aquatic and riparian flora. Furthermore, the transitional zone in the lower reaches between freshwater and brackish water supports its own characteristic flora, particularly saltmarsh species. There is also a diverse invertebrate community with nationally rare river flies and dragonflies. All 6 species of unionid mussels are found here, which is unique in the UK.

[5] Available at: https://naturalresources.wales/media/673384/River_Usk%20SAC%20core%20plan.pdf [Accessed on 18/03/2026]

A wide range of migratory and non-migratory fish is found in the Wye, including salmonids, such as Atlantic salmon, brown trout, sea trout and grayling, all of which are commercially exploited. All three species of lamprey are found as well as migratory eel. Also, allis shad and twaite shad enter the River Wye from the Severn Estuary to spawn further upstream. The riverine ecosystem is home to several other uncommon species, including otter, water vole and several bird species, such as dipper, grey wagtail and kingfisher. The SAC forms the eastern boundary of Monmouthshire.

Qualifying Features[6]

Annex I habitats that are a primary reason for selection of this site:

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

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- Transition mires and quaking bogs

Annex II species that are a primary reason for selection of this site:

- White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes*
- Sea lamprey *Petromyzon marinus*
- Brook lamprey *Lampetra planeri*
- River lamprey *Lampetra fluviatilis*
- Twaite shad *Alosa fallax*
- Atlantic salmon *Salmo salar*
- Bullhead *Cottus gobio*
- Otter *Lutra lutra*

Annex II species present as a qualifying feature, but not a primary reason for site selection:

- Allis shad *Alosa alosa*

Conservation Objectives[7]

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, 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 habitats of qualifying species rely
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

[6] Available at: https://sac.jncc.gov.uk/site/UK0012642 [Accessed on 18/03/2026]
[7] Available at: http://publications.naturalengland.org.uk/publication/6096799802589184 [Accessed on 18/03/2026]

Threats / Pressures to Site Integrity[8]

The following threats and pressures to the site integrity of the River Wye SAC have been identified in Natural England's Site Improvement Plan:

- Water pollution
- Physical modification
- Invasive species
- Hydrological changes
- Forestry and woodland management
- Fisheries: Freshwater
- Fisheries: Fish stocking
- Water abstraction
- Public access / disturbance
- Air pollution: Impact of atmospheric nitrogen deposition
- Inappropriate scrub control
- Undergrazing
- Transportation and service corridors

[8] Available at: http://publications.naturalengland.org.uk/publication/5178575871279104 [Accessed on 18/03/2026]

3. Evolving Evidence Base

NRW Guidance

In light of evidence demonstrating the continued environmental impacts of excess nutrients in rivers, NRW published their first planning guidance on this topic in 2021. The principal driver behind this guidance was to ensure that the environmental quality of affected rivers (including the River Usk and River Wye) does not deteriorate further. It stipulates that developments in identified hydrological catchments can only be granted planning permission where they demonstrate nutrient neutrality (or an improvement to riverine nutrient loadings). It is to be noted that the NRW guidance notes has undergone periodic revisions, with the most recent guidance note having been published in February 2026. One of the more recent notable changes is that a bespoke Nutrient Budget Calculator for Wales has been developed, which has been used to calculate the TP budget for the Monmouthshire RLDP (see following chapter). As part of the RLDP preparation process, MCC is under the obligation to demonstrate that there is confidence that site allocations will not result in an adverse effect on the integrity of the River Wye SAC or River Usk SAC. However, it should also be noted that there is flexibility to deferring some elements of the assessment (e.g. the detailed delivery of mitigation) to project-level HRAs, which will deliver the final consentability verdict on allocations. The principal requirement at the RLDP level is to ensure that an adequate policy mechanism to protect the integrity of Habitats Sites exists.

DCWW Infrastructure Upgrades

In collaboration with local authorities, NRW, Welsh Government, nutrient management boards and environmental groups, DCWW has committed to significant infrastructure improvements to reduce phosphorus discharges from their WwTWs. Financial allowances for relevant improvements have been made in the company's asset management plans (AMPs). An initial £100 million investment was made in AMP7 (2020-2025), with further £60 million spent across wider Wales by the end of 2025. Further significant infrastructure investments to reduce phosphorus loadings in the R. Usk and R. Wye catchments are planned for AMP8 (2025-2030). The R. Usk catchment will see a £11 million investment in phosphorus reduction measures at Llanarth, Goytre and Aberbaiden WwTWs, equating a TP removal of 36.3kg/d by 2032. An investment of £50 million in phosphorus reduction measures is anticipated for the R. Wye catchment, including Monmouth, Grosmont, Pandy and Dingestow WwTWs. It is anticipated that the AMP8 investments by DCWW will help improve the water quality in the River Usk SAC and River Wye SAC over the RLDP period and will be considered in NRW's ongoing Review of Consents (RoCs) process.

MCC have worked with DCWW and NRW to direct a portion of the AMP7 investments to phosphorus stripping capability at two key WwTWs serving development in the county, including Monmouth WwTW (discharging into the R. Wye catchment) and Llanfoist WwTW (discharging into the upper R. Usk catchment). These improvements have and will continue to reduce the TP discharged into the two SACs from existing urban development, resulting in environmental improvements and potentially creating headroom for various new types of development (e.g. housing, commercial and retail proposals).

NRW Environmental Permit Review

The significant nutrient enrichment issues meant that many development proposals in the SAC catchments were stalled. In December 2023, NRW commenced their targeted review of environmental permits of WwTWs and water quality evidence for the affected catchments. This was to determine the extent to which any headroom for additional development is available at relevant WwTWs, without compromising the need for phosphorus neutrality. The Environmental Permit Review has confirmed that there is potential for using residual capacity at existing WwTWs in Monmouthshire to enable sustainable growth in various settlements to come forward. One important consideration in relation to phosphorus discharges is the 'fair-share' approach, which recognises that treated sewage effluent is only one contributor to environmental nutrient loadings (agricultural sources, depending on setting, typically being by far the most important one).

The NRW Environmental Permit Review had a significant implication on the RLDP's spatial strategy, which originally allocated no growth in the Primary Settlement of Monmouth or the upper R. Wye catchment north of Bigsweir Bridge. However, based on NRW's review and DCWW's AMP8 financial commitments, the Welsh Government advised that new site allocations in Monmouth should be considered. With this spatial constraint being removed, the Monmouthshire RLDP was able to allocate new affordable housing-led sites within Monmouth, an essential step towards meeting some of its key objectives.

4. RLDP Nutrient Loading

Residential Development

To calculate the TP budget associated with the Monmouthshire RLDP, a review of all site allocations and residential housing commitments was undertaken. This was to identify all sites that fall within the respective catchments of the River Usk SAC and River Wye SAC, and the treated effluent discharge of which will contribute to the TP loading in these riverine sites. Table 1 below lists all sites (allocations, rollovers, commitments and windfalls) within the hydrological catchment of the two SACs, as well as other key attributes for the assessment including settlement, number of residential units and relevant WwTWs. The table also includes AECOM's calculated TP budget for each site, along with the total cumulative nutrient budget for each of the SACs.

AECOM's approach to identifying sites requiring assessment is in line with the recent case law CG Fry & Sons Ltd v SSHCLG [2025] UKSC 35, which makes it mandatory for Appropriate Assessment (i.e. nutrient calculations) to be undertaken at the reserved matters or discharge of condition stages. This would be relevant for development proposals that obtained outline planning permission prior to nutrient issues becoming a material consideration. This court ruling has been abided by and is reflected in the Rockfield Road commitment being included in the calculations.

Importantly, AECOM considered two modelling scenarios, Scenario 1 (Worst Case Scenario) and Scenario 2 (Best Case Scenario), that differ in housing occupancy and the associated TP budgets. Basically, Scenario 1 includes all housing types without occupancy reductions for affordable homes. Scenario 2 discounts 50% of affordable homes on the assumption that half of these homes would cater for local people that already live in (and contribute phosphorus to) the relevant nutrient catchments. In line with a precautionary approach, only the Scenario 1 calculations are reported in Table 1 to account for a worst-case net increase in phosphorus.

It should also be noted that the calculations in AECOM's technical note are cumulative and provided in yearly increments. Basically, individual sites will only contribute phosphorus to the river catchments once the first dwellings are completed and inhabited. The TP contribution per site will therefore increase over the RLDP period as additional dwellings are completed. Table 1 only summarises the 'final' TP budget for each site that will be reached at the end of the RLDP period, but the year-on-year breakdown of these calculations are available in the accompanying Technical Note.

Table 1: Residential and mixed-use sites (allocations and commitments) included in the Monmouthshire RLDP. Other parameters of importance in relation to nutrient assessment are also shown, such as the associated TP budget.

SAC Catchment	RLDP Policy Reference	Site Name	Settlement	Status	Proposed Use	No. of Units	WwTWs	TP Budget 2033 (kg/year)
River Usk SAC	HA1	Land to the East of Abergavenny	Abergavenny	Allocation	Mixed-use	500	Llanfoist	119.4
	HA5	Land at Penlanlas Farm	Abergavenny	Allocation	Residential	100	Llanfoist	23.88
	HA10	South of Monmouth Road	Raglan	Allocation	Residential	54	Raglan	6.44
	HA11	Land East of Burrium Gate	Usk	Allocation	Residential	40	Usk	23.87

SAC Catchment	RLDP Policy Reference	Site Name	Settlement	Status	Proposed Use	No. of Units	WwTWs	TP Budget 2033 (kg/year)
	HA12	Land West of Trem Yr Ysgol	Penperlleni	Allocation	Residential	42	Goytre	7.02
	HA14	Land at Churchfields	Devauden	Allocation	Residential	20	Devauden	11.93
	HA15	Land East of Liftle Mill	Little Mill	Allocation	Residential	20	Little Mill	11.94
	HA16	Land North of Liftle Mill	Little Mill	Allocation[9]	Residential	15	Little Mill	8.95
	HA17	Land Adjacent Llanellen Court Farm	Llanellen	Allocation	Residential	26	Llanellen	15.52
	Windfall 1 (Abergavenny)				Residential	100	Abergavenny	23.84
	Windfall 2 (Rural Secondary Settlement)				Residential	20	Raglan, Penperlleni and Usk	11.93
	Total Cumulative							**264.72**
	Total Cumulative without DCWW AMP8 improvements							534
River Wye SAC	HA4	Land at Leasbrook	Monmouth	Allocation	Residential	270	Monmouth	14.33
	HA6	Land at Rockfield Road	Monmouth	Allocation	Residential	60	Monmouth	64.46
	HA7	Drewen Farm	Monmouth	Allocation	Residential	110	Monmouth	26.27
	HA8	Tudor Road	Monmouth	Allocation	Residential	50	Monmouth	11.93
	N/A	Rockfield Road	Monmouth	Commitment	Residential	70	Monmouth	16.7
	Windfall				Residential	10	Monmouth	1.92
	Total Cumulative							**135.61**
	Total Cumulative							136

[9] Rollover with extant planning permission.

SAC Catchment	RLDP Policy Reference	Site Name	Settlement	Status	Proposed Use	No. of Units	WwTWs	TP Budget 2033 (kg/year)
	without DCWW AMP8 improvements							

The TP budgets highlight that there is a calculated phosphorus surplus in both SAC catchments, with more significant mitigation measures needed to allow residential development in the River Usk SAC catchment to come forward (TP budget of 264.7 kg/yr compared with a TP budget of 135.6 kg/yr in the River Wye SAC catchment). The largest contribution to the Usk nutrient budget is the HA1 development in Abergavenny. The largest contribution to the Wye nutrient budget is the HA4 development in Monmouth. **It should be noted that Natural Resources Wales have confirmed that as of March 2025 the Lower Wye through Monmouthshire is no longer failing for phosphorus, so these calculations are precautionary.**

When considering the TP budget on a year-on-year basis, i.e. taking account of the anticipated timeline of individual dwellings being delivered within sites, it is noted that relatively little additional phosphorus will be released in the River Usk catchment in the years of 2025/26 and 2026/27. Many of the dwellings are delivered from 2027/28 onwards, which would also represent a focal time point for the delivery of mitigation solutions if required. The year-on-year pattern for the River Wye catchment is similar (albeit at a smaller scale), with most dwellings being delivered from 2027/28 onwards.

Importantly, the data in the table also highlight that DCWW's planned WwTW infrastructure upgrades in the River Usk SAC catchment reduce the anticipated mitigation burden considerably (from 534 kg/yr to 264.7 kg/yr). This is highly relevant because the improvements made to the WwTW will not only reduce P loading from these allocations but from all existing housing connected to the WwTW, thus creating the headroom for further housing growth. This is important because further to discussions between AECOM and Dŵr Cymru all relevant WwTWs within the River Usk catchment have already been upgraded to achieve the new permit limits for TP, except Devauden WwTW, which is due to be upgraded by January 2027 (and thus will have been delivered by time of adoption). The only exception is Goytre WwTW, which will not be upgraded until 2030. However, only one small site allocation (HA12 for 42 proposed dwellings) would be served by Goytre. For the Wye catchment the necessary improvements have been delivered for all relevant WwTW. This information is set out in Tables 2 and 3 of the Nutrient Management Action Plan (Appendix C of this document).

NRW guidance[10] states that if the relevant WwTW for a proposed development has an environmental permit that has been reviewed against the nutrient targets set out in the conservation objectives for the river SAC, is operating in compliance with the permit conditions, and has capacity to receive and treat the additional volume of wastewater within permit limits, it may be possible for a planning authority to conclude that there will be no likely significant effect with regard to phosphorus if certain criteria are met. Therefore, the necessary measures to address phosphorus from all but one of the Local Plan allocations will have been secured by the time of adoption. The remaining allocation (HA12) would require appropriate mitigation unless it came forward after 2030, but since it is one small site it does not pose a significant risk to RLDP delivery. A record will need to be kept of the extent to which headroom created by the permit tightening is 'used' by (allocated to) new development.

Other Development Types

The need to address net additional phosphorus inputs applies to all types of developments that have the potential to increase SAC phosphorus levels. Regarding non-residential developments the advice note specifically identifies developments that are expected to serve a population (i.e. employees)

[10] https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/advice-for-planning-authorities/advice-to-planning-authorities-for-planning-applications-affecting-phosphorus-sensitive-special-areas-of-conservation/?lang=en

living outside the relevant catchments. The phosphorus generated by developments serving residents living within the nutrient catchment would already be captured by the requirements for residential dwellings.

Overall, there are five proposed employment allocations and one solar allocation within the River Usk SAC and River Wye SAC hydrological catchments. The solar allocation has not been considered in the TP budget because, according to NRW guidance, this type of development is not associated with the release of phosphorus. In line with national planning policy, the RLDP seeks to deliver a balance of housing and employment growth. The employment allocations seek to deliver employment opportunities for local residents that do not rely on commuting over significant distances. The employment allocations are scaled locally, ranging in size between 0.59ha and 4.5ha. All larger employment allocations that would be considered to serve residents from further afield fall outside the SAC catchment areas, such as in Magor. Overall, the employment sites allocated in the RLDP are assumed to be providing opportunities for residents that are already captured in the TP budget for residential allocations/commitments. Therefore, these allocations are not included in the TP budgets for the two SAC catchments.

Notwithstanding the above, employment allocations will nonetheless be assessed on a case-by-case basis before being granted planning consent. Where relevant, any such allocations will need to undertake full HRA to demonstrate that they will not result in adverse effects on the two riverine SACs.

5. Mitigation Solutions

As highlighted by the TP budgets for the River Usk SAC, WwTW upgrades and/or the permit review approach can be relied upon to screen out nutrient impacts, for all allocated sites except for site allocation HA12 for 42 proposed dwellings that would be served by Goytre WwTW. For the Wye catchment the necessary improvements have been delivered for all relevant WwTW.

For site HA12, and for future sites that have not been specifically allocated, mitigation solutions will be needed to achieve phosphorus neutrality. These could be addressed by the Integrated Approach, or involve strategic solutions.

Integrated Approach

Where it is not possible to define a *de minimis* threshold and development requires mitigation, the Welsh Government clarification note on applying the Tests of Soundness to LDPs and Position Statement to Monmouthshire County Council regarding nutrient matters, indicates an integrated approach as the preferred solution to ensure no adverse effects to SAC rivers[11].

The overall aim of an integrated approach is to coordinate actions to deliver a long-term improving trend in nutrient levels within SAC catchments, whilst managing growth in accordance with the sustainable development principle. Appropriate steps to avoid deterioration or provide restoration (under Article 6(2) of the Habitats Regulations) in nutrient affected catchments could include the following:

- Planned upgrades to WwTWs and/or DCWW AMP8 schemes including storm overflow improvements.
- Ongoing SAC restoration measures being delivered by various bodies and organisations (e.g. NRW, NMBs, and Usk Catchment Partnership etc.) that represent a coordinated package of action supporting nutrient reduction, SAC recovery, sustainable land management, climate resilience, nature recovery, flood risk reduction and resilient communities.
- Work underway through the programme of measures under the River Basin Management Plan (RBMP).
- Forthcoming NRW CNRPs.

The integrated approach allows mitigation for nutrients by developers to be more closely integrated with the delivery of restoration under Article 6(2) where developer contributions:

- Increase the scale, magnitude, or scope of planned restoration measures (over and above what would otherwise have been delivered); **OR**
- Speed up delivery of planned restoration measures beyond what would normally be delivered, where the current implementation timescales risk meaningful ecological deterioration in the interim.

A briefing note has also been prepared by Monmouthshire Council that sets out the restoration measures relevant to the River Usk Special Area of Conservation (SAC), including delivery mechanisms, timescales, monitoring arrangements and their relationship to environmental improvement and RLDP phasing. This is in Appendix D of this Addendum. It draws together existing, funded and emerging programmes being delivered or developed by Monmouthshire County Council and partners. These are presented as a coordinated package of action supporting nutrient reduction, SAC recovery, sustainable land management, climate resilience, nature recovery, flood risk reduction and resilient communities.

Restoration of the River Usk SAC is not dependent on a single project, funding stream or future aspiration. Rather, it is being delivered through an integrated programme of catchment-scale interventions that are already underway and which extend through the early, middle and later stages of the RLDP period. The combined activity of the Usk Catchment Partnership, Four Rivers for LIFE,

[11] https://www.gov.wales/sites/default/files/publications/2026-03/clarification-note-applying-the-tests-of-soundness-to-local-development-plans-ldps.pdf

Ffermio Bro, the Central Monmouthshire Opportunity Catchment, the River Gavenny Project, Nature Networks 5 and the proposed Landscape Connections programme represent a comprehensive restoration pathway operating from 2022 through to at least 2037. The delivery pipeline shows that environmental improvement is occurring ahead of, and alongside, planned development. Restoration actions are therefore not deferred until after growth takes place but are embedded within a long-term programme of catchment recovery with clear milestones, investment mechanisms and partnership commitments.

Strategic Solutions

Various effective mitigation solutions to reduce nutrient input are available, including nature-based solutions (e.g. wetlands), fallowing agricultural land and general water efficiency measures. All these approaches are united by the fact that they increase water storage and/or reduce its flow rates, allowing physical and biogeochemical processes to attenuate nutrients. The following potentially viable mitigation options have been considered by MCC:

- Conversion of arable land – nutrient intensive agricultural land could be converted to less nutrient intensive uses, such as woodland, grassland and natural wetlands. However, based on the prevailing rainfall and soil type in the respective catchments, and the assumed conversion of grazed pasture to greenspace/woodland, extensive areas of farmland would need to be converted to offset the RLDP's TP budget. For example, up to 650ha of land would need to be converted in the River Usk SAC catchment to address the entire nutrient burden. Therefore, this may only be a viable option for large development sites or areas in which the strategic purchase of off-site farmland is financially or technically feasible.
- Domestic Package Treatment Plants (PTPs) upgrades – nutrient credits could be generated by upgrading existing PTPs and septic tanks in neighbouring properties or elsewhere within the same catchment. This approach would likely be coordination intensive and difficult to deliver at the scale needed for having a material offset impact. Comparing to the performance of a default septic tank in the nutrient budget calculator (11.2 mg P/l), a high-performing PTP can achieve concentrations of 0.4 mg P/l. Overall, it is estimated that up to 240 septic tanks would need to be upgraded to address the phosphorus surplus in the River Usk SAC.
- Treatment wetlands – appropriately designed treatment wetlands can be situated to receive WwTW effluent and are associated with some of the best nutrient removal capacities per hectare per land. Generally, the potential for nutrient removal capacity increases with higher nutrient loading inputs. AECOM are currently working on a wetland concept design where a treatment area of approximately 1ha removes up to 250 kg TP/yr, with effluent concentrations of 5 mg P/l and average flow volumes of 250 m3/d.
- Retrofitting Sustainable Drainage Systems (SuDS) – delivering SuDS in existing urban land could be used to claim nutrient credits to free up development elsewhere in the catchment area. For example, retrofitted SuDS could be targeted to capture runoff from existing impermeable surfaces that drain towards WwTWs in combined sewers. CIRIA have provided guidance on how to design SuDS to achieve nutrient removal, such as their guidance regarding phosphorous removal (C808F)[12]. AECOM have appraised various types of SuDS (swales, detention basins, retention basins and ponds), determining that the average TP removal efficiency of a 'typical' SuDS feature is 29%.
- Water efficiency measures – reducing the per capita water demand in new residential developments by deploying higher efficiency fittings. This could also be applied to existing housing stock in the same catchment managed or owned by MCC. However, this would only be an option where the serving WwTW has a phosphorus permit and is operating at 90%, as it requires a linear relationship between water use and WwTW phosphorus loading to be established. For example, assuming a reduced water usage of 100 l/p/d and 80 l/p/d, would see the TP budget associated with allocation HA1 drop to 99.49 kg TP/yr and 79.6 kg TP/yr respectively (compared to the unmitigated scenario of 119.4 kg TP/yr). This represents a maximum TP reduction of 33% for the 80 l/p/d scenario. These could provide an important contribution to any package of interventions taken forward.

[12] Using SuDS to reduce phosphorus in surface water runoff C808F

Following on from this initial appraisal of strategic mitigation options, MCC commissioned AECOM to complete a Strategic Mitigation Opportunities Report (see Appendix B). The following text summarises the key points from the report that are relevant to this HRA Addendum. Given that robust de minimis (effectively enabling a certain quantum of growth to be screened out from potential nutrient impacts) and integrated approaches for addressing the nutrient issues have not been fully developed, a further review of strategic scale nutrient mitigation approaches has been undertaken. This has encompassed a comparative and constraints analysis involving a Red, Amber and Green (RAG) grading based on various factors, including nutrient removal performance, indicative costs and practical considerations (e.g. land availability, regulatory requirement and long-term management).

Based on the various RAG ratings across the different themes, several strategic mitigation measures have not been taken forward at this stage. These include conversion of arable land, septic tank upgrades and water efficiency measures, it is to be noted that these are not necessarily precluded from further consideration but have been excluded at this stage due to uncertainties surrounding their effectiveness in perpetuity, cost or suitability within Monmouthshire. For example, land use change is likely to constitute a long-lasting approach with demonstrable scientific efficacy. However, MCC have insufficient land holdings to generate meaningful phosphorus reductions and purchasing additional arable land would be prohibitively costly. Constructed wetlands and SuDS were taken forward for further analysis.

To explore the potential for MCC to use a constructed wetland as a strategic mitigation option, all relevant DCWW WwTWs in the affected nutrient catchments were identified. The prevailing environmental and engineering constraints were then assessed, and the total annual phosphorus mitigation potential estimated. Table 2 provides an overview of the WwTWs at which constructed wetlands would be preferential due to lower environmental and engineering constraints, as well as their highest overall phosphorus mitigation potential. It will be necessary if, and when, these wetlands are brought forward to ensure that they do not conflict with any locations identified for further Article 6(2) restoration measures within Natural Resources Wales' Catchment Nutrient Recovery Plans. There is no current evidence any conflict would arise since the measures for the Usk and Wye are not yet developed, and as identified in this assessment only one small allocation may need mitigation, and only if it is delivered before 2030.

Table 2: Summary of WwTWs identified for the delivery of strategic constructed wetlands, including their environmental constraints, engineering constraints and phosphorus mitigation potential.

WwTW	Environmental constraints	Constructability	Outcome
Goytre	One of the lowest overall environmental constraints RAG score. Main issues arising from an adjacent area of ancient woodland and small areas falling within Flood Zone 3.	Highest ranking for constructability. Site has potential for multiple gravity-fed constructed wetland sites. Potential for increasing size/number of constructed wetland sites if required.	701 kg TP/yr (compared to the 70.15 kg TP/yr required by the allocated sites contributing nutrients downstream)
Aberbaidan[13]	7th highest environmental constraints RAG score. Constraints primarily associated with topography, adjoining ancient woodland, direct discharge into the River Usk SAC,	Second highest ranking for constructability. Potential for constructed wetland to the east or west of the WwTW, but high costs associated with pumping, construction of a new outfall and a	260 kg TP/yr (compared to the 264 kg TP/yr required by the allocated sites contributing nutrients downstream)

[13] This falls within the Bannau Brycheiniog National Park Authority who have asked, alongside the Usk Nutrient Management Board, to be consultees.

WwTW	Environmental constraints	Constructability	Outcome
	groundwater vulnerability and public rights of way.	minor watercourse crossing.	
Usk	5th highest environmental constraints RAG score. Main issues associated with direct discharge to the River Usk SAC, some groundwater vulnerability, Flood Zone 3 and historic landfill.	Second highest ranking for constructability. Wetland is technically feasible, but likely to be associated with high costs due to the need for a river crossing and 10m pumping head requirement. Some existing WwTW infrastructure could be used to reduce cost.	300 kg TP/yr (compared to the 42.24 kg TP/yr required by the allocated sites contributing nutrients downstream)

Potential SuDS locations across Monmouthshire were examined regarding their feasibility in relation to topography, flood risk, ecological constraints, available catchment area and existing street furniture of vegetation. However, for the three short-listed locations a potential phosphorus mitigation of only 0.57 kg/yr was calculated. It is concluded that retrofitted SuDS only have very limited nutrient mitigation potential and are not recommended to be progressed.

Overall, constructed wetlands have emerged as the key strategic option, where needed, for delivering nutrient mitigation in the catchment of the River Usk SAC. The potential wetlands at the Goytre, Aberbaidan and Usk WwTWs have different strengths and weaknesses. Notably, a wetland at Aberbaidan WwTW, which serves/lies upstream of all allocated sites in the River Usk catchment, would have the potential to deliver mitigation across all sites. While the wetlands at other WwTWs may have greater overall mitigation capacity, residential sites upstream from their discharge locations to the River Usk SAC would not be able to apply for nutrient credits. AECOM have recommended further steps to MCC regarding the delivery of a strategic wetland, which have been included in the Nutrient Mitigation Action Plan (NMAP; see next section).

6. Nutrient Mitigation Action Plan (NMAP)

To complement the various workstreams that have been progressed to mitigate phosphorus impacts on riverine SACs, MCC have also developed a NMAP (see Appendix C). This is to clearly set out the various mitigation pathways, associated requirements and deliverable timescales to ensure that there are no adverse effects on the River Usk SAC and River Wye SAC. According to the NMAP the mitigation pathways available in support of the RLDP delivery are as follows:

- NRW Review of Consents and screening against WwTW upgrades – where relevant WwTWs are operating under an environmental permit limit that has been reviewed against nutrient targets set out in the conservation objectives of river SACs, likely significant effects in relation to new developments may be excluded. Data provided by DCWW indicate that all relevant WwTWs will have reduced phosphorus permits in place by 2030 and, except for one small site allocation (HA12 for 42 proposed dwellings) linked to Goytre WwTW in the Usk catchment, they have already been delivered or will be delivered by time of Local Plan adoption.

It is therefore the case that the following available measures are only required for allocation HA12, windfall and for any future development that comes forward during the Local Plan period. The Local Plan is therefore not reliant on their delivery:

- Threshold approach / De Minimis – in some cases, certain quanta of developments may be deemed 'de minimis' where they fall beneath a defined threshold of impacts to SAC conservation objectives (i.e. they do not have a measurable ecological impact on SAC habitats and species). However, at the time of writing, no de minimis thresholds for the River Usk and River Wye catchments have been determined, and it remains uncertain whether this can be robustly defined or defended. **However, the NMAP recommends MCC to explore this approach further with NRW to determine whether there is potential for developing a threshold going forward.**
- Integrated approach – according to Welsh Government advice, this is the preferred approach where development requires mitigation to avoid adverse effects on SAC rivers. Natural Resources Wales have committed to the principle of Catchment Nutrient Recovery Plans (CNRPs) to deliver an integrated approach. The aim is to deliver a series of measures that ensure an improving nutrient trend in SAC catchments, which may involve technological upgrades at WwTWs, work undertaken by Nutrient Management Boards, measures delivered under the River Basin Management Plans and forthcoming NRW Catchment Nutrient Recovery Plans. Financial developer contributions can be deployed in a targeted manner to support these deliverables. Furthermore, a briefing note has been prepared by Monmouthshire Council that sets out the restoration measures relevant to the River Usk Special Area of Conservation (SAC), including delivery mechanisms, timescales, monitoring arrangements and their relationship to environmental improvement and RLDP phasing. It draws together existing, funded and emerging programmes being delivered or developed by Monmouthshire County Council and partners. These are presented as a coordinated package of action supporting nutrient reduction, SAC recovery, sustainable land management, climate resilience, nature recovery, flood risk reduction and resilient communities. This is contained in Appendix D of this Addendum. The delivery pipeline identified in that Appendix shows that environmental improvement is occurring ahead of, and alongside, planned development. Restoration actions are therefore not deferred until after growth takes place but are embedded within a long-term programme of catchment recovery with clear milestones, investment mechanisms and partnership commitments. This provides a realistic and defensible basis for linking development phasing to environmental outcomes.

- Strategic mitigation – where an integrated approach is not deemed sufficient, a nutrient neutral approach is required. This has been progressed in MCC's Strategic Mitigation Opportunities Report, which identifies constructed wetlands as the preferential strategic approach to nutrient mitigation (discussed in the previous section). This is envisaged to be delivered by MCC at scale and nutrient credits could then be purchased by developments in the relevant SAC catchments. **Various actions for MCC to take forward are included in the NMAP, such as a detailed feasibility appraisal, undertaking concept/outline design and the eventual construction/commissioning of the wetland(s).**

- Developer-led mitigation – if any of the above strategies are not feasible, or until such a time that a strategic mitigation solution is in place, developers can also deliver their own mitigation solutions for a project. **A key action identified in the NMAP is the production of a Developer Mitigation Handbook to address phosphorus impacts in Monmouthshire, which could provide detail on the various options available to developers.**

In summary, the NMAP comprises a substantive and all-encompassing strategy on how MCC proposes to ensure that nutrient impacts can be mitigated sufficiently to ensure no adverse effects on the integrity of Monmouthshire's riverine SACs. Importantly, it also prioritises and highlights the delivery timelines of the identified actions in line with the worst-case growth scenario encompassed by the Monmouthshire RLDP. This will ensure that phosphorus mitigation measures will be delivered in a timely manner to address impacts arising from housing developments as they come forward. By extension this would imply that no additional phosphorus would be discharged into the SAC catchments at any point over the RLDP period. It is acknowledged that there is some uncertainty but case law identified in this document, along with advice from Welsh Government, has confirmed that it is not expected or required for all matters of detail to be resolved before a plan can be considered to provide a sufficient framework to enable adverse effects on integrity to be avoided, and residual uncertainty is accounted for by use of the Policy caveat Approach discussed more in section 8.

7. In-Combination Assessment

The HRA process requires potential impacts of a plan to be assessed 'alone', as well as in-combination with other plans and projects. Generally, the water quality impact assessment of Local Plans is inherently in-combination. For example, NRW set thresholds for aquatic parameters (e.g. dissolved oxygen, phosphorus, nitrogen) and discharge volumes for WwTWs in the catchment of Habitats Sites. The application of these thresholds is based on existing WwTWs effluent patterns, as well as the condition and Conservation Objectives of Habitats Sites.

An inherent in-combination approach is also built into nutrient assessment. Its catchment-based approach captures all proposed growth with the potential for phosphorus release, requiring all developments (however small) to be nutrient neutral. This inherently captures and addresses any in-combination impacts, since most developments across local authorities would be far too small to result in material nutrient enrichment alone.

Effectively, each local authority in the River Usk SAC and River Wye SAC catchments will need to develop their own strategic mitigation solution for achieving phosphorus neutrality. As is the case for the Monmouthshire RLDP, similar protective policy wording in relation to the two SACs will need to be provided and planning applications will only be granted planning consent where phosphorus neutrality is achieved.

Overall, by identifying feasible mitigation solutions and ensuring an adequate policy framework exists, the RLDP addresses its own contribution to any in-combination effects. Therefore, there will be no adverse effects of the Monmouthshire RLDP on the River Usk SAC and River Wye SAC regarding water quality in-combination with other plans and projects.

8. Monmouthshire RLDP Policy Mitigation & Conclusion

The nutrient issues in the River Usk SAC and River Wye SAC catchments represent an evolving scenario in the context of a changing evidence base and input from various stakeholders, including NRW, MCC, DCWW and Nutrient Management Boards. The strategic mitigation measures discussed in Chapter 5 propose feasible in principle pathways to addressing nutrients, and further work has been undertaken to test their feasibility and likely phosphorus mitigation potential. For example, MCC have commissioned a Strategic Mitigation Opportunities Report, which identified the delivery of constructed wetlands as the preferential approach to mitigation. Some mitigation solutions will need to be progressed by MCC at the strategic scale, while others (e.g. potential developer-led mitigation) are, by necessity, deferred to individual planning applications. However, since the original work was undertaken it is now established that improvements to WwTW will address all identified phosphorus issues for allocated sites with the exception of site HA12.

The principal responsibility of the Monmouthshire RLDP HRA is to show that allocated sites will not result in adverse effects on the integrity of the River Wye SAC and River Usk SAC, which is the case for all allocations except for HA12, and even for that site necessary improvements to Goytre WwTW will be in place from 2030. Nonetheless, for HA12 if needed, and for windfall or other residential development that comes forward during the RLDP period, various potential mitigation options to attain this are set out above. Furthermore, the RLDP must encompass an adequate framework within which the integrity of the River Usk SAC and River Wye SAC is safeguarded legally. As well as various policy elements protecting the integrity of Habitats Sites more generally, Policy NR3 (Protection of Water Sources and the Water Environment) of the submitted Monmouthshire RLDP contains policy text which stipulates that development will only be permitted where it '*b) Would not harm or pose an unacceptable risk to the quality… of ground waters, surface waters, wetlands or coastal water systems including, where appropriate, their ecological and amenity value…*'

Recognising the importance of the nutrient enrichment issues in the River Usk SAC and River Wye SAC and in response to the issues raised by the Inspectors, MCC have made further amendments to the RLDP policy framework to further protect the two SACs. These are documented in the Deposit RLDP Schedule of Proposed Changes. The updated policy text below is showing as underscored text.

'*Development, which may impact upon the water environment and associated land, will only be permitted where it:*

a) Would not harm or pose an unacceptable risk to the capacity or fl ow of groundwater, surface water or coastal water systems;

b) Would not harm or pose an unacceptable risk to the quality and quantity of ground waters, surface waters, wetlands or coastal water systems including, where appropriate, their ecological and amenity value; and

c) Where practicable and reasonable, improves water quality.

Notwithstanding the above, development likely to have a significant effect on a European Site, either alone or in combination with other plans or projects, will only be permitted where the competent authority is satisfied, through a Habitats Regulations Assessment, that there will be no adverse effect on site integrity and that the conservation objectives of the designated site can be met. This may be achieved through avoidance measures, wider restoration measures, strategic and/or project-specific mitigation, or a combination of such measures, where these are demonstrated to be effective, deliverable and sufficiently certain.

Thus, within the hydrological catchment of the riverine SACs which are evidenced to be failing regarding nutrients, development proposals will only be permitted where it can be demonstrated that:

a) They are not a source of additional phosphorus or other nutrient pollution; or

b) Where they are a source of additional phosphorus or nutrient pollution, there is no pathway by which those nutrients can enter the SAC water body environment; or

c) Measures associated with the proposed development are put in place that remove reasonable scientific doubt, in perpetuity and for the lifetime of the development, to enable a conclusion of no adverse effect on site integrity.

For development creating wastewater discharges, planning permission will only be granted where it can be demonstrated that sufficient capacity exists within the environmental permit limits of the Wastewater Treatment Works serving the development, taking account of fair-share principles which may include the implementation of restoration measures within the relevant SAC catchment as part of a coordinated approach to improving river health. Where necessary, the phasing of development will be required to align with the delivery of wastewater infrastructure improvements.

Where a fair-share approach cannot be demonstrated as secure, development proposals may be permitted where alternative mitigation measures are agreed with the Council and are demonstrated to be able to avoid adverse effects on site integrity. In such circumstances, support of the integrated approach, strategic or developer-led mitigation must achieve nutrient neutrality for the lifetime of the development.

Where mitigation measures are required, applications must be accompanied by a Nutrient Mitigation Assessment demonstrating a mitigation strategy that is effective, deliverable, and legally secured in perpetuity where required, and provides reasonable scientific certainty that no adverse effect on site integrity will occur and that site conservation objectives can be met.'

It is considered that this represents an important and adequate high-level strengthening of the policy framework, which specifically refers to the issue and the need to ensure no adverse effects on the integrity of SAC rivers. It is important to note that the policy text itself does not provide a solution for individual developments (which is not its legally required role), but that workable mitigation will need to be delivered.

As set out in the Deposit RLDP Schedule of Proposed Changes, the supporting text of Policy NR3 and relevant site allocation policies will be updated with important context on the nutrient issue (i.e. a clarification that water quality will need to be considered, and potential mitigation will be required). A handbook in the form of Supplementary Planning Guidance (SPG) on revised Policy NR3 and developer's options for implementing mitigation will also be developed to inform applicants.

MCC will exercise its duty under the Conservation of Habitats and Species Regulations 2017 (as amended) and in line with evolving NRW guidance, to ensure that individual planning applications are subject to adequate Screening and Appropriate Assessments. For the sites in the River Usk SAC catchment which are associated with additional phosphorus loadings (see previous chapters), and if WwTWs upgrades and a permit review approach cannot be relied upon to screen out negative nutrient impacts, further evidence will be obtained to ensure that a conclusion of 'no adverse effect on integrity' achieved. This may be through delivery of the integrated approach rendering any need for mitigation unnecessary. Alternatively, satisfactory mitigation measures could encompass catchment-level interventions (i.e. constructed wetland approaches; see Section 5) progressed by MCC or the developer, or other developer-led interventions that offset phosphorus release in a quantifiable manner.

It should be noted that Natural Resources Wales have confirmed that as of March 2025 the Lower Wye through Monmouthshire is no longer failing for phosphate, so the calculations on which this HRA Addendum relies are precautionary. It should therefore be noted that while all development in the Usk catchment would require mitigation, in the Lower Wye SAC mitigation would only be needed should it be concluded that the RLDP (i.e. allocations and commitments) would return it to failing status. Inevitably water quality in these rivers is a dynamic situation; however, if a riverine SAC is failing its phosphorus targets the Monmouthshire RLDP policy framework would lead to the application of nutrient neutrality.

Advocate-General Kokott has clarified[14] that '*It would …hardly be proper to require a greater level of detail in preceding plans* [rather than planning applications] *or the abolition of multi-stage planning and approval procedures so that the assessment of implications can be concentrated on one point in*

[14] Opinion of Advocate-General Kokott, 9th June 2005, Case C-6/04. Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland, paragraph 49.
http://curia.europa.eu/juris/document/document.jsf?docid=58359&doclang=EN

the procedure'. Therefore, at plan level it is sufficient to note that a framework is in place to deliver necessary mitigation, and that options are available that are likely to be deliverable and effective.

Given this, it is concluded that a sufficient policy framework exists to ensure that the Monmouthshire RLDP will not result in adverse effects on the integrity of the River Usk SAC and River Wye SAC regarding water quality and there sufficient detail in the submitted evidence to demonstrate the deliverability of mitigation options to address the nutrient issue, despite the fact the lifetime costs/timescales of strategic solutions are not fully known or the likely scale of developer contributions identified. This conclusion is reached for the following reasons:

- All relevant WwTWs within the River Usk catchment have already been upgraded to achieve the new permit limits for TP, except Devauden WwTW, which is due to be upgraded by January 2027 (and thus will have been delivered by time of adoption). The only exception is Goytre WwTW, which will not be upgraded until 2030. However, only one small site allocation (HA12 for 42 proposed dwellings) would be served by Goytre. For the Wye catchment the necessary improvements have been delivered for all relevant WwTW. This information is set out in Tables 2 and 3 of the Nutrient Management Action Plan (Appendix C of this document). Therefore, while Supplementary Planning Guidance (SPG) and a Developers Mitigation Handbook (DMH) will be produced, these are not being heavily relied upon for a conclusion that a policy framework exists to prevent adverse effects.

- Nutrient budgets for sites in the SAC catchments (including new allocations and commitments) show that these are associated with residual phosphorus impacts. However, this HRA Addendum shows that various mitigation options to address this are available and nutrient neutrality is achievable in principle;

- MCC have developed a NMAP which sets out various achievable pathways to mitigation and commits the local planning authority to actions that further progress each of the identified mitigation strands. The NMAP also prioritises and provides timelines for the delivery of each of the actions, such that adequate progress is made in line with individual planning applications coming forward;

- Natural Resources Wales have committed to the principle of Catchment Nutrient Recovery Plans (CNRPs) to deliver an integrated approach. CNRPs will identify steps to be taken, and measures needed to improve the relevant SACs. These steps and measures will need to be integrated with other delivery and management plans, including Nutrient Management Plans (NMPs), River Basin Management Plans (RBMPs) and any implementation mechanisms developed by Monmouthshire as part of their assessment of plans under the Habitats Regulations. This includes liaising with all partners in the delivery process. Where the raft of measures have not yet been co-ordinated through a CNRP but there is a commitment in principle to do so and the evolving position, whilst not fully known is likely to be achievable in practice, it is reasonable to assume that an adaptive approach towards addressing nutrients, subject to appropriate safeguards, can be taken in meeting procedural requirements under the Habitats Directive and Regulations. In this respect development can become part of the solution moving forward over the plan period but subject to appropriate control through a policy caveat which will require a default to nutrient neutrality if the improving baseline/trajectory is shown to be faltering; and

- With the proposed additional strengthening of Policy NR3 (Protection of Water Sources and the Water Environment), which specifically mentions water quality issues and requires the issue to be addressed in relevant developments, the Monmouthshire RLDP contains a sufficiently protective policy framework to prevent adverse effects on site integrity.

The Council's position is supported by the Position Statement published by Welsh Government (WG) in June 2026 (WG-ID1356-WR.pdf) which states that WG is of the opinion that the fine grain detail for the future cannot be achieved now, nor is it necessary for this plan, at such an advanced stage of preparation. The Technical Note also states that '*The WG/DTA guidance states that considering Article 6 of the Directive as a whole as part of an integrated approach is a more effective way of unlocking development and improving restoration in a failing SAC* [than the nutrient neutrality approach i.e. requiring net new residential dwellings to ensure they do no result in a net increase in phosphorus into the catchment]*, noting that an improving baseline/trajectory for a SAC must be*

forthcoming and the measures required for improvement must be achievable in practice and subject to the tests outlined in the IPPS.

Mitigation under an integrated approach can be evaluated against an improving baseline/trajectory, which arises as a consequence of the delivery of wider management and restoration duties. Restoration duties are sought by statutory bodies, while mitigation is delivered by project proposers. However, mitigation can include measures to avoid any delay in the rate of improvement which would have arisen in the absence of a plan or project coming forward.

Following an integrated approach, development being proposed in a RLDP will be interdependent with the wider steps and measures identified and an adaptive approach will be required to reflect evolving circumstances which will often not be known at the outset of a plan period. A policy caveat would need to be applied to reflect the dynamic nature of prevailing circumstances and to provide the ultimate protection necessary to ensure the integrity of the SAC is not adversely affected as the plan is implemented.'

Appendix A Nutrient Neutrality Technical Note

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To: Rachel Lewis, Monmouthshire County Council

CC: n/a

By e-mail

Project name: Monmouthshire rLDP Nutrient Budget Calculations for the Usk and Wye Catchments

Project ref: FINAL

From: AECOM

Date:
February 13th 2026

Monmouthshire rLDP 2018-2033 – Nutrient Budget Calculations for the Usk and Wye Catchments

Introduction

Monmouthshire County Council (MCC) received correspondence from the Inspectors examining the Replacement Local Development Plan (rLDP) requesting further information to address the issue of the effect of proposed development on riverine SACs in respect to the discharge of phosphorus. A copy of this letter is provided in Appendix A but in summary it requires:

a. Further information on the potential increase in nutrient loading from implementation of the rLDP.

b. Further information on the approach to mitigation on a 'year by year' and catchment basis.

c. Details of the steps being taken to implement mitigation measures and how they will be secured.

d. Consideration of the recent judgement of CG Fry & Sons Ltd v SSHCLG [2025] UKSC 35, which relates to committed developments and identify any assumptions made in relation to windfall allowances.

e. Consideration of whether nutrient contributions from non-residential development need to be considered.

This interim technical note details how the potential increase in nutrient loading from implementation of the rLDP 'year by year' was determined (points (a) and (b) above) for the Usk and Wye catchments only. The technical note also provides a high-level review of mitigation options (point (c) above), the approach to non-residential development (point (e) above) and consideration of the Fry judgment (point (d) above).

Background to Nutrient Neutrality

In many designated estuarine and freshwater habitats sites across the UK, poor water quality due to nutrient enrichment is one of the main reasons for sites being in an unfavourable condition. Excessive levels of nutrients can cause the rapid growth of certain plants through the process of eutrophication. This in turn can lead to reduced biodiversity, and the condition of a site being considered 'unfavourable'. To improve the water quality in these sites, reductions in nutrients are required. As such, and in line with rulings from the European Court of Justice in combined cases C-923/17 and C294-17 (the Dutch Nitrogen case), any new development within affected habitats site catchments that could increase nitrogen and phosphate deposition into the protected sites above consented levels must show that they are 'nutrient neutral'. Under Regulation 63 of the Conservation of Habitats and Species Regulations 2017[1] an LPA (competent authority) cannot legally consent a plan or project that will have an adverse effect on the integrity of any European protected nature conservation site.

These nutrient neutrality requirements for new development now apply in many areas of the country, including the catchments of the River Wye Special Area of Conservation (SAC) and the River Usk SAC. AECOM has experience providing technical support to Local Planning Authorities (e.g. Carmarthenshire County Council, Dorset County Council)

[1] The Conservation of Habitats and Species Regulations 2017 [Online]. Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents

and undertaking nutrient neutrality assessments (NNa) in a number of affected catchment across Wales and England, including the Carmarthen Bay and Estuaries SAC, Somerset Levels and Moors Ramsar site, River Camel SAC, Stodmarsh SAC/Ramsar, Chesil and the Fleet SAC/Special Protection Area (SPA), River Axe SAC, Teesmouth and Cleveland Coast SPA/Ramsar, Poole Harbour SPA/Ramsar, River Avon SAC, River Wensum SAC, the Broads SAC, River Derwent and Bassenthwaite Lake SAC and River Eden SAC.

One way that the potential impact of new development can be determined is by using nutrient neutrality calculations to create a nutrient budget. A calculation methodology covering both nitrogen and phosphorus has been developed by the Welsh Government. Individual county councils have in some cases also produced calculators for calculating total phosphorous (TP) nutrient budgets. For Monmouthshire, the standard Nutrient Budget Calculator for Wales is adopted.

Monmouthshire Replacement Local Development Plan 2018-2033

In the Infrastructure Delivery Plan, Background Paper (Updated October 2025)[2] the Council sets out how in brief how they are planning to deal with an increase in phosphorus emissions from new development. The Council has been working collaboratively with Natural Resources Wales (NRW), Dŵr Cymru Welsh Water (DCWW), Welsh Government, the development industry and our biodiversity officers to find solutions to enable growth and allocate sites through the RLDP process that do not harm the environmental capacity of our watercourses. Dŵr Cymru Welsh Water (DCWW) has recently upgraded in 2023 the phosphorus stripping capacity of Monmouth WwTW reducing contributions in the River Wye catchment and has committed to prioritising improvement works at the Llanfoist WwTW serving Abergavenny (benefitting the River Usk catchment) by the end of 2025. This is in addition to an initial investment of £100m in phosphorous reduction within their previous AMP7 (2020-2025). This investment will significantly reduce the amount of phosphates entering the water environment from the treatment works, providing environmental improvement and reducing the impact from new development. However, it will not eliminate all increases in phosphorous from future development and thus additional mitigation will be required to ensure that development proposed in the rLDP is nutrient neutral in terms of phosphorous.

Budget Calculations

The nutrient budget for all allocated and committed developments in the Usk and Wye SACs was undertaken using the Wales Nutrient Budget Calculator[3]. This calculator is used to determine phosphorous and nitrogen mitigation requirements for development within the catchments of affected SAC rivers and marine water bodies. It covers the River Wye and River Usk catchments which are within Monmouthshire. Developments in both the River Wye and Usk are only required to mitigate for phosphorous.

There are a total of nine allocated or committed developments in the Usk SAC catchment (HA1, HA5, HA10, HA11, HA12, HA14, HA15, HA16, and HA17) and four allocated or committed developments in the Wye SAC catchment (HA4, HA6, HA7, HA8) and the committed development West of Rockfield Road (DC/2017/00539). MCC provided the following data for these developments:

- SAC nutrient neutrality catchment area (shapefile).
- Proposed allocated site locations (shapefile), total site areas (hectares), current land use and number of dwellings per development including occupancy.
- The number of dwellings to be completed in each year of the rLDP (2025-2033).
- The proportion of open market dwellings and affordable homes per development.
- The proportion of each development expected to be Green Infrastructure and / or SuDS.
- The relevant WwTW that will serve the development and WwTW catchment areas (shapefile).
- Current and future permit limits of the relevant WwTW.

The initial data provided for allocated and committed sites by MCC is detailed in Appendix B, and Figure 1 and Figure 2 show the location of each allocated site in relation to the Usk and Wye SAC nutrient neutrality catchments and DCWW WwTW areas, respectively.

[2] Infrastructure Delivery Plan, Background Paper [Online]. Available at: https://www.monmouthshire.gov.uk/app/uploads/2025/10/SD104-Infrastructure-Delivery-Plan-Background-Paper-Updated-October-2025.pdf

[3] Nutrient budget calculator | GOV.WALES

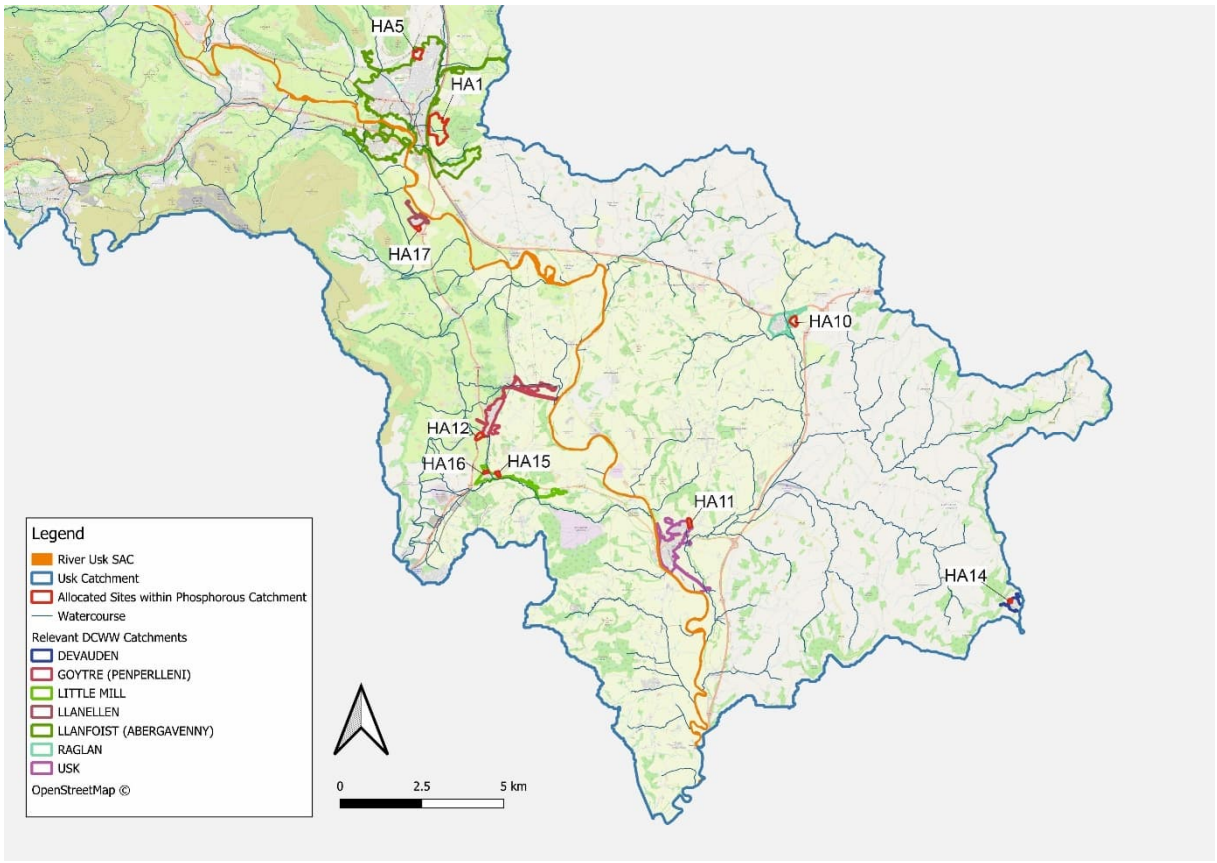

Figure 1 Usk SAC and Nutrient Neutrality Catchment Area

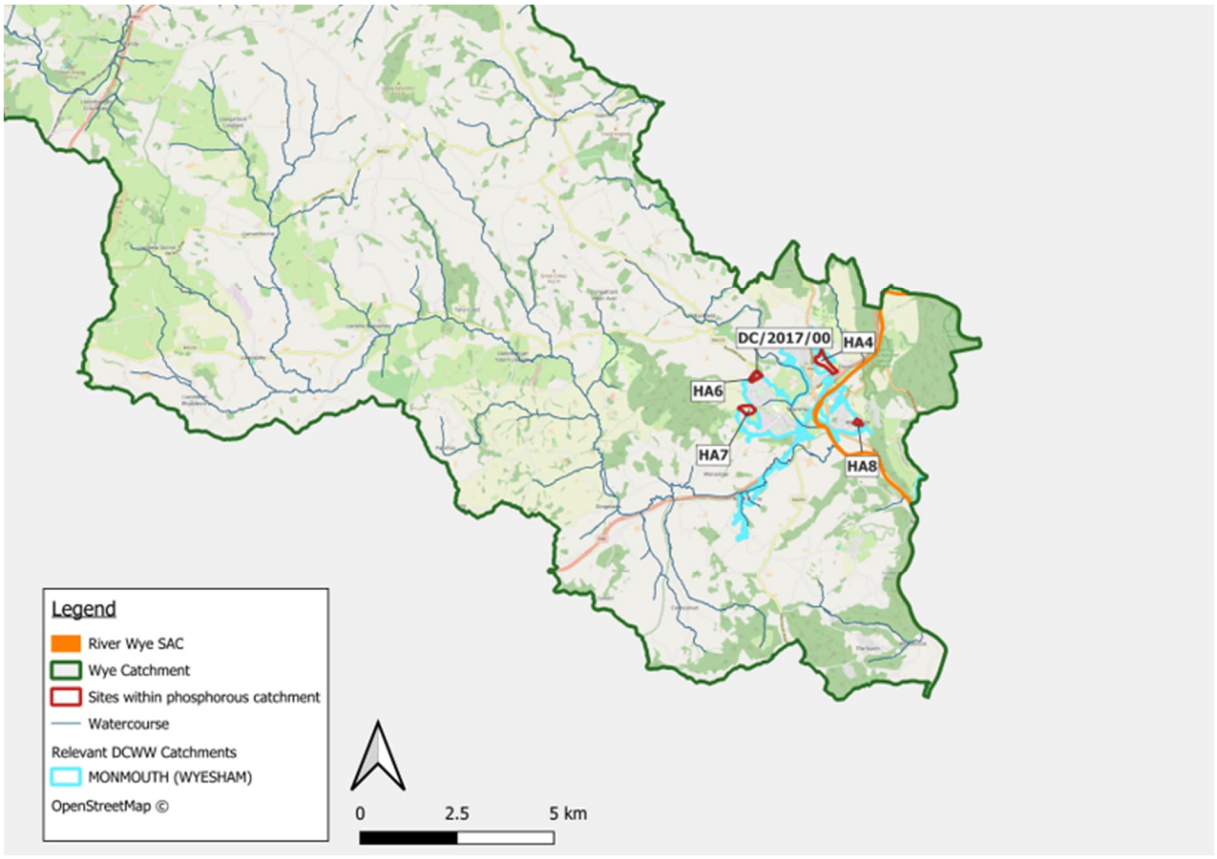

Figure 2 Wye SAC and Nutrient Neutrality Catchment Area

This data was used to calculate the nutrient budget for each development in each year of the rLDP as required by the Inspectors. This was then used to create a cumulative budget taking into account WwTW upgrades and phosphorous

stripping. The final nutrient budget will require mitigation throughout the course of the rLDP, which will inform future delivery of any strategic mitigation solutions should MCC consider that approach.

Affordable Homes

There was some uncertainty regarding how occupation of affordable homes should be included in the budget. Welsh Government guidance indicates that on a precautionary basis it is acceptable to estimate the maximum % of occupants which might represent new residents to the catchment[4]. It is accepted that those moving into affordable homes are likely to already be local residents and thus probably reside within the borough and the nutrient neutrality catchment area. Thus, they are already present in the baseline and do not need to be included in the nutrient budget estimation. As there is a requirement for 50% of development to be for affordable homes, this is potentially an important consideration when estimating the overall nutrient budget for each allocated site.

MCC undertook a review of Homesearch data for new build affordable homes in Monmouth and Abergavenny over the last two years and concluded that approximately 50% of these homes were allocated to people already living in the local area.

This value is an informed assumption, but adopting a precautionary principle, two different housing scenarios have been assessed. The worst-case scenario in terms of excess TP generated by each allocated site does not include any reduction in occupancy for affordable homes. The best-case scenario includes all open market homes and 50% of the affordable homes (i.e. it ignores wastewater from 50% of the affordable homes on the basis that those occupying them already reside in the nutrient neutrality catchment).

Additional Phosphorous from Wastewater

In order to calculate the additional phosphorous generated by wastewater from the allocated site developments the following data is required for the Wales Nutrient Neutrality Calculator:

- **SAC Catchment** – Provided by MCC.
- **Postcode** – Inferred using the relevant Candidate Sites Assessment Proforma[5] for the development and identifying the closest postcode to the site. The postcode is used to automatically update the site characteristics including average annual rainfall.
- **Number of dwellings** – Data provided by MCC. The number of dwellings was phased over the period of the rLDP, so the number of dwellings completed in each year was input into the calculator.
- **Occupancy** – The Welsh Calculator automatically uses an LPA specific occupancy rate based on the postcode for the development. This value is 2.27 for Monmouthshire. An alternative option was considered where it is assumed that each bedroom within the development will be occupied by one person, but this results in a higher occupancy value than the default and would not be representative of average occupancy rates throughout the region.
- **Water usage** - This is set to a default of 120 litres/person/day which is 10 litres higher than the Building Regulations standard set by the Welsh Ministers of 110 litres/person/day of wholesome water where a dwelling/unit is erected. The standard is based on a 'fittings approach' where water efficiency compliance is achieved through water efficient fittings. The extra 10 litres/person/day is a precautionary approach to account for water usage variations and account for any potential future changes to the water fittings in perpetuity.
- **Waste Water Treatment Works** – Identification of the wastewater treatment works the development would be served by is required. This was provided by MCC along with details of any upgrades that will take place during the rLDP period.

The wastewater nutrient loading of each allocated site development is then calculated based on these inputs. This process was then repeated for each year of the rLDP.

Surface water discharges from development

NRW's advice to planning authorities for planning applications affecting nutrient sensitive SAC's states that for the purpose of nutrient balance calculations, surface water discharges do not need to be considered as a source of nutrients. This is based on the presumption that for all developments, rainwater is kept separate from foul wastewater and discharged in line with planning guidance on rainfall disposal. This means that water discharges should not be contaminated with foul water or pollutants (i.e. the assumption is the SuDS will remove 100% of the phosphorous in the runoff)[6]. Based on this guidance the surface water loads generated by developments due to change in land use have not been included in the calculations and final nutrient budget, despite this option being available in the calculator.

[4] Planning Guidance - Development in SAC Rivers
[5] RLDP Submission - Monmouthshire
[6] Natural Resources Wales / Advice to planning authorities for planning applications affecting nutrient sensitive Special Areas of Conservation

WwTW Upgrades

Several WwTW within the affected catchments, most notably Llanfoist (Abergavenny) and Goytre within the Usk Catchment, have proposed permit limit upgrades which will reduce the wastewater loading within the catchment. This reduction in the permit limit at key WwTW will reduce the existing wastewater loads entering the catchment. However, nutrient neutrality restrictions require that all developments in the affected catchments must demonstrate nutrient neutrality and any headroom created by improvements at WwTW cannot be utilised to free development. It should also be noted that several WwTW in the catchments do not have proposed upgrades including the Usk, Little Mill and Llanellen WwTW's

CG Fry & Sons Ltd v SSHCLG [2025] UKSC 35

The judgment of this case means that appropriate assessment may be required at reserved matters or discharge of condition stage for any development that was granted outline permission before decision makers were aware of the nutrient impacts to the SAC. The nutrient budget estimates presented here are based on development information provided to us by Monmouthshire County Council and include several developments which already have outline planning permission, thus being in accordance with this recent caselaw.

Assessment Scenarios

Reflecting assumptions that need to be made at this stage, two scenarios have been assessed to provide a range of potential outcomes to support decisions regarding future mitigation approaches. It is recommended that the assumptions used and the scenarios tested are kept under review and are revisited if more data becomes available. The current scenarios evaluated as part of this assessment are as follows:

- **Scenario 1 (Worst Case Scenario)** – Includes all housing types with no reduction in occupancy for affordable homes.
- **Scenario 2 (Best Case Scenario)** – Discounts 50% of affordable homes on the basis that half of allocated affordable homes are provided to local people who are likely to already be living within the nutrient neutrality catchment.

Final Nutrient Budget and Results

The TP budget is calculated automatically once all required inputs have been entered into Stage 1, Stage 2, Stage 3, of the calculator.

- **Stage 1** – Calculates the nutrient wastewater loading of a development based on the number of properties, occupancy rate, water usage and WwTW permit.
- **Stage 2** – Calculates the baseline surface water nutrient loading from the development due to its current land use.
- **Stage 3** – Calculates the future wastewater nutrient loading based on the proposed future land use of the developed site.
- **Stage 4** – Calculates the overall nutrient budget plus an additional 20% buffer.

The calculation involves adding the values from Stage 1 and Stage 3 and then subtracting the values from Stage 2. A 20% precautionary buffer is then added to the result. This calculation is completed automatically in the Stage 4 worksheet. This can be summarised as:

*(Stage 1 - Stage 2 + (Stage 3)) * 1.2 = Stage 4*

Based on NRW guidance the final nutrient budget only includes the Stage 1 wastewater loading and a 20% buffer. This value is the residual TP taking account of upgrades at WwTW. Results are presented for each year of the rLDP.

Usk Catchment Results

Scenario 1 (Worst-Case Scenario)

The results for the worst-case scenario for the Usk catchment are displayed in Table 1.

Table 1 Cumulative Nutrient Budgets within the Usk SAC Catchment (kg TP/year) – Scenario 1 (Worst-Case Scenario)

Site ID	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033 +9mths
HA1	0.00	0.00	0.00	16.72	38.21	59.70	81.19	102.68	119.40
HA5	0.00	0.00	11.94	23.88	23.88	23.88	23.88	23.88	23.88
HA10	0.00	0.00	4.78	6.44	6.44	6.44	6.44	6.44	6.44
HA11	0.00	5.96	23.87	23.87	23.87	23.87	23.87	23.87	23.87
HA12	0.00	0.00	17.90	25.07	25.07	7.02*	7.02*	7.02*	7.02*
HA14	0.00	0.00	0.00	5.96	11.93	11.93	11.93	11.93	11.93
HA15	0.00	2.99	11.94	11.94	11.94	11.94	11.94	11.94	11.94
HA16	2.99	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95
HA17	0.00	0.00	0.00	0.00	5.96	15.52	15.52	15.52	15.52
Windfall 1 (Abergavenny)	0.00	0.00	0.00	0.00	0.00	7.15	14.30	21.46	23.84
Windfall 2 (Rural Secondary Settlement)	0.00	0.00	0.00	0.00	0.00	5.96	11.93	11.93	11.93
Total Cumulative	2.99	17.90	79.38	122.83	156.25	182.36	216.97	245.62	264.72

*new WwTW permits apply from 2030/31 onwards hence the reduction in TP load.

These results are a cumulative nutrient budget which reflect the current proposed phasing of the proposed developments across the rLDP. As more houses are completed, the phosphorous budget requiring mitigation in that year also increases. In some cases, the permit limit of the relevant WwTW will be reduced during the rLDP period, which will reduce the nutrient budget of the development as more of the P load in the wastewater will be removed. However, this was only the case for one development in the Usk catchment (HA12). The results are displayed in Figure 3.

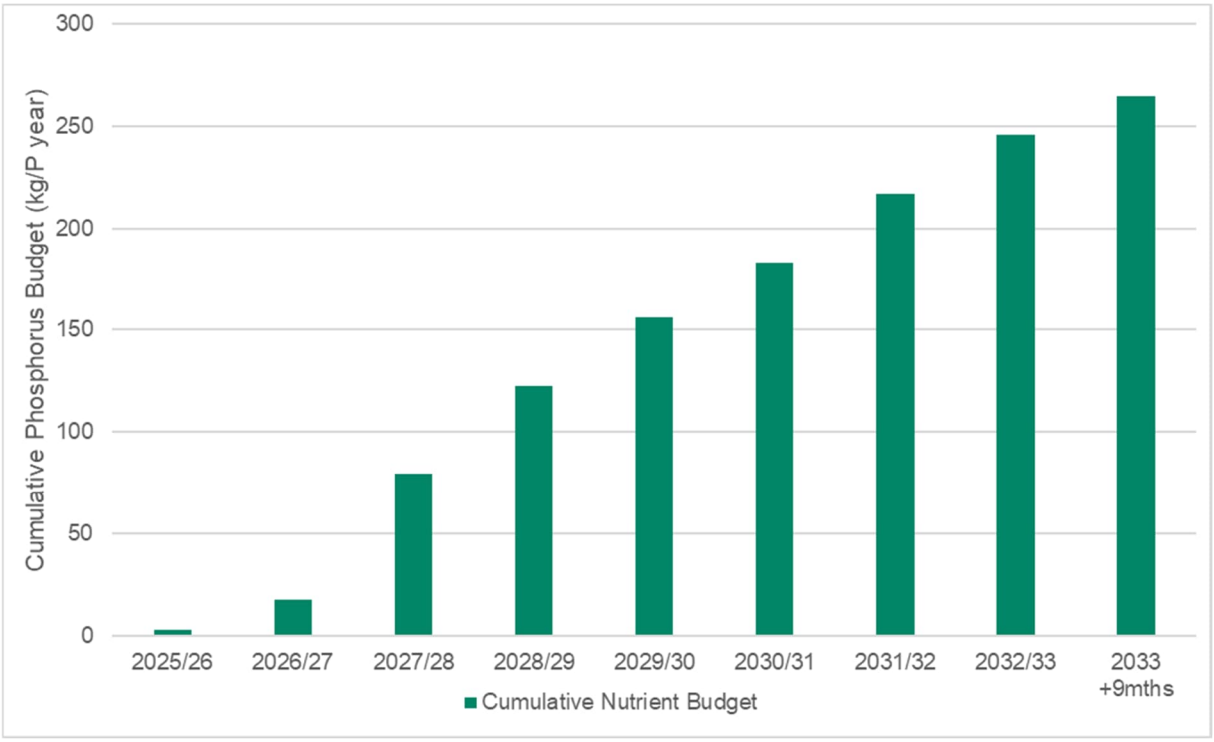

Figure 3 Usk Catchment Cumulative Nutrient Budget Scenario 1 (Worst Case Scenario)

The total nutrient budget for phosphorous in the Usk catchment increases year on year throughout the LDP period and is a maximum value of 265 kg TP/year in 2033. The largest contribution to this nutrient budget is the HA1 development in Abergavenny.

Scenario 2 (Best-Case Scenario)

The results for the best-case Usk catchment scenario which includes all the open market homes but only 50% of affordable homes for the reasons described earlier are shown in Table 2.

Table 2 Cumulative Nutrient Budgets within the Usk SAC Catchment (kg TP/year) – Scenario 2 (Best-Case Scenario)

Site ID	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033 +9mths
HA1	0.00	0.00	0.00	12.42	28.66	44.89	61.13	77.12	89.54
HA5	0.00	0.00	9.07	17.90	17.90	17.90	17.90	17.90	17.90
HA10	0.00	0.00	3.58	4.88	4.88	4.88	4.88	4.88	4.88
HA11	0.00	4.18	17.90	17.90	17.90	17.90	17.90	17.90	17.90
HA12	0.00	0.00	13.73	19.10	19.10	19.10	19.10	19.10	19.10
HA14	0.00	0.00	0.00	4.18	8.95	8.95	8.95	8.95	8.95
HA15	0.00	2.39	8.95	8.95	8.95	8.95	8.95	8.95	8.95
HA16	2.39	6.56	6.56	6.56	6.56	6.56	6.56	6.56	6.56
HA17	0.00	0.00	0.00	0.00	4.78	11.94	11.94	11.94	11.94
Windfall 1	0.00	0.00	0.00	0.00	0.00	5.50	10.99	16.49	18.16
Windfall 2	0.00	0.00	0.00	0.00	0.00	4.78	8.95	8.95	8.95
Total Cumulative	2.39	13.13	59.80	91.91	117.70	151.37	177.28	198.77	212.86

In this scenario, the total cumulative budgets year-on-year are lower with a final nutrient budget for the whole catchment of 213 kg TP/year. The largest contribution still arises from the HA1 development. Figure 4 presents the cumulative nutrient budgets for all Usk catchment developments across each year of the rLDP, for the best-case scenario.

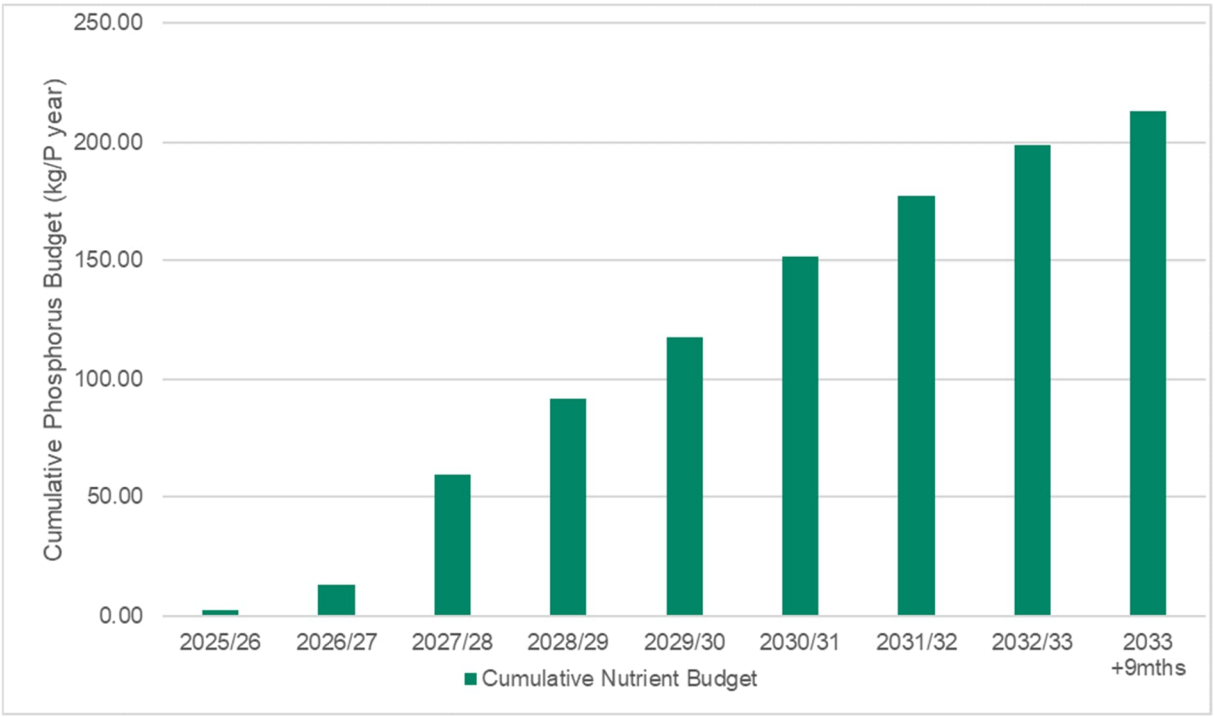

Figure 4 Usk Catchment Cumulative Nutrient Budgets for all Developments by Year of the rLDP Scenario 2 (Best-Case scenario)

Wye Catchment Results

Scenario 1 (Worst-Case Scenario)

The results for the worst-case scenario for the Wye catchment are displayed in Table 3.

Table 3 Cumulative Nutrient Budgets within the Wye SAC Catchment (kg TP/year) – Scenario 1 (Worst-Case Scenario)

Site ID	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033 +9mths
HA4	0.00	0.00	0.00	0.00	9.55	14.33	14.33	14.33	14.33
HA6	0.00	0.00	5.96	17.90	29.84	41.78	53.72	64.46	64.46
HA7	0.00	2.39	14.33	26.27	26.27	26.27	26.27	26.27	26.27
HA8	5.96	11.93	11.93	11.93	11.93	11.93	11.93	11.93	11.93
West of Rockfield Rd	0.00	8.35	16.70	16.70	16.70	16.70	16.70	16.70	16.70
Windfall	0.00	0.00	0.00	0.00	0.00	0.48	0.96	1.44	1.92
Total Cumulative	5.96	22.67	48.92	72.80	94.30	111.49	123.91	135.13	135.61

The total nutrient budget for phosphorous in the Wye catchment increases year on year throughout the LDP period and is a maximum value of 136 kg TP/year in 2033. The largest contribution to this nutrient budget is the HA4 development in Monmouth.

Figure 5 presents the cumulative nutrient budgets for all Wye catchment developments across each year of the rLDP, under the worst-case scenario.

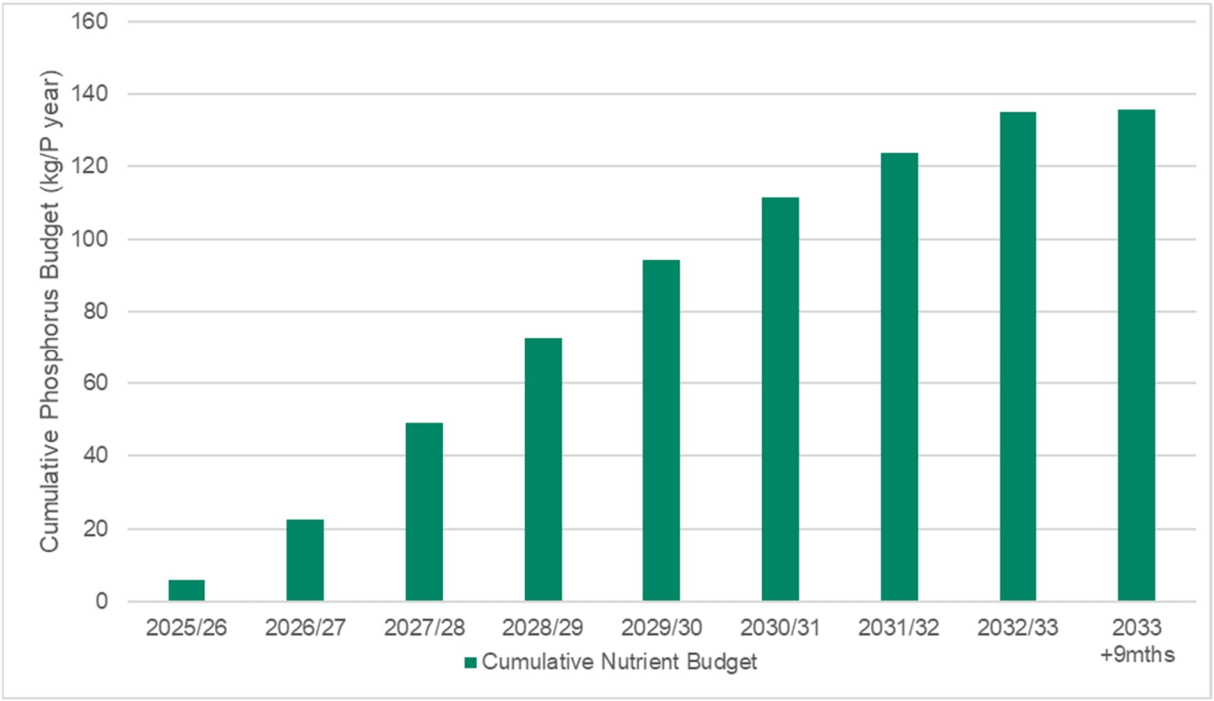

Figure 5 Wye Catchment Cumulative Nutrient Budgets for all Developments by Year of the rLDP Scenario 1 (Worst-case scenario)

Scenario 2 (Best-Case Scenario)

The results for the best-case Wye catchment scenario which includes all the open market homes but only 50% of affordable homes based on the reasons described earlier are shown in Table 4.

Table 4 Cumulative Nutrient Budgets within the Wye SAC Catchment (kg TP/year) – Scenario 2 (Best Case Scenario)

Site ID	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033 +9mths
HA4	0	0	0	0	7.164	10.74	10.74	10.74	10.74
HA6	0	0	4.536	13.608	22.68	31.512	40.344	48.468	48.468
HA7	0	2.148	11.94	21.732	21.732	21.732	21.732	21.732	21.732
HA8	3.108	5.976	5.976	5.976	5.976	5.976	5.976	5.976	5.976
West of Rockfield Rd	0	6.924	13.848	13.848	13.848	13.848	13.848	13.848	13.848
Windfall	0	0	0	0	0	0.48	0.96	1.44	1.92
Total Cumulative	3.108	15.048	36.3	55.164	71.4	84.288	93.6	102.204	102.684

In this scenario, the total cumulative budgets year-on-year are lower with a final nutrient budget for the whole Wye catchment of 103 kg TP/year. The largest contribution still arises from the HA4 development. The final cumulative values for each year of the LDP are displayed in Figure 6.

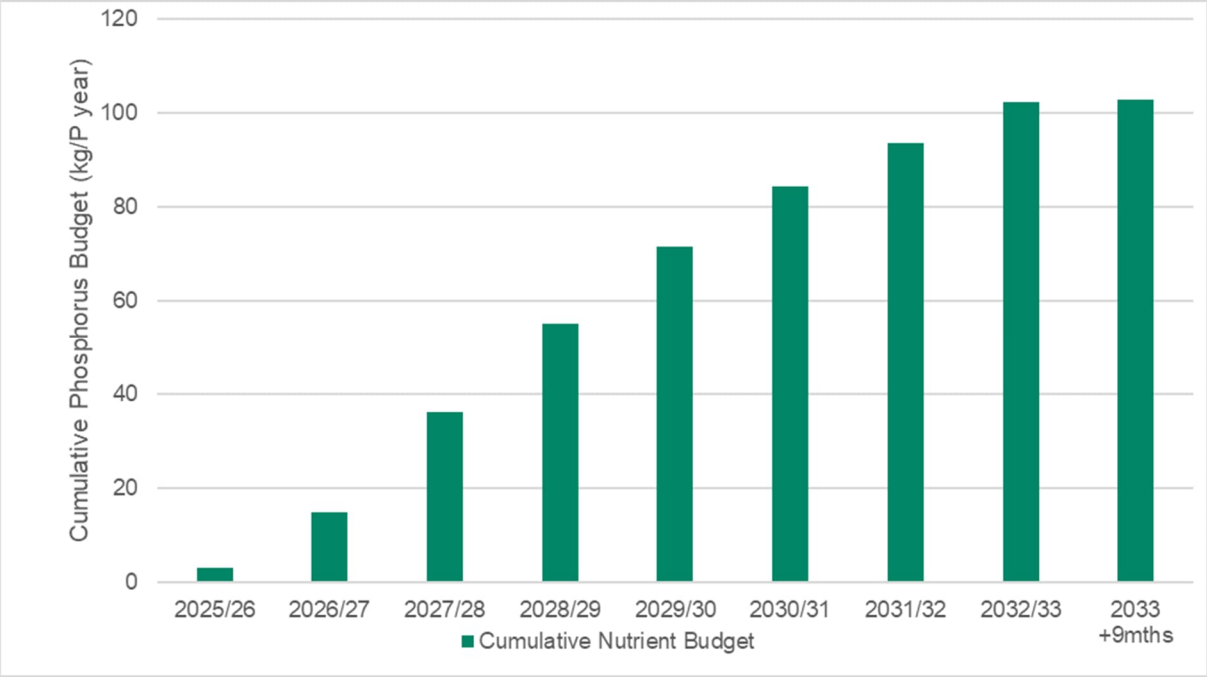

Figure 6 Wye Catchment Cumulative Nutrient Budgets for all Developments by Year of the rLDP Scenario 2 (Best Case Scenarios)

Non-residential Development

New development, including housing or agricultural enterprises, can lead to increased loads of nutrients entering the catchments of the Usk and Wye (and hence their respective affected SACs) from additional wastewater or land management[7]. NRW advice regarding nutrient neutrality applies to any development within nutrient neutrality catchments that increases nutrient levels.

It is a matter for the Planning Authority to determine whether a plan or project is likely to have a significant effect on an SAC. In general, key affected developments within a nutrient neutrality catchment include, and are not restricted, to the following[7].

Residential development: New homes or houses which may lead to an increase in occupancy within the nutrient neutrality catchment.

[7] Habitats regulations assessment (HRA) guidance | GOV.WALES (2025). Available at: https://www.gov.wales/habitats-regulations-assessment-hra-guidance (Accessed: 8 January 2026).

Domestic extension with increased occupancy / change in use: Domestic extension that will lead to the creation of independent living accommodation as a separate planning unit may lead to an increase in occupancy by residents from outside a nutrient neutrality catchment.

Non-residential development: Developments expected to serve a population from outside of a nutrient neutrality catchment who are not already served by residential connections to existing public or private sewers discharging within the nutrient neutrality catchment. For example, this can include self-service and serviced tourist accommodation such as hotels, guest houses, bed and breakfasts, self-catering holiday facilities, camping and caravan sites. New commercial or industrial developments, such as conference facilities, large retail sites or major tourist attractions may also result in the release of additional nutrients to the system.

Temporary events: Sites with planning consent to hold frequent seasonal events or activities on a long-term basis should be considered permanent development. These include, but are not restricted to, seasonal wedding venues, touring caravan parks and outdoor activity venues.

Developments involving wastewater connections: Any proposal that connects to public WwTW or uses Package Treatment Plants (PTPs) within a nutrient neutrality catchment.

Agricultural: New agricultural developments involving the production, storage, management and spreading of organic manures and slurries, which have the potential to contribute towards the amount of nutrients entering a designated site. Agricultural development that are not considered to have a likely significant effect on SAC features in relation to water quality impacts include covering an existing yard and roofing for manure / slurry or silage storage that does not impact the existing store structure.

Exemptions and exceptions cited by NRW:

Any development that improves existing water quality discharges by reducing the nutrient concentration of wastewater without increasing volume, or by decreasing the volume of wastewater produced without increasing the concentration of nutrients.

- Domestic extensions are considered by NRW to provide increased living space within existing properties that may not result in a change in the number of occupants. This is the case provided that the extension will not result in the creation of independent living accommodation, a separate planning unit and/or a change in use.
- Developments using PTPs: Where PTPs can be justified (i.e. it can be shown to the satisfaction of the LPA that connection to a public sewer is not feasible), small discharges to ground (<2 m^3/day) via a suitable drainage field are considered unlikely to have a significant effect on a SAC. For this to be the case the PTP should be built to the relevant British Standard (BS 6297:2007+A1:2008), the drainage field must be located more than 40 m from any surface water feature such as a river, stream, ditch or drain, located more than 50 m from a SAC boundary, and at least 50 m from any other known discharge to ground[7].
- Developments intended to provide services, facilities, commercial sites, or places of employment (e.g., community buildings, schools etc.) for a local population already served by residential connections to existing public or private sewers discharging within the nutrient neutrality catchment.
- Community or employment facilities serving an existing local population.
- Certain agricultural improvements with no livestock increase.

High Level Review of Mitigation Options

There are several typical nutrient neutrality mitigation options which could be implemented for developments. These may include Nature Based Solutions such as the creation of wetlands, water efficiency measures and fallowing agricultural land, all of which slow the movement of, and store water, on site allowing physical and biogeochemical processes to permanently remove nutrients. Some of the more common and relevant mitigation options are described below and further examples of treatment efficiencies provided within Table 5. As part of the high-level review of mitigation options, estimates have been made to give an indication of the scale of each mitigation that would be required to fully mitigate the nutrient budgets calculated for the rLDP. These are only examples based on assumptions. However, they are useful to put the scale of mitigation needed into context.

Arable land conversion to less nutrient intensive land use: This could include converting nutrient intensive agricultural land to woodland, grassland or natural wetlands. However, this method of mitigation would require a significant area of land to offset the estimated phosphorous loads for development in the Usk and Wye catchments. Therefore, this option may only be applicable for developments with a large amount of land availability or in areas where purchasing additional off-site land for conversion is a financially or technically viable option. It could, however, be used in conjunction with other options to provide partial mitigation through the allocation of some of the site to greenspace,

woodland or other natural habitats. To estimate the mitigation provided by arable land conversion several assumptions were required. For this high-level review of mitigation options, it has been assumed that the site would have slightly impeded drainage, which was the case for most sites assessed and would receive between 1400-1600 mm[8] of rain annually for the Usk and 1100-1200 mm of rain annually for the Wye[9] as per catchment statistics. The current land use has also been assumed to be lowland grazing given that much of the catchment appears to be used for this purpose. Land used for arable farming would likely result in more phosphorus saving.

Domestic Package Treatment Plants (PTP) upgrades: Nutrient credits could also be generated by upgrading existing PTP and septic tank units. For example, an applicant proposing new houses could replace septic tanks at existing neighbouring properties, or elsewhere in the catchment. This would require contacting third party properties and coordinating replacements throughout the catchment and may not be viable strategically given the practical difficulties delivering this at a strategic scale. To calculate the potential mitigation provided it has been assumed that existing septic tanks would discharge waste at the concentration levels specified in the nutrient budget calculator for the default septic tank (i.e. 11.2 mgP/l). The upgraded septic tank has been assumed to be a Graf OneAdvanced system with phosphate reduction package. This is a high performing PTP with regards to phosphorus treatment which can achieve effluent concentrations of 0.4 mg/l[10]. This is not an endorsement of the PTP model but gives an indication of the potential treatment efficiencies that could be achieved using a PTP as opposed to a septic tank. If other models are used it may not be possible to achieve the same reductions in phosphorus. It is also important to confirm that any discharge from a PTP to a watercourse or to ground is in fact a discharge to the SAC before an upgrade can be accepted as mitigation.

Treatment wetlands: Wetlands can be implemented to capture runoff from agricultural land, receive loads from diverted rivers or treat WwTW effluents. If designed and sited appropriately treatment wetlands can offer some of the best nutrient outcomes per hectare of land. Generally, the greater the nutrient load input into the wetland the greater potential for reduction in nutrients. Wetland design is site specific and dependant on the incoming concentrations and flows from a wastewater treatment plant. However, initial feasibility calculations for potential constructed wetlands elsewhere in South Wales provide an indication of the phosphorous removal that could be achieved, these are discussed in Table 5. It should be noted that phosphorus permits are tighter in the Wye catchment and so the potential for wetlands is less but may still be a suitable option.

SuDS: Retrofitting SuDS to existing urban land to claim additional mitigation credits, which could be used to free up development elsewhere in the catchment, is an option that may be considered. Retrofitting SuDS could be implemented to capture and treat surface runoff, some of which may also be draining existing urban land to combined sewers and subsequently WwTW. Reducing spills from combined sewers is another similar option, although there are significant issues with evidencing the benefit and this is not recommended.

Most SuDS features can provide an opportunity to remove nutrients from surface water drainage if they are suitably designed and maintained. CIRIA have provided guidance as to how SuDS should be designed to achieve nutrient removal, this information is available in the CIRIA SuDS Manual (C753F)[11], the CIRIA guidance regarding phosphorous removal (C808F)[12], and guidance on nitrogen removal using SuDS (C815)[13]. Sustainable Drainage Approving Body (SAB) can ensure that good practice is followed.

To estimate a percentage removal efficiency for the retrofitting SuDS mitigation option several assumptions have been applied to calculate a precautionary value for SuDS phosphorus reductions, and these are listed below:

- Runoff will be discharged to surface watercourses. If surface water is infiltrating there are circumstances where it may not be considered a source to the designated site, in which case the location would not be appropriate for retrofitting SuDS mitigation.
- It has been assumed that there would be one SuDS management train component and that the SuDS systems predominantly used will be swales, detention basins, retention basins and ponds, which are most appropriate for regional site control and discharges to watercourses.
- As stated within the CIRIA C808 (2022) “Using SuDS to reduce phosphorous in surface water[14]” guidance, 55% of phosphorus (P) in surface runoff is typically bound to sediment, and 45% is dissolved P, respectively.
- Based on CIRIA C808 (2022) guidance:
  - Swales have 28% P removal from sediment and 0% dissolved P removal.

[8] NRFA station catchment information for 56001 - Usk at Chainbridge
[9] NRFA station catchment information for 55023 - Wye at Redbrook
[10] pia_oneadvanced_10_-_50_pe__.pdf
[11] CIRIA SuDS Manual (C753F)
[12] Using SuDS to reduce phosphorus in surface water runoff C808F
[13] Using SuDS to reduce nitrogen in surface water runoff(C815)
[14] Using SuDS to reduce phosphorus in surface water runoff C808F

- Detention basins have a 28% P removal from sediment and 12% dissolved P removal.
- Retention basin have a 28% P removal from sediment and 50% dissolved P removal.
- Ponds have a 38% P removal from sediment and a 50% dissolved P removal.
- This gives an overall removal for each SuDS system of 15.4% for swales, 20.8% for detention basins, 37.9% for retention basins and 43.4% for ponds, respectively.

For the high-level appraisal of this mitigation option, we have taken a mean TP removal of the above listed SuDS treatment options. Therefore, the average TP removal applied for SuDS drainage for the developments is 29%. However, we note NRW may hold the view that SuDS are more effective and further consultation with them is recommended to define the most appropriate removal percentage that should be applied.

Water usage: This relies on the increased efficiency of water in new developments by using higher efficiency fittings and appliances to reduce the average water consumption per capita. If scaled up across all new development this option has the capacity to reduce wastewater loads generated by new development but alone will not fully mitigate the calculated nutrient budgets. Similarly, if water efficiency measures were retrofitted to existing housing stock and properties owned and managed by MCC or suitable third parties, a similar nutrient saving can be achieved. However, this option is only possible where the WwTW has a permit for phosphorus and is operating at 90% of this, as it requires a linear relation between water use and phosphorus load from the WwTW to be established. Securing this mitigation will require these solutions to be maintained in perpetuity.

Examples and estimations of the potential treatment for TP for each mitigation option is provided below in Table 5.

Table 5 Mitigation- High level mitigation option appraisal and potential nutrient reduction estimates

Arable land conversion to less nutrient intensive land use[15]	PTP upgrades	Treatment Wetlands SuDS	SuDS Retrofit	Water Usage
				
Usk Catchment				
Converting lowland grazing land to woodland or greenspace creates a nutrient offset by reducing the nutrient loads in surface water runoff. For the assumed rainfall and soil type in the Usk catchment 1 ha of lowland grazing has a nutrient load of 0.43 kg TP/year and 1 ha of greenspace/woodland has a nutrient load of 0.02 kg TP/year, creating an offset of 0.41 kg TP/year. To mitigate against the calculated nutrient budgets, it is estimated that between 520-650 hectares of land would need to be converted depending on the scenario.	Upgrading one dwelling from the default septic tank to an improved PTP (Graf OneAdvanced system with phosphate reduction package, discussed above) can reduce phosphorous discharges to the environment by around 1.11 kg TP/year. Therefore, to mitigate the calculated nutrient budget it is estimated that between 190 - 240 septic tanks in the catchment would need to be upgraded depending on the scenario.	AECOM is currently working on a wetland concept design project where a treatment area of around 1 ha could potentially remove in the region of 250 kg TP/year with effluent concentrations of 5 mg P/l and average flows of 250 m^3/day. Therefore, to mitigate against the range of scenarios calculated for the Usk catchment may require between one or two wetlands of this size treating effluents of similar concentrations[16].	Retrofitting SuDS to existing urban areas can provide a mitigation benefit by treating surface water flows prior to final discharge. Retrofitting between 350 to 450 ha of urban residential land could provide mitigation for development in the Usk catchment assuming TP removal via SuDS of around 29% can be achieved. However, we note NRW may hold the view that SuDS are more effective and further consultation with them is require, to understand the removal percentage that should be applied.	Taking the largest allocated development in the Usk (HA1) as an example, if a reduced water usage of 100 l/p/d was applied the final nutrient budget in 2033 would reduce to 99.49 kg TP/year and if water usage is reduced further to 80 l/p/d the final nutrient budget would be 79.6 kg TP/year. Compared with the unmitigated and worst-case scenario budget of 119.4 kg TP/year, this represents total reductions of 17% and 33% respectively. There is also potential to retrofit water efficiency measures to existing housing stocks which has the potential to provide mitigation.
Wye Catchment				
Converting lowland grazing land to woodland or greenspace creates a nutrient offset by reducing the nutrient loads in surface water runoff. For the assumed rainfall and soil type in the Wye catchment 1 ha of lowland grazing has a nutrient load of 0.27 kg TP/year and 1 ha of greenspace/woodland has a nutrient load of 0.02 kg TP/year, creating an offset of 0.25 kg TP/year. To mitigate against the calculated nutrient budgets, it is estimated that between 410-550 hectares of land would need to be converted depending on the scenario.	Upgrading one dwelling from the default septic tank to an improved PTP can reduce phosphorous discharges to the environment by around 1.11 kg TP/year. Therefore, to mitigate calculated nutrient budget it is estimated that between 90 - 125 septic tanks in the catchment would need to be upgraded depending on the scenario.	AECOM is currently working on a wetland design project where a treatment area of around 1 ha could potentially remove in the region of 250 kg TP/year with effluent concentrations of 5 mg P/l and average flows of 250 m^3/day. Therefore, for the Wye catchment a wetland of wetland of similar this size could have the capacity to mitigate the nutrient budget.	Retrofitting SuDS to existing urban areas can provide a mitigation benefit by treating surface water flows prior to final discharge. Retrofitting between 210 - 275 ha of urban residential land could provide mitigation for development in the Wye catchment assuming P removal via SuDS of around 29% can be achieved. However, we note NRW may hold the view that SuDS are more effective and further consultation with them is require, to understand the removal percentage that should be applied.	Taking the largest allocated development in the Wye (HA4) as an example, if a reduced water usage of 100 l/p/d was applied the final nutrient budget in 2033 would reduce to 53.72 kg TP/year and if water usage is reduced further to 80 l/p/d the final nutrient budget would reduce to 42.98 kg TP/year. Compared with the unmitigated and worst-case scenario budget of 64.5 kg TP/year, this represents total reductions of 17% and 33% respectively. There is also potential to retrofit water efficiency measures to existing housing stocks which has the potential to provide mitigation.

[15] Lowland grazing is the predominant agricultural land use type within both catchments and has therefore been used to evaluate nutrient reductions from a change in land use.
[16] Wetland design is site specific and dependant on the incoming concentrations and flows from a wastewater treatment plant. These values represent an estimate of achievable phosphorous reductions based on a feasibility study AECOM has recently undertaken. Further design and site-specific assessment would be required to determine whether wetlands could be provided to WwTW in the Usk and Wye catchments, and what benefit they might achieve. In this case, 5 mg/l was chosen as the effluent P concentration as there were several WwTW plants in the Usk catchment with this permit limit including the Usk, Little Mill and Llanellen WwTW's. However, if a wetland were to treat effluents from a WwTW with a lower permit limit the treatment benefit would be reduced.

Summary

The final cumulative nutrient budget for each catchment under both scenarios is presented in Table 6. For both scenarios and both catchment's the proposed development allocated in the rLDP results in the generation of excess phosphorus. Significantly more phosphorous requires mitigation in the Usk catchment compared with the Wye, reflecting the quantum of proposed development in each catchment.

The calculated nutrient budgets for the proposed rLDP have also been compared with what the final nutrient budgets would have been in the absence of AMP8 phosphorus removal upgrades, which are being rolled out to WwTW in the two catchments by DCWW. This shows that for the Usk catchment the WwTW permit upgrades will have a large impact on the final nutrient budget, mostly due to upgrades at Llanfoist WwTW. All developments in the Wye catchment are served by Monmouth WwTW, which was upgraded in 2023 to improve treatment of TP, and thus there are no additional relevant improvements in AMP8.

Table 6 Summary results for the final nutrient budget in each catchment in 2033

Scenario	Usk Nutrient Budget 2033 (kg/yr TP)	Wye Nutrient Budget 2033 (kg/yr TP)
Scenario 1 (Worst-Case Scenario)	265	136
Scenario 2 (Best-Case Scenario)	213	103
Nutrient budget if proposed AMP8 phosphorus removal upgrades to WwTW had not taken place	*534*	*136*

A number of strategic mitigation options have been considered that can address the forecast excess phosphorus emissions to the Usk and Wye catchments, alone or in combination. There may also be other options that can be considered. Monmouthshire County Council are planning to explore these mitigation options further to determine those that are most suitable and additional information will be made available to Planning and Environment Decisions Wales (PEDW) at a later stage.

It should be noted that NRW have confirmed that as of March 2025 the Lower Wye through Monmouthshire is no longer failing for phosphate[17]. The 2024 interim WFD classifications record a result of 33.9 µg/l of phosphate[18] which is below the target of 39 µg/l. It has been suggested by NRW that Monmouthshire County Council may no longer need to enforce nutrient neutrality restrictions but should still consider whether the proposed future development in the Wye catchment can be delivered without causing deterioration of phosphate concentrations back above the 39 µg/l target standard. NRW will be consulted further on this to agree a suitable method for the additional investigation. Ensuring that future development is compliant with the objectives of the Water Environment (WFD) (England and Wales) Regulations 2017 (WER) is also important. A similar situation may occur in the Usk catchment following the proposed phosphorus removal upgrades, although this is not yet evident in current monitoring data.

[17] Natural Resources Wales / New water quality data sheds light on health of Wales's waters

[18] Water Watch Wales

Appendix A Inspectors Correspondence

Archwiliad Cynllun Datblygu Lleol Newydd Sir Fynwy 2018-2033
Monmouthshire Replacement Local Development Plan 2018-2033 Examination

Arolygwyr/Inspectors: J de-Courcey BSc LLB MTPI MRTPI
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01432 639547 / 07879 443035

Andrew Jones
Head of Planning
Monmouthshire County Council

18 December 2025

Dear Mr Jones

Replacement Monmouthshire Local Development Plan (LDP)

Thank you for your letter dated 15 December 2025 responding to our request for further information regarding effects on riverine Special Areas of Conservation (SACs). We recognise the work carried out by the Council so far in progressing this matter and wish to acknowledge your ongoing efforts towards addressing our concerns.

PEDW is committed to ensuring the efficient and effective management of the examination process and, having considered your request, we agree to proceed with the examination following the end of the current suspension period (i.e. 23 February 2026). This is, however, dependent upon the Council's adherence to the timescales it has set in Appendix 1 to your letter, which envisages the submission of all remaining information and documentation by 30 April 2026 at the latest.

With regard to the scope of the work identified in Appendix 1, we consider this appears to address our key concerns. We would, however, draw your attention to our request, which refers to consideration of 'non-residential' development, rather than 'employment' allocations (as referenced in Task 3 of Appendix 1), and information relating to dwelling numbers and site densities, which has not been explicitly identified in the task list.

We trust the content of this letter is clear but if you have any queries, please contact the Programme Officer as soon as possible.

This letter will be published on the examination website. We are not inviting any comments or responses from interested parties.

Yours sincerely,

J de-Courcey and C MacFarlane

INSPECTORS

Archwiliad Cynllun Datblygu Lleol Newydd Sir Fynwy 2018-2033
Monmouthshire Replacement Local Development Plan 2018-2033 Examination

Arolygwyr/Inspectors: J de-Courcey BSc LLB MTPI MRTPI
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Andrew Jones
Head of Planning
Monmouthshire County Council

01 December 2025

Dear Mr Jones

Replacement Monmouthshire Local Development Plan (LDP) – Initial questions

Having reviewed the Deposit LDP and submission documents, we consider further information to address the issue of the effect of proposed development on riverine Special Areas of Conservation (SACs) is required before the examination can proceed any further.

It may be that some of the information we seek is contained within the submission documents. If so, this information should be signposted rather than duplicated.

The LDP identifies several allocations as connecting to a wastewater treatment works (WwTW) ultimately discharging to a riverine SAC which is presently failing to meet water quality targets in relation to phosphorus. The Habitat Regulations Assessment (HRA) notes that allocations have been made having regard to WwTW permit limits and phosphates solutions proposed as part of a wider approach to the issue with Natural Resources Wales and Dŵr Cymru Welsh Water. The Infrastructure Delivery Plan Background Paper (updated October 2025) also refers to collaborative working to find solutions to enable growth through the LDP process that do not harm the environmental capacity of watercourses.

Whilst the Infrastructure Delivery Plan Background Paper provides some information on WwTW permit capacity, based on the Deposit consultation response from Dŵr Cymru Welsh Water, this is limited. We also consider the information provided in respect of other measures to be insufficient to meet the requirements of Welsh Government's 'Interim Planning Policy Statement on Development in SAC Rivers' (5 August 2025), particularly the need to demonstrate that appropriate steps to avoid deterioration have been secured.

We also consider that the viability and deliverability implications of securing any potential mitigation has not been made clear.

You are also asked to address:

- The implications of the recent judgement of *CG Fry & Son Ltd v SSHCLG [2025] UKSC 35*, which confirms that the requirement for HRA applies to the discharge of planning conditions, for the delivery of housing commitments i.e. those sites not yet complete and subject to the discharge of conditions;
- Your approach to non-residential allocations, particularly given the findings of Annex B to the HRA that policies in relation to Gypsy and Traveller sites, and employment sites, should be screened in for Appropriate Assessment; and
- Additional points set out in the annex to this letter.

Given the potential importance of this matter to ensuring delivery of the LDP strategy, we request the information contained within the attached annex be provided before the examination can proceed further. In recognition of this, we are suspending the examination for a period of **12 weeks** to enable you to complete the additional work and engage with relevant stakeholders.

The Council should prepare a **work programme** for undertaking all additional work, identifying key tasks, and target dates for completion and submission of new/updated documents. The work programme should be submitted to us via the Programme Officer no later than **15 December 2025**. The Council should provide an update to the Programme Officer every **4 weeks**.

The Council must submit the required information and documents by **23 February 2026**, after which we will inform you of the next steps in the examination process. Upon reflection, if the Council consider this period to be insufficient to enable submission of the further evidence that is required to progress with the examination, please advise the Programme Officer of a likely timescale and keep her appraised of any updates.

If any of the matters we have set out above are unclear, please contact the Programme Officer as soon as possible.

This letter will be published on the examination website. We are not inviting any comments or responses from interested parties.

Yours sincerely,

J de-Courcey and C MacFarlane

INSPECTORS

Annex:

The matters contained within the body of the letter should be addressed, including the information below, with an updated HRA, Infrastructure Delivery Plan, mitigation action plan, explanatory/background paper, and schedule of proposed changes to the LDP.

- Clear information on current and future strategies and actions of the Council/Nutrient Management Board; potential timescales and delivery mechanisms; and possible mitigation solutions and their likely effectiveness in reducing nutrient loads.
- For affected sites (allocations and commitments), confirm:
    - Forecast increases in volumes of phosphorus in each year of the LDP (making reasonable assumptions for units/floorspace, phasing, build out and occupancy).
    - Overall total loads for each catchment.
    - The name of the relevant WwTW, permit limits and how any identified capacity relates to the objective of nutrient neutrality.
    - Updated information on planned/recent improvements for phosphorus stripping (including the percentage efficiency of such striping) at any relevant WwTW.
    - Where additional phosphorus loadings would arise from the site (i.e. less than 100% stripping), signpost potential suitable on-site or off-site mitigation measures to avoid or reduce adverse effects on the SACs, including the predicted duration of any effects and potential load reductions.
- Ensure that the approach to identifying affected sites is undertaken on a consistent basis, providing a justification for that taken to non-residential development.
- Clarify the potential effect of the *CG Fry* judgement (in relation to the requirement for HRA on the discharge of planning conditions) on the delivery of committed sites and identify any assumptions made in relation to windfall allowances.
- Clarify how dwelling numbers and densities for each allocated site have been arrived at and the implications for on-site mitigation measures.
- Clarify whether the Preliminary Viability Report and Addendum Update include a sufficient allowance for any potential mitigation measures.
- A review of the relevant Deposit LDP policies, and identify any amendments required, in light of the matters raised and information requested.
- Consultation with NRW on the updated HRA and their response.

Appendix B Allocated Site Data

Table B1 Housing Development Data provided by MCC for the Usk Catchment

RLDP Policy Rep	Site Name	Settlement	Catchment Area	Status	Gross Site Area (ha)	Total Site Capacity	Open Market Homes	Affordable Homes	Phasing of Development (Base Date 1st April 2025) Estimated Completions								
									2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033 +9mnths
HA1	Land to the East of Abergavenny	Abergavenny	Usk	Allocation	35.9	500	250	250	0	0	0	70	90	90	90	90	70
HA5	Land at Penlanlas Farm	Abergavenny	Usk	Allocation	6.17	100	50	50	0	0	50	50	0	0	0	0	0
HA10	South of Monmouth Rd	Raglan	Usk	Allocation	4.5	54	27	27	0	0	40	14	0	0	0	0	0
HA11	Land East of Burrium Gate	Usk	Usk	Allocation	2.6	40	20	20	0	10	30	0	0	0	0	0	0
HA12	Land West of Trem yr Ysgol	Penperlleni	Usk	Allocation	3.4	42	21	21	0	0	30	12	0	0	0	0	0
HA14	Land at Churchfields	Devauden	Usk	Allocation	1	20	10	10	0	0	0	10	10	0	0	0	0
HA15	Land East Little Mill	Little Mill	Usk	Allocation	1.68	20	10	10	0	5	15	0	0	0	0	0	0
HA16	Land North of Little Mill	Little Mill	Usk	Rollover allocation	0.87	15	7	8	5	10	0	0	0	0	0	0	0
HA17	Land adjacent Llanellen Court Farm	Llanellen	Usk	Allocation	1.56	26	13	13	0	0	0	0	10	16	0	0	0
N/A	Windfall Allowance	Abergavenny	Usk	Windfall		100	50	50	0	0	0	0	0	30	30	30	10
N/A	Windfall Allowance	Secondary Settlements of Raglan, Penperlleni, Usk	Usk	Windfall		20	10	10	0	0	0	0	0	10	10	0	0

Table B2 Housing Development Data provided by MCC for the Wye Catchment

RLDP Policy Ref	Site Name	Settlement	Catchment Area	Status	Gross Site Area (ha)	Total Site Capacity	Open Market Homes	Affordable Homes	Phasing of Development (Base Date 1st April 2025) Estimated Completions								
									2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033 +9mths
HA6	Land at Rockfield Road	Monmouth	Wye	Allocation	1.5	60	30	30	0	0	0	0	40	20	0	0	0
HA4	Land at Leasbrook	Monmouth	Wye	Allocation	11	270	135	135	0	0	25	50	50	50	50	45	0
HA7	Land at Drewen Farm	Monmouth	Wye	Rollover allocation with planning permission	6.6	110	71	39	0	10	50	50	0	0	0	0	0
HA8	Tudor Road, Wyesham	Monmouth	Wye	Rollover allocation with planning permission	2.1	50	0	50	25	25	0	0	0	0	0	0	0
N/A	West of Rockfield Road	Monmouth	Wye	Commitment	2.86	70	45	25	0	35	35	0	0	0	0	0	0
N/A	Windfall Allowances	Monmouth	Wye	Windfall		10	6	4	0	0	0	0	0	2	2	2	2

Appendix B Strategic Mitigation Opportunities Report

rLDP Nutrient Neutrality Support

Task 5 Strategic Mitigation Opportunities
Volume I Main Report

Monmouthshire County Council

April 2026

Delivering a better world

Quality information

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Revision	Revision date	Details	Authorized	Name	Position
0.1	28.04.26	Draft for client review	OT	Owen Tucker	Technical Director – Water Science
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Abbreviations

Table 1. List of abbreviations

Abbreviation	Description
AMP	Asset Management Plan
AONB	Area of Outstanding Natural Beauty
ANCB	Appropriate Nature Conservation Body
DCWW	Dŵr Cymru Welsh Water
DwPA	Drinking Water Protected Area
DWF	Dry Weather Flow
ECJ	European Court of Justice
EQS	Environmental Quality Standard
HRA	Habitats Regulations Assessment
LPA	Local Planning Authority
rLDP	Replacement Local Development Plan
MCC	Monmouthshire County Council
NMB	Nutrient Management Board
NRW	Natural Resources Wales
PTP	Package Treatment Plant
RAG	Red-Amber-Green traffic light grading system
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SMOR	Strategic Mitigation Opportunities Report
SPA	Special Protection Area
SPG	Supplementary Planning Guidance
SRP	Soluble Reactive Phosphorus
SSSI	Site of Special Scientific Interest
SuDS	Sustainable [urban] drainage systems
TP	Total Phosphorus
WFD	Water Framework Directive
WwTW	Waste Water Treatment Works

Glossary

Table 2. Glossary of terms

Term	Description
Appropriate Assessment	An assessment to evaluate the significance of the impacts of a proposed plan or project (either individually or in combination with other proposals) on sites of EU importance (Natura 2000 sites), to inform the decision-making process.
Diffuse	The movement of ions or molecules from an area of higher concentration to an area of lower concentration
Diffuse Pollution	Pollution arising from multiple, widespread sources (e.g. agriculture, surface water runoff), rather than a single discharge point.
Eutrophication	The enrichment of water by nutrients leading to excessive algal growth, reduced oxygen levels, and harm to aquatic ecosystems.
Habitats Regulations Assessment	A competent authority must carry out an assessment under the Habitats Regulations, known as a habitats regulations assessment (HRA), to test if a plan or project proposal could significantly harm the designated features of a European site.
Nutrient Budget	An assessment quantifying nutrient inputs and outputs associated with a development.
Nutrient Loading	The amount of nutrients entering a waterbody over a given period, often measured in kilograms per year.
Nutrient Neutrality	A principle whereby a development must not increase nutrient loading (e.g. nitrogen or phosphorus) to sensitive water bodies.
Section 106 Agreement (Planning Obligation)	A legally binding agreement used to secure mitigation measures related to a development.
SPON costing	Refers to using Spon's price books and estimating guides to accurately calculate construction costs, including labour, materials, overheads, and profit.
Strategic scale mitigation	Refers to nutrient reduction measures that are planned, delivered, and managed at a catchment, sub-catchment or authority-wide level, rather than being tied to a single development site. The focus is on longer-term, coordinated interventions that can offset nutrient inputs from multiple developments or sources.

1. Introduction

The Inspectors appointed to examine the Monmouthshire County Council (MCC) Replacement Local Development Plan (rLDP) have requested additional information on the Council's approach to addressing the effect of proposed development in the rLDP on riverine Special Areas of Conservation (SACs) in relation to the discharge of phosphorus. The affected riverine SACs are the River Wye and River Usk sites.

In February 2026, MCC commissioned a study to estimate the potential increase in nutrient (phosphorus) loading from implementation of the rLDP. This study has been published within the Monmouthshire Replacement Local Development Plan 2018-2033 – Phosphate Position Paper (February 2026)[1]. The determination of phosphorus budgets was undertaken for all allocated and committed development in both the River Usk and River Wye catchments, with results presented on a 'year by year' basis. This study concluded that there will be an excess of phosphorus from foul wastewater from the proposed developments.

Since the completion of the first phase of this project, NRW have confirmed that the Lower River Wye through Monmouthshire, part of the River Wye SAC, is no longer failing for phosphorus, and as a result the nutrient neutrality regulations may no longer apply. However, developments proposed in the rLDP must not cause deterioration to less than good conservation status.

New developments that lead to an increase in phosphorus discharging directly to these SAC sites, or to catchments draining to these sites may contribute to unfavourable condition of, or undermine measures to restore, these features. **As such, proposed developments that drain to the SAC catchments and introduce new or increased nutrient loads need to demonstrate that they would not harm the integrity of SAC, and it may be that secured strategic or developer-led mitigation is required in order for projects to be consented, in the of absence of other wider initiatives (e.g. Review of WwTW Permits) or mitigation pathways.**

1.1 Purpose and Objectives of this Report

This Strategic Mitigation Opportunities Report (SMOR) provides a review of opportunities for strategic scale phosphorus reduction in Monmouthshire. Specifically, this refers to nutrient reduction measures that are planned, delivered, and managed at a catchment, sub-catchment, or authority-wide level, rather than being tied to a single development site. The focus is on longer-term, coordinated interventions that can offset nutrient inputs from multiple developments or sources, as opposed to an integrated approach or developer-led mitigation, which is not the subject of this report.

The SMOR provides a comprehensive, qualitative review of all potential strategic scale nutrient mitigation solutions that are currently known, including the approaches currently operational across England and Wales. This SMOR provides information and advice to adequately consider phosphorus neutrality in planning submissions within the River Usk SAC and the River Wye SAC water body catchment. Overall, this SMOR provides the following:

- An overview of how each strategic mitigation option functions.
- The mechanisms by which nutrient reductions may be achieved.
- The key considerations affecting their effectiveness and deliverability at scale.

The objectives of this SMOR are:

1. To provide an overview of mitigation options that may be suitable at a strategic scale, building on the existing NRW Mitigation Menu[2] (see **Section 5**).
2. To screen a long list of possible strategic solutions based on defined criteria, including two preferred options outlined by MCC (see **Section 6**).
3. To explore a short-list of options through engagement with the relevant Council Officers and Departments, desk studies and consideration of constraints and limitations, consultation with relevant

[1] Phosphate Position Paper February 2026
[2] NRW Mitigation Measures Menu (2025) Available at: mitigation-measures-menu.xlsx

partners where appropriate (e.g. Dŵr Cymru Welsh Water (DCWW) etc.) and through further scenario testing to assess likely phosphorus removal potential (see **Section 7**).

4. To provide worked examples of the preferred option(s) to estimate phosphorus load reduction for these measures, alongside outputs from the Welsh Government nutrient budget calculator or bespoke calculations. These include retrofitting SuDS to treat surface water runoff and treatment wetlands receiving flows from WwTWs. A viability and constraints assessment of the options with the greatest potential will be undertaken. High-level cost estimates will be provided where possible and where there is sufficient data available (see **Section 7**).
5. To provide recommendations as to the next steps (see **Section 8**).

1.2 Approach

This SMOR is primarily illustrated using residential development examples requiring nutrient mitigation as these are of most relevance to the rLDP. Nonetheless, nutrient mitigation requirements apply to most forms of development within the phosphorus nutrient neutrality catchment that have the potential to contribute new phosphorus loads through domestic wastewater or surface water runoff, including tourism, medical facilities/care institutions, education, mixed use and commercial schemes. Developments with effluent discharge permits must also ensure that no increase in phosphorus to habitats sites, but permitting process is outside the scope of this report.

The development of strategic options also draws on NRW's Mitigation Menu[2] as well as readily available literature and other evidence sources. This review provides an overview of the various successful approaches adopted to date at a strategic scale, before considering which of these may have applicability to Monmouthshire.

This SMOR has been prepared in April 2026 and is based on the current understanding and guidance of the nutrient neutrality issues affecting sensitive SACs and relevant mitigation approaches at that point in time.

1.3 Structure of this Report

The SMOR has been presented in the following sections:

- **Section 2:** Overview of the Southeast Wales designated sites.
- **Section 3:** Background to the phosphorus issue and nutrient neutrality in Wales.
- **Section 4:** Summary of potential mitigation pathways, including strategic solutions for nutrient neutrality.
- **Section 5:** Review of potential strategic scale nutrient mitigation solutions.
- **Section 6:** Comparative analysis of strategic options (including for example, effectiveness, cost and feasibility of implementation).
- **Section 7:** Development of short-listed strategic opportunities including practical case studies demonstrating the application of the Welsh Government (WG) All Wales Nutrient Budget Calculator and mitigation measures, illustrating the feasibility of strategic mitigation options.
- **Section 8:** Recommendations for further steps.

This report is supported by the following technical appendices included in a separate Volume II that can be made available upon request:

- **Appendix A:** Review of a long list of potential strategic scale nutrient mitigation solutions.
- **Appendix B:** Treatment wetlands viability and constraints assessment.
- **Appendix C:** Treatment SuDS viability and constraints assessment.

2. Southeast Wales Designated Sites

This SMOR focuses on the River Usk SAC and the River Wye SAC where phosphorus pressures have contributed to unfavourable site conditions. Figure 1 illustrates the location of the two SACs, along with their phosphorus nutrient neutrality catchment, and the Local Planning and National Park Authority boundaries.

The River Wye SAC is the largest Welsh SAC river, with its catchment divided into 43 Water Framework Directive (WFD) water bodies in Wales, while the River Usk SAC consists of 23 water bodies. Both SACs are designated under the Conservation of Habitats and Species Regulations 2017[3] for the protection of Annex I habitats and Annex II species.

In January 2021, NRW published a report[4] that presented the assessment of compliance against recently tightened phosphorus water quality targets for SAC rivers. The report showed that over 60% of SAC water bodies were failing the new targets for phosphorus.

Within the Usk, 88% of its water bodies were failing for phosphorus. As a result, new developments leading to an increase in phosphorus discharges to this site may contribute to the unfavourable condition of the designated site or make its restoration to favourable status more difficult to achieve. This is typically undertaken as part of a Habitat Regulations Assessment supported by Nutrient Neutrality and Mitigation Assessments.

Whilst previously failing (2021) the Lower River Wye is now considered by NRW (as of 2026) to no longer be failing for phosphorus. However, it is still important that any new development that may lead to an increase in phosphorus discharged to the SAC considers whether that discharge would risk causing deterioration of the river back to less than good conservation status.

Further details for the two riverine SACs are provided below.

[3] Participation, E. (no date) The Conservation of Habitats and Species Regulations 2017. Statute Law Database. Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents (Accessed: 8 January 2026).
[4] Natural Resources Wales / Compliance Assessment of Welsh River SACs against Phosphorus Targets (2021). Available at: compliance-assessment-of-welsh-sacs-against-phosphorus-targets-final-v10.pdf (Accessed: 13 April 2026).

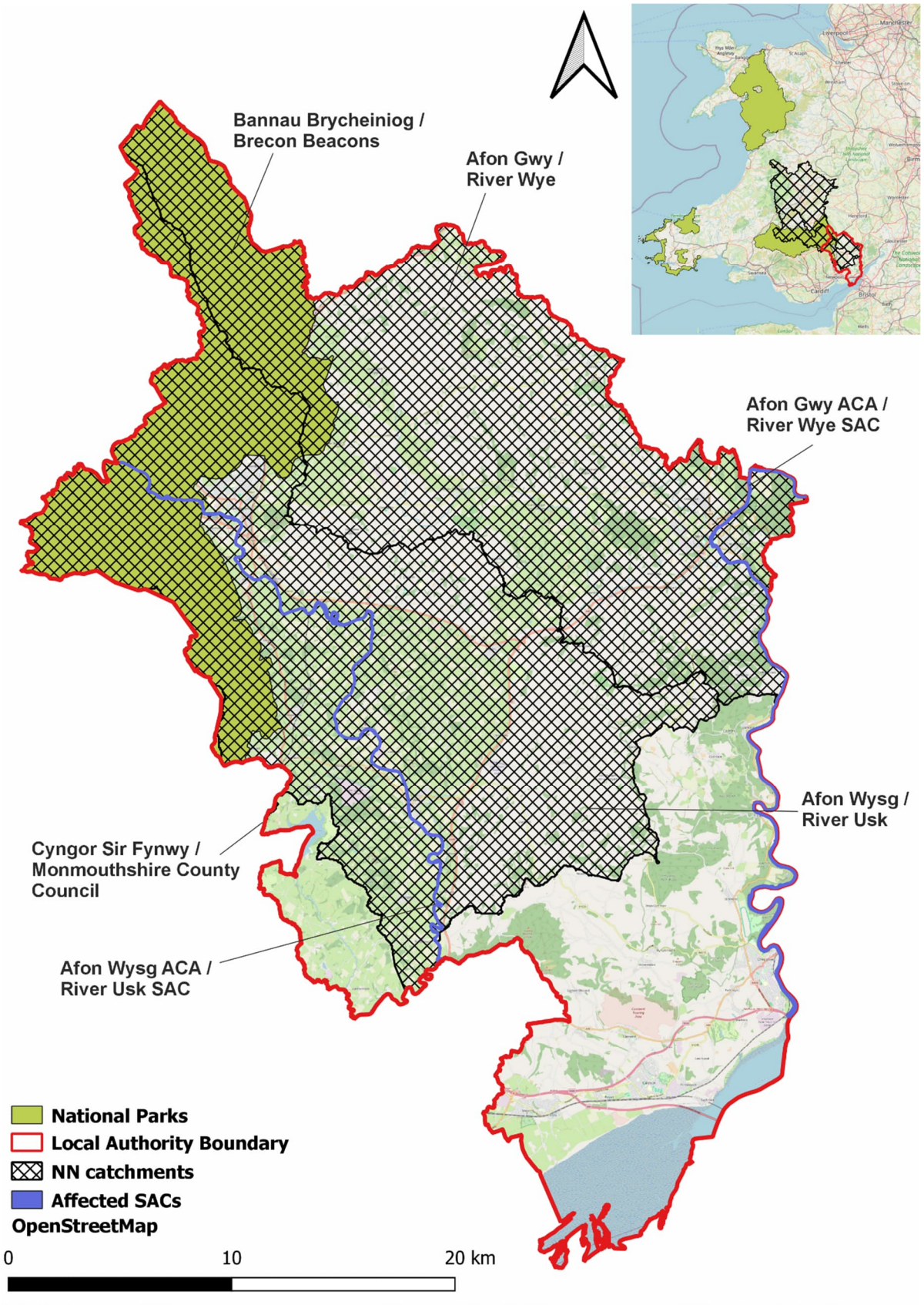

Figure 1 Location of the two SACs in South East Wales (River Usk SAC and River Wye SAC) where phosphorus pressures have contributed to unfavourable site conditions (source: Welsh Government Data Map Wales online data)

2.1 River Usk SAC

Figure 2 River Usk at Usk Island[5]

Summary Description	The Usk is a medium sized catchment in southeast Wales with a primarily sandstone geology and frequently carries heavy sediment loads following periods of rainfall[6]. The Usk is by some distance the worst performing SAC river in Wales with respect to its phosphorus targets and is the only river where there are extensive failures in the headwaters.
Annex I habitats that are a primary reason for designation[7]:	• Not Applicable
Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site[7]	• Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation
Annex II species that are primary reason for selection of this site[7]:	• Sea lamprey (*Petromyzon marinus*) • Brook lamprey (*Lampetra planeri*) • River lamprey (*Lampetra fluviatilis*) • Twaite shad (*Alosa fallax*) • Atlantic salmon (*Salmo salar*) • Bullhead (*Cottus gobio*) • Otter (*Lutra lutra*)
Annex II species present as a qualifying feature, but not primary reason for designation[7]:	• Allis shad (*Alosa alosa*)

[5] Monmouthshire County Council (2025). Available at: https://www.monmouthshire.gov.uk/our-main-parks-and-gardens/#Usk (Accessed: 14 April 2026).
[6] Natural Resources Wales (2021). Compliance Assessment of Welsh River SACs against Phosphorus Targets. Available at: https://cdn.cyfoethnaturiol.cymru/693025/compliance-assessment-of-welsh-sacs-against-phosphorus-targets-final-v10.pdf?mode=pad&rnd=132557227300000000 (Accessed: 14 April 2026).
[7] River Usk / Afon Wysg - Designated Special Area of Conservation (SAC) (no date). Available at: https://sac.jncc.gov.uk/site/UK0020020 (Accessed: 14 April 2026).

2.2 River Wye SAC

Figure 3 River Wye at Bigsweir[8]

Summary Description	The Wye is the largest SAC river, with a catchment covering much of southern Powys and part of the Bannau Brycheiniog National Park before crossing the border into England. Much of the Upper Wye catchment is rural and until recently has been predominantly farmed for sheep and cattle. More recently there has been a rapid expansion of poultry units, which has been the source of public concern[9].
Annex I habitats that are a primary reason for selection of this site[9]:	• Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation
Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site[9]:	• Transition mires and quaking bogs
Annex II species that are primary reason for selection of this site[9]:	• White-clawed (or Atlantic stream) crayfish (*Austropotamobius pallipes*) • Sea lamprey (*Petromyzon marinus*) • Brook lamprey (*Lampetra planeri*) • River lamprey (*Lampetra fluviatilis*) • Twaite shad (*Alosa fallax*) • Atlantic salmon (*Salmo salar*) • Bullhead (*Cottus gobio*) • Otter (*Lutra lutra*)
Annex II species present as a qualifying feature, but not primary reason for site selection[9]:	• Allis shad (*Alosa alosa*)

[8] Monmouthshire County Council (2025). Available at: https://www.monmouthshire.gov.uk/2025/03/mcc-welcome-investment-to-transform-the-river-wye/river-wye-at-bigsweir_14589368845_o/ (Accessed: 14 April 2026).
[9] River Wye / Afon Gwy- Designated Special Area of Conservation (SAC) (no date). Available at: https://sac.jncc.gov.uk/site/UK0012642 (Accessed: 14 April 2026).

3. Background

3.1 Phosphorus as an Issue in SACs

Phosphorus pollution is a significant environmental pressure on riverine SACs in Wales. Although phosphorus is naturally occurring, released slowly at low levels from natural sources such as natural bankside erosion, anthropogenic factors are also responsible for phosphorus being released into the environment. Key factors include land management and wastewater and sewerage discharge[10].

Elevated concentrations of phosphorus can lead to the process of eutrophication and can cause significant ecological damage to rivers including altering the balance of plant species. Excessive nutrient enrichment stimulates algal and plant growth which can lead to reduced dissolved oxygen concentrations, degradation of habitat quality, and loss of biodiversity. This can threaten the ecological integrity of SAC-designated rivers and the species they support, such as salmonids and freshwater invertebrates[10].

Assessments by NRW have shown that the majority of SAC river water bodies in Wales have failed to meet revised phosphorus targets, with over 60% of water bodies failing the new targets for phosphorus[4].

3.2 Nutrient Neutrality in Wales

Poor water quality caused by nutrient enrichment is one of the main reasons many designated marine, estuarine and freshwater habitats in Wales are in an unfavourable condition. Excessive nutrients drive eutrophication leading to deterioration of site integrity. To restore water quality, reductions in nutrient inputs are essential, as well as controlling future increases in nutrient loads (including from new development).

Nutrient neutrality has therefore become a critical requirement for development in parts of Wales. Initially focused on phosphorus in riverine SACs such as the River Wye, River Usk, River Tywi, River Teifi, River Dee, River Eden, River Glaslyn, River Gwyrfai and River Cleddau[11], nutrient neutrality now also concerns total nitrogen (recorded as DIN) pressures following the publication of additional studies into the current conservation status of coastal, marine or estuarine SACs[12]. However, the focus of this report is on the River Wye and River Usk SAC catchments.

Rather than a single policy announcement or legislative change, the Welsh approach to nutrient neutrality has evolved incrementally as NRW and LPAs responded to deteriorating water quality conditions at designated sites and the need to ensure compliance with the Habitats Regulations 2017. This Wales-specific approach is aligned with the broader UK concept but has been shaped by local policy drivers and the regulatory roles of NRW and the Welsh Government. It ultimately stems from the ruling of the European Court of Justice (ECJ) in combined cases C-293/17 and C-294/17 (a Dutch Nitrogen case).

In addition, the ruling reaffirmed that if a designated nature conservation site is in a deteriorating condition (such as due to excess nutrient levels that may also be forecast to increase) there are very limited circumstances under which further discharges of nutrients to a site can legally be permitted. As a result, in the absence of any empirically derived threshold by which additional aquatic inputs of nitrogen and phosphorus can be deemed nugatory or *de minimis*, it must be concluded that new development within the affected habitats site catchment could increase nutrient deposition into the protected sites above already harmful levels and thus interfere with the ability of the site to achieve its conservation objectives and the integrity of the European protected nature conservation site. This is relevant because under Regulation 63 of the Conservation of Habitats and Species Regulations 2017 an LPA (i.e. the Competent Authority) cannot legally consent a plan or project that will have an adverse effect on the integrity of any European protected nature conservation site.

[10] Natural Resources Wales / Advice to planning authorities for planning applications affecting nutrient sensitive Special Areas of Conservation (2026). Available at: https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/advice-for-planning-authorities/advice-to-planning-authorities-for-planning-applications-affecting-phosphorus-sensitive-special-areas-of-conservation (Accessed: 14 April 2026).
[11] Natural Resources Wales (2025). *Principles of nutrient neutrality in relation to development or water discharge permit proposals.* [Online] Available at: Natural Resources Wales / Principles of nutrient neutrality in relation to development or water discharge permit proposals (Accessed: 02 January 2026).
[12] Natural Resources Wales (2025). *Further action needed to protect Wales's marine protected areas.* [Online] Available at: Natural Resources Wales / Further action needed to protect Wales's marine protected areas (Accessed: 14 January 2026).

Welsh Government guidance has been released which suggests that in certain circumstances it may be possible to define a *de minimis* threshold applicable to Local Development Plans[13]. This is being explored by MCC in a forthcoming Developer Mitigation Handbook, but at the time of writing (April 2026) MCC is not aware of this having yet been successfully implemented elsewhere in Wales. Further information on all mitigation pathways in Wales is discussed in more detail in Section 3.4.

3.3 Monmouthshire rLDP 2018-2033

In the Infrastructure Delivery Plan: Background Paper (Updated October 2025)[14] MCC set out how they plan to deal with an increase in phosphorus emissions from new development. The Council has been working collaboratively with NRW, DCWW, Welsh Government, the development industry and biodiversity officers to find solutions to enable growth and allocate sites through the rLDP process that do not harm the environmental capacity of watercourses. DCWW has recently upgraded (in 2023) the phosphorus stripping capacity of Monmouth WwTW reducing contributions in the River Wye catchment and has committed to prioritising improvement works at the Llanfoist WwTW serving Abergavenny (benefitting the River Usk catchment) by the end of 2025. This is in addition to an initial investment of £100m in phosphorus reduction within their previous AMP7 (2020-2025). This investment will significantly reduce the amount of phosphates entering the water environment from the treatment works, providing environmental improvement and reducing the impact from new development. However, it will not eliminate all increases in phosphorus from future development and thus additional mitigation will be required to ensure that development proposed in the rLDP does not adversely affect SAC site integrity, particularly for the River Usk.

The allocated and committed development sites within each catchment considered in these initial nutrient budget estimates are shown in Figure 4.

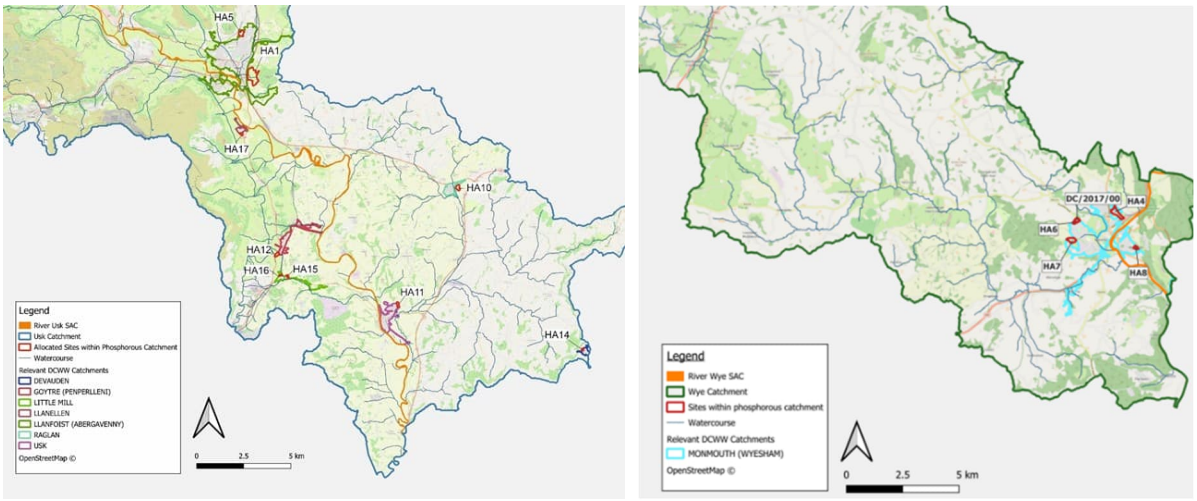

Figure 4 Allocated sites within the Usk SAC catchment (left) and Wye SAC catchment (right)

The final cumulative nutrient budget for the proposed developments in the Monmouthshire rLDP for the River Wye and River Usk catchments are presented in Table 3 for the two following scenarios:

- **Scenario 1 (Worst Case Scenario)** – Includes all housing types with no reduction in occupancy for affordable homes.
- **Scenario 2 (Best Case Scenario)** – Discounts 50% of affordable homes on the basis that half of allocated affordable homes are provided to local people who are likely to already be living within the nutrient neutrality catchment.

For both scenarios and both catchments, the proposed development allocated in the rLDP plus any committed development results in the generation of excess phosphorus (via foul wastewater). Significantly more phosphorus

[13] Welsh Government (2026) Applying the Tests of Soundness to Local Development Plans (LDPs) where additional nutrients may impact on Special Areas of Conservation (SACs). Available at: Clarification note: applying the tests of soundness to Local Development Plans (LDPs)

[14] Infrastructure Delivery Plan, Background Paper [Online]. Available at: https://www.monmouthshire.gov.uk/app/uploads/2025/10/SD104-Infrastructure-Delivery-Plan-Background-Paper-Updated-October-2025.pdf

requires mitigation in the Usk catchment compared with the Wye, reflecting the quantity of proposed development in each catchment (see Table 3).

Table 3 Summary results for the final nutrient budget in each catchment in 2033

Scenario	Usk Nutrient Budget 2033 (kg/yr TP)	Wye Nutrient Budget 2033 (kg/yr TP)
Scenario 1 (Worst-Case Scenario)	265	136
Scenario 2 (Best-Case Scenario)	199	103
Nutrient budget if proposed AMP8 phosphorus removal upgrades to WwTW had not taken place	*534*	*136*

3.4 Lower Wye 'No deterioration' Investigation

The Lower River Wye is no longer failing for phosphorus, and so MCC have undertaken an investigation for this river to determine whether the development proposed in the rLDP risks causing deterioration of the river to less than good conservation status.

To achieve this, it was necessary to determine the effect on phosphorus concentrations in the Lower Wye from the projected increase in phosphorus load arising from the rLDP proposed developments. Only the additional input via Monmouth WwTW (at SO 51532 11795) was required to be considered, as all the allocated or committed development sites in the Lower Wye catchment fall within this WwTW catchment. The location of data used in the assessment is provided in Figure 5.

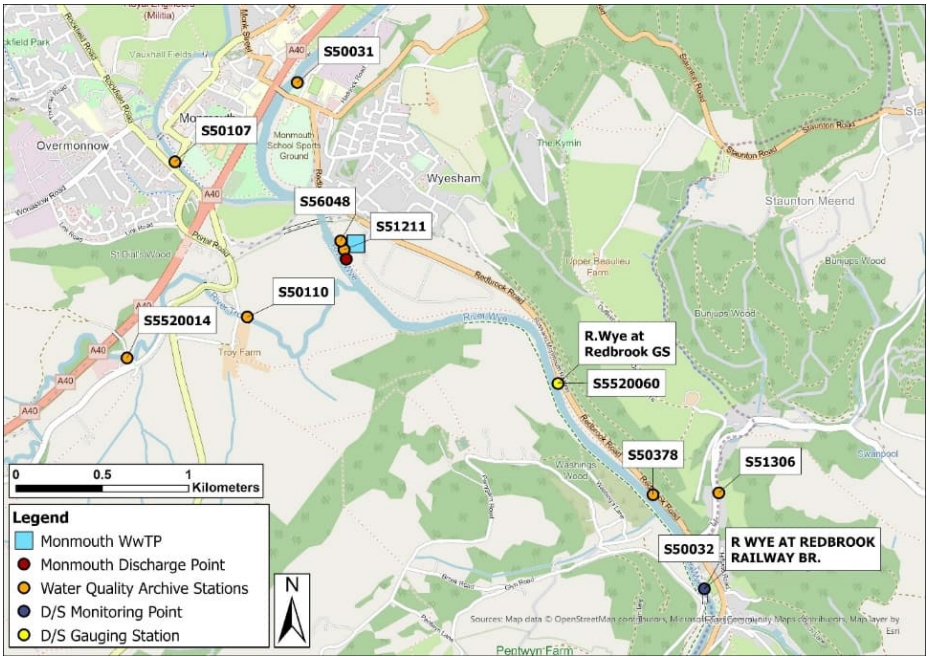

Figure 5 Monmouth WwTW and nearby water quality and flow monitoring stations.

The assessment concluded that when allowing for the maximum planned level of development (by 2033), the additional Total Phosphorus (TP) loading projected (i.e. 135.61 kg/year) would result in an estimated additional 0.13 mg/l TP in the average discharge concentration at Monmouth WwTW. This would increase the average discharge concentration to around 1.3 mg/l, which remains well within the permitted concentration of 2 mg/l.

The SAC Condition Assessment[6] is based on Monmouth WwTW operating under current permitted conditions for concentration and flow. As development comes forward in the future validation assessments will be required to confirm this initial assessment, reflecting the phosphorus environmental quality standard (EQS) for the Wye at that given point in time.

A precautionary mass balance calculation was also undertaken, which indicated that an exceedance of the phosphorus EQS downstream of Monmouth WwTW would not be predicted based on the rLDP delivery. The receiving water is estimated to maintain good WFD status for soluble reactive phosphorus (SRP) and therefore be at favourable conservation status even if the following worst-case assumptions are applied:

- Effluent flow is modelled as five times the DWF (dry weather flow).
- Effluent concentration is continuously at the permit threshold (i.e. 2 mg/l).
- The predicted dilution in the river is halved.
- All total phosphorus becomes available as SRP.

The report concluded that in principle the quantum of rLDP proposed development in the Lower Wye catchment can be delivered without resulting in a significant increase in phosphorus or a reduction in the conservation status of the SAC. However, it was also stated that these conclusions should be reviewed over time to confirm the receiving water remains at low risk in the context of evolving inputs to the river system as a whole. Therefore, future planning applications for allocated development are still likely to need to be supported by site specific Habitat Regulations Assessments including consideration of water quality risks to the Wye SAC.

4. Mitigation Pathways

The Welsh Government guidance for mitigation of phosphorus in river SACs (2025)[15] and the recent guidance on "Tests of Soundness"[16] (2026) indicate pathways of mitigation that may be applied to LDPs where the impact of additional nutrients on SAC's has been identified. NRW have also provided guidance regarding mitigation of nutrients within SACs (2026)[10].

It is notable that the current NRW guidance[10] suggests that if the relevant WwTW for proposed developments has an environmental permit that has been reviewed against the nutrient targets set out in the conservation objectives for the river SAC, it may be possible for a planning authority to conclude that there will be no likely significant effect with regard to phosphorus if certain criteria are met. Further mitigation can therefore be 'screened out'.

Where NRW are not content to screen the phosphorus loading out on the basis of the Review of WwTW permits, then the Welsh Government and NRW guidance outline several hierarchal approaches (or 'pathways') to mitigation, through which it would be feasible to mitigate the phosphorus loads associated with the rLDP, thereby providing confidence that no adverse effects on the site integrity of the SACs would occur (see Figure 6). This section introduces the main 'pathway' approaches at a high level, including Strategic Scale Mitigation.

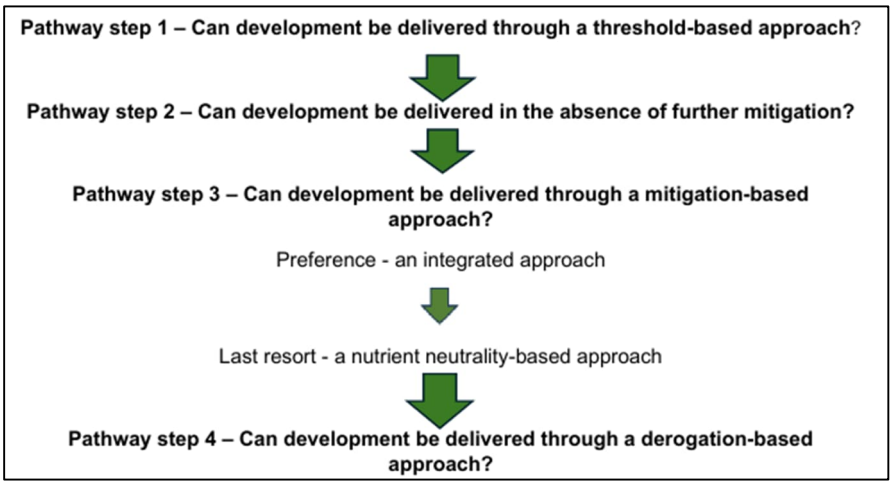

Figure 6 Hierarchal pathways to mitigation

4.1 Threshold Approach / De Minimis

The Welsh Government clarification note[16] suggests that the first consideration with regards to mitigation pathways for nutrients (where significant effects on site integrity cannot be ruled out on the basis of WwTW upgrades) is whether it may be possible in some cases to screen out a certain quantum of development as being *de minimis,* i.e. the nutrient loading from the development falls beneath a defined threshold whereby plan proposals will not have any meaningful influence over the achievement of the conservation objectives for the SAC. Definition of any such threshold must be supported by relevant evidence and assessment[16] and be sufficiently certain.

Welsh Government guidance is clear that a threshold-based approach on a project-by-project basis is not advised. The cumulative effect of policies and proposals must be taken into account, and so consideration of whether development can be regarded as *de minimis* must be undertaken in terms of the scale of implementation across the whole plan period (through to 2033) and necessarily will inform the appropriate assessment.

HRA '*de minimis*' thresholds are therefore anticipated to be derived on the basis of an overall quantum of development over a defined timeframe. A threshold-based approach may be combined with a wider integrated approach (see next sub-section) across an area in the rLDP, reflecting catchment-specific characteristics and circumstances. Case studies are given in the recent Welsh Government clarification note on tests of soundness.

To agree a threshold approach, planning authorities will need to be satisfied that the additional loading from the rLDP will not undermine the achievement of the conservation objectives. In other words, the additional loading

[15] Planning Guidance - Development in SAC Rivers
[16] Clarification note: applying the tests of soundness to Local Development Plans (LDPs)

will not exert any meaningful influence over the effectiveness of action to be taken to achieve the conservation objectives or otherwise delay the achievement of such objectives.

No thresholds for *de minimis* have been determined for the Usk and Wye catchments at this stage, nor for other catchments affected by nutrient issues in Wales (as of April 2026). It remains uncertain as to how such a threshold can be robustly defined and defended. Nonetheless, MCC are exploring this approach further with NRW to determine whether there is potential for development of a threshold, where it can be sufficiently supported with evidence. Progress in this regard will be included where relevant in the forthcoming Developer Mitigation Handbook.

4.2 Integrated Approach

Where it is not possible to define a *de minimis* threshold and development requires mitigation, the Welsh Government clarification note on applying the Tests of Soundness to LDPs indicates an integrated approach as the preferred solution to ensure no adverse effects to SAC rivers[16].

The overall aim of an integrated approach is to coordinate actions to deliver a long-term improving trend in nutrient levels within SAC catchments, whilst managing growth in accordance with the sustainable development principle. Appropriate steps to avoid deterioration or provide restoration (under Article 6(2) of the Habitats Regulations) in nutrient neutrality affected catchments could include the following:

- Planned upgrades to WwTWs and/or DCWW AMP8 schemes including storm overflow improvements.
- Ongoing work being delivered under the SAC Rivers project which will be implemented within the catchment of concern, including enhanced regulatory compliance and enforcement programmes to address non-compliance within the agricultural sector. This could include works being undertaken by Nutrient Management Boards (NMBs) or environmental improvement schemes under DCWW's AMP8.
- Work underway through the programme of measures under the WFD River Basin Management Plan (RBMP).
- Forthcoming NRW Catchment Nutrient Recovery Plans.

This integrated approach allows mitigation for nutrients by developers to be more closely integrated with the delivery of restoration under Article 6(2) where developer contributions:

- Increase the scale, magnitude, or scope of planned restoration measures (over and above what would otherwise have been delivered); **OR**
- Speed up delivery of planned restoration measures beyond what would normally be delivered, where the current implementation timescales risk meaningful ecological deterioration in the interim.

For the integrated approach to be viable there will need to be close ongoing collaboration between MCC, DCWW, NRW, NMBs, Catchment Partnerships and developers. MCC will explore relevant schemes underway within the affected catchment to which an integrated approach could be applied and will develop a platform for developers to contribute to these schemes where appropriate.

4.3 Strategic Scale Mitigation Solutions

Where it is not possible to apply a threshold or integrated approach, the Welsh Government clarification note on applying the Tests of Soundness to LDPs[16] indicates that a nutrient neutrality-based approach is then required. Strategic scale mitigation solutions such as large wetlands are in place and under development in some nutrient neutrality catchments across England (e.g. by various LPAs and Natural England) thereby reducing phosphorus loading where previous discharges had higher loads, enabling developers to buy nutrient credits to offset development. However, for many LPA areas, including those in Wales, strategic solutions are not yet in place. A Technical Working Group was set up in Wales (in November 2025) to look at developing nutrient trading schemes.

This SMOR focuses on potential strategic scale mitigation solutions within Monmouthshire to determine whether there are any feasible strategic mitigation approaches that might be applicable in the local authority. The strategic mitigation approach could include a wide array of mitigation options developed at scale by MCC, which could then be offered as part of nutrient credit scheme for developers to purchase and offset their nutrient contributions to the riverine SACs.

A long list of proven strategic nutrient mitigation approaches has been developed and are discussed in Section 5, based on precedence for delivery in England. A short-list has then been developed in Section 7 based on constraints within the Monmouthshire setting.

4.1 Developer Led Mitigation

Where a threshold-based approach is not appropriate, there are no suitable integrated solution options, and if strategic scale mitigation approaches for the management of excess nutrients are not possible or are yet to come to fruition, developers can lead on development of their own mitigation for a plan or project. Depending on the scale of mitigation, developer-led measures also have the potential to create headroom for other projects to proceed. To support developer led mitigation, MCC are preparing a Developer Mitigation Handbook for phosphorus in Monmouthshire. This will outline the nutrient neutrality assessment approach for developers and an array of potential mitigation options, including how these should be secured for the lifetime of the development.

5. Review of Potential Strategic Scale Nutrient Mitigation Solutions

This section provides a review of potential strategic scale nutrient mitigation solutions that could be applicable in Monmouthshire. This includes an appraisal of each option using a consistent evaluation framework and an overview of the assumptions and limitations of each option. At present, nutrient credit schemes that may provide a precedent from England have focused primarily on land use change, wastewater upgrades, and constructed wetlands, where nutrient reductions are more easily quantified.

Table 4 highlights the key differences between mitigation measures implemented at the strategic scale and those implemented at the developer scale. This represents a general distinction however, in some instances, landowners and developers in England have invested in large-scale mitigation solutions to generate and sell credits to other developers. While this report focuses on identifying suitable options for MCC, it is acknowledged that some of these approaches may be applicable to other parties who wish to develop a bank of nutrient credits to trade.

Table 4 General distinction between strategic scale mitigation and developer scale mitigation

Aspect	Strategic scale	Developer scale
Spatial extent	Catchment / authority-wide	Single development site
Delivery	Public sector / partnerships	Individual developer
Purpose	Offset multiple developments	Offset one development
Flexibility	High (portfolio approach)	Limited by site constraints
Efficiency	Often more cost-effective	Can be costly per unit
Governance	Requires coordination	Simpler governance

Table 5 outlines the strategic scale mitigation solutions that have been considered. Full details of each approach are given in Volume II Appendix A (available upon request):

Table 5 Summary of strategic scale mitigation solutions considered

Option	Description summary
Land use change	The permanent conversion of land uses with higher phosphorus export (e.g. arable or improved grassland) to land uses with lower phosphorus export (e.g. greenspace, woodland).
Septic tank upgrades	Replacing outdated septic tanks or PTPs with higher-efficiency models. The replacement system(s) must be located upstream of the development it mitigates and must be in the same catchment.
Water efficiency measures	Water efficiency measures rely on increased water usage efficiency in households to reduce the volume of wastewater (containing phosphorus loads). Low-flow fixtures can be installed on numerous household appliances, including toilets, showerheads, and faucets designed to use less water than conventional models while maintaining good performance.
Urban SuDS	SuDS aim to reduce the volume and speed of runoff entering watercourses, thereby lowering flood risk and improving water quality. They achieve this by slowing flows, promoting sedimentation, and encouraging infiltration, allowing rainfall to percolate into the ground close to where it falls. This Includes basins and ponds, filter strips and swales, constructed wetlands, soakaways, infiltration basins, gravelled areas, and porous paving.
Rural SuDS	Rural SuDS include features that attempt to mimic natural drainage processes to intercept/divert and/or improve infiltration and percolation of surface water run-off in rural areas. Unlike urban SuDS, rural SuDS

	typically operate at a larger scale, integrate with natural landscapes, and might require heavier duty earthworks due to the sheer size of the land available.
General wetlands	Non-treatment or “open source” wetlands are constructed wetland features that improve water quality without controlled or quantified inflows. These wetlands typically intercept diffuse runoff from agricultural land or urban areas and therefore are often integrated into SuDS or habitat restoration schemes.
Treatment wetlands	Treatment wetlands, also known as constructed wetlands, are engineered systems designed to replicate the physical, chemical, and biological processes that occur in natural wetlands. They are designed and managed in a specific manner to treat water which contains undesirable substances.
Enhanced drainage ditch management	Enhanced drainage ditch management is a method for managing agricultural drainage ditches and small watercourses in rural areas for nutrient benefits.

6. Comparative and Constraints Analysis

6.1 Introduction

This section compares the strategic nutrient mitigation measures considered in this review in terms of their relative effectiveness, cost, and potential feasibility of implementation within Monmouthshire. The analysis covers a range of options listed in Section 5 recognising that each option offers different levels of nutrient reduction and presents distinct delivery challenges.

The assessment draws on available evidence to highlight key differences between measures, including their likely nutrient removal performance, indicative costs, and practical considerations such as land availability, regulatory requirements, and long-term management. This comparative approach is intended to support the identification of mitigation measures that might be delivered at scale to achieve nutrient neutrality in Monmouthshire.

6.2 Analysis Criteria and Appraisal

Table 6 includes a Red, Amber, Green (RAG) grading for the current confidence, suitability in the solution, and cost for delivering phosphorus mitigation.

With regard to **confidence**:

- Red = Low Confidence = the mitigation approach is complex to deliver and / or difficult to secure in perpetuity. Unlikely that the criteria of sufficient certainty could be met without significant time and expense to develop the solution with multiple partners.
- Amber = Medium Confidence = the mitigation approach has precedent and can deliver nutrient benefits but has complexities which make it onerous to demonstrate sufficient certainty (e.g. in terms of required monitoring or securing legally).
- Green = High confidence = the mitigation approach is widely accepted in terms of nutrient benefits given appropriate design and implementation and are considered at the less onerous end of the spectrum in terms of securing in perpetuity with sufficient certainty.

With regard to **suitability**:

- Red = Low Suitability = the approach is not considered suitable for strategic scale mitigation.
- Amber = Medium Suitability = the approach may be suitable but will require substantial investment to prove nutrient reductions and to maintain these in perpetuity.
- Green = High Suitability = the approach is considered suitable for strategic scale with good potential to deliver and secure in perpetuity.

With regard to **cost**:

- Red = High Cost = the approach is expensive and would unlikely be cost effective.
- Amber = Medium Cost = the approach will require substantial investment and further consideration is required to determine whether it is cost effective.
- Green = Low Cost = the approach is expected to be cost effective.

Those with Red or Amber ratings for confidence are not necessarily precluded from use in delivering neutrality and so may be suitable, but it is likely that a higher degree of evidence will be required to ensure sufficient certainty (i.e. beyond reasonable scientific doubt) that the stated nutrient reductions would be achieved in perpetuity. Hence, they are generally less favourable options.

Table 6 Analysis of mitigation measures considering effectiveness, cost and feasibility

Mitigation measure	Detail	Confidence	Cost	Suitability within Monmouthshire
Land use change	The approach has high longevity (assuming land use change is secured in perpetuity through S106 agreements) and certainty if it is possible to secure monitoring to confirm that the new land use is maintained, and so confidence is high. However, suitability for a strategic solution is limited given that MCC have insufficient land holdings to generate meaningful phosphorus reduction and it would be prohibitively costly to purchase additional land.			
Septic tank and PTP upgrades	This measure can also be applied to additional existing properties to create a TP surplus. However, it must first be confirmed that connection to the mains sewer is not reasonably practicable, in line with the Welsh Government Non-Mains Drainage Circular (008/2018). Manufacturer's testing data for each product can inform the level of TP reductions that are achievable. Nonetheless, it will be required to demonstrate that the PTP will be subject to legally secured ownership and responsibility, ensuring that operation, maintenance and compliance are defined. This may be secured through planning conditions, legal agreements, or other binding mechanisms as appropriate. Suitability for a strategic solution is limited given that MCC have an insufficient number of council houses in which to undertake septic tank upgrades.			
Water efficiency measures	Manufacturer's product testing data (e.g. on flow control devices) provides a clear idea of water volume reductions that are achievable. For sufficient certainty, the Competent Authority will require evidence that a Maintenance and Monitoring Plan is secured and will remain in place upon sale of any affected property via a legal agreement. Regular data submissions to the LPA may be required to show metered water levels and evidence of appliance checks to demonstrate that the water efficient fittings are performing to the required standard to achieve the stated nutrient reductions. Suitability for a strategic solution is limited given that MCC have an insufficient number of council houses in which to implement water efficiency measures.			
Urban SuDS	There is substantial evidence on TP benefits of certain SuDS approaches, if correctly implemented, and so SuDS are a suitable approach to reduce surface water TP in urban runoff. Suitability for a strategic solution as SuDS can be implemented on MCC owned land (e.g. car parks).			
Rural SuDS	There is substantial evidence on TP benefits of certain SuDS approaches, if correctly implemented, and so SuDS are a suitable approach to reduce surface water TP in rural runoff. Suitability for a strategic solution however may be limited within MCC due to a lack of rural owned land.			
Treatment wetlands	Nutrient removal from constructed wetland can be significant but is dependent on appropriate design. Due to the complexity of characterising flows and loads accurately, post-implementation monitoring is essential. Demonstrating the full nutrient removal potential			

Mitigation measure	Detail	Confidence	Cost	Suitability within Monmouthshire
	of a wetland may take 1 to 3 years or longer, as performance stabilises over time. In general, they are suitable for strategic scale implementation on MCC owned land.			
Other wetlands	Other wetlands are defined here as those not considered constructed or treatment wetlands but rather habitat creation such as in-ditch wetlands, ponds, and floodplain reconnection. While these wetlands can contribute to nutrient retention, their lack of controlled water inflows and uncertainty surrounding nutrient removal processes limits their suitability for formal nutrient neutrality calculations.			
Enhanced drainage ditches	An approach that combines a two-stage channel cross-section with low-grade weirs and vegetation on the inset floodplain benches. The combination of these approaches within a single channel aims to increase hydraulic residence time within the drainage network, promoting a suite of natural processes that reduce onward nutrient transport. Assuming correct design and implementation there is confidence in the TP mitigation related to this approach. However, there are substantial maintenance and monitoring requirements to ensure that the original design is maintained (e.g. periodic sediment removal may be required). Suitability for a strategic solution is limited as delivery of enhanced drainage ditch measures is likely to involve extensive site screening and evaluation, resulting in a relatively labour-intensive process and development of agreements with landowners or land acquisition.			

MCC are not restricted to the list provided in Section 5 and may be able to define alternative or novel approaches to delivering phosphorus mitigation. However, these will also need to provide sufficient certainty in the phosphorus reduction in perpetuity. Within Monmouthshire, approaches such as land-use change which have been implemented elsewhere were not considered suitable due to a shortage of MCC owned agricultural land which enable the approach to be adopted. Similarly, MCC do not have a bank of housing stock to which additional water use efficiency measures could be applied.

Overall, the short-listing approach determined that urban retrofit SuDS and constructed wetlands were possible options within Monmouthshire, and these were taken forward for further consideration of their potential. This included initial environmental and engineering constraints analysis to identify potentially suitable sites that could be taken forward for concept design by MCC. High level estimates of nutrient removal to determine how much benefit they would provide in terms of nutrient mitigation for the rLDP developments, and the details of the mitigation selection, constraints analysis and nutrient reduction potential estimates, are discussed in more detail within Section 7.

7. Development of Strategic Opportunities

7.1 Introduction

The allocated developments in the Usk catchment are projected to generate approximately **265 kg TP/yr** by 2033 under a worst-case scenario, which will require mitigation, and **136 kg TP/yr** by 2033 for the Wye catchment, although this has now moved out of unfavourable status and so there is no immediate need for mitigation. From the long list developed in Section 3, several strategic opportunities have been identified as having the potential to provide a solution or contribute to the solution within the Monmouthshire section of the River Usk catchment. These are developed further in this section. Volume II Appendix B and Volume II Appendix C (available upon request) provide an assessment of the potential viability of constructed wetlands and urban retrofit SuDS as a strategic nutrient mitigation option within the Monmouthshire section of the River Wye and River Usk catchments.

7.2 Constructed Wetlands

Overview of strategic mitigation option

Constructed wetlands are a nature-based nutrient mitigation option capable of providing additional nutrient removal downstream of WwTWs. When suitably designed and maintained, wetlands can provide significant attenuation of nutrient loads through a combination of natural physical, chemical and biological processes. As such, they offer potential as a strategic mitigation measure for the allocated developments in the catchments.

The assessment presented in Volume II Appendix B (available upon request) demonstrates that constructed wetlands may be a technically viable strategic mitigation solution at a subset of WwTWs within the affected catchments. However, their effectiveness as a strategic mitigation solution is highly site-specific and strongly influenced by land availability and type, hydraulic infrastructure, and the scale of treatment required relative to the nutrient load.

Approach

Data Collation

To identify the potential for MCC to use a constructed wetland as strategic mitigation, all relevant DCWW WwTWs in the affected nutrient catchments were identified. Data was requested from DCWW regarding influent flow rates and nutrient concentrations to the works as well as effluent flow rates and nutrient concentrations leaving the works. However, data was not made available in time to support this analysis and so effluent nutrient concentration data was derived from NRW's Water Quality Archive[17], except for Goytre, where the concentrations were set to a constant 1.4 mg/l for reflect the WwTWs 2030 permit. The WwTW discharge rates (m^3/day) were estimated from WwTW in Carmarthenshire with comparable sewer catchment areas (hectares), where AECOM has undertaken a similar assessment.

Constraints Analysis

A constraints analysis and mapping exercise was undertaken for each of the identified WwTW sites (9 no. considered in total). The GIS-based constraints review covered land availability, topographic suitability, geology, hydrogeology, flood risk, utilities, habitats, designated sites, land use and heritage factors. Data was derived from freely available online sources through the NRW website and data received directly from MCC. A range of constraints were evaluated using a Red–Amber–Green (RAG) scoring framework. The scoring methodology was derived by reviewing the requirements and considerations for constructed wetlands as nutrient-neutrality mitigation measures, informed by the Natural England nutrient neutrality framework[18] and relevant NRW criteria. The RAG ratings reflect the relative severity and potential implications of each constraint category on feasibility, rather than providing a definitive assessment of deliverability or scheme design.

[17] NRW Water Quality Archive | DataMapWales (no date). Available at: https://datamap.gov.wales/layers/geonode:nrw_water_quality_archive_stations (Accessed: 22 April 2026).
[18] Natural England, 2022. Framework Approach for Responding to Wetland Mitigation Proposals.

Constructability

The next step was to consider constructability, with consideration of site-specific engineering and delivery factors, including topography, flood risk, existing vegetation, land use, access, hydraulic connectivity, and the scale of enabling works required. Constructability was also scored using a RAG system. Green represents a relatively straightforward gravity fed system, amber indicates more complex but not insurmountable engineering requirements with a probable pumping solution, while red indicates that the site is essentially unviable in terms of constructability. At this stage an estimation of wetland size was also made based on engineering constraints for indicative purposes, however, this would be subject to further analysis at outline and detailed design.

Phosphorus Removal Performance

Phosphorus removal performance was estimated using the P-k-C* model described by Kadlec and Wallace (2009[19]), which is widely applied in the preliminary design and evaluation of constructed wetlands. The model adopts a first-order areal reaction framework in which pollutant removal is a function of hydraulic loading rate and influent concentration and incorporates a background concentration representing the lower bound of achievable treatment.

The governing equation is:

$$\frac{C_e - C^*}{C_i - C^*} = \left[1 + \frac{K_{TP}}{Pq}\right]^{-P}$$

Where:
C_i = Influent concentration of TP (mg/l)
C_e = Effluent concentration of TP (mg/l)
C^* = Background concentration of TP (mg/l)
K_{TP} = Rate coefficient for reduction of TP (m/yr)
P = Apparent number of tanks in series (PTIS – dimensionless)
q = Hydraulic loading rate (m^3/yr)

Rearranged to estimate effluent concentration (C_e):

$$C_e = C^* + (C_i - C^*)\left[1 + \frac{K_{TP}}{Pq}\right]^{-P}$$

A constant areal rate coefficient (K_{TP}) of 10 m/year was adopted, consistent with Kadlec and Wallace (2009). The hydraulic loading rate (q) represents the rate of inflow discharge (Q) (m^3/yr) per unit area of wetland (m^2), and was calculated as:

$$q = \frac{Q}{A}$$

Model inputs and assumptions adopted for this feasibility-stage assessment are available upon request. These assumptions reflect the limited availability of effluent concentrations, inflow discharge rates, and the early design stage. Input design and parameter data used for each WwTW site in the P-k-C* calculations can also be provided if required.

Using this approach, the P-k-C* model was applied to estimate potential annual TP mass removal for each WwTW, incorporating monthly removal variability. Calculations were undertaken for four wetland footprint scenarios of 100%, 80%, 60%, and 40% of the maximum feasible wetland area as a sensitivity analysis, which reflect likely reductions in effective treatment area arising from dense vegetation, flow paths, and multi-cell layouts as design develops.

Overview

Final recommendations on the optimum sites to take forward were made taking into account the outcomes of the constraints analysis, constructability appraisal, phosphorus removal performance and considering wetland location against rLDP allocated site location, to determine to what extent the wetland could mitigate the nutrients resulting from the plan.

[19] Kadlec, R.H. and Wallace, S. (2008) Treatment Wetlands. 2nd edn. Boca Raton: CRC Press. Available at: https://doi.org/10.1201/9781420012514.

Identifying Potential Locations for Wetland Implementation

Potential wetland locations were assessed at relevant WwTWs through a staged assessment comprising GIS-based constraints screening followed by a more detailed engineering-led constructability review. WwTWs considered relevant are those within the catchment of the River Usk and River Wye SACs, where these are located in Monmouthshire. This approach enabled the identification of areas where wetlands could reasonably be delivered, taking into account land availability, topography, flood risk, ecological constraints, hydraulic connectivity and enabling works requirements. A summary of the environmental constraints assessment is presented in Table 7, and a summary of the engineering constraints is provided in Table 8. All wetland sites in relation to rLDP sites are shown in Figure 7.

Table 7 Summary of Environmental Constraints

WwTW name	RAG Score	Rank	Description of key environmental constraints
Goytre	126	=1st	Adjacent area of ancient woodland may constrain some areas of pipeline and what is possible to deliver, in addition to some small areas located within Flood Zone 3. There are also some topographical challenges associated with this area, and the entire area is also located within a surface water Drinking Water Protected Area (DwPA) that is at risk, although design and standard mitigation during construction is likely to provide adequate protection. The site is underlain by Secondary A bedrock and superficial aquifers, with a mix of low to medium groundwater vulnerability associated with both bedrock and superficial deposits.
Devauden	126	=1st	Constraints associated with topography and location of ancient woodland, which may impact effluent pipe connection. Located in close proximity to an AONB and a chapel (terrestrial monument). The site is associated with a Secondary A bedrock aquifer with high groundwater vulnerability and freely draining soils.
Little Mill	126	=1st	Located within Flood Zone 3 and within a Regionally Important Geological site. The site is underlain by a Secondary A superficial aquifer characterised by high groundwater vulnerability and floodplain soils with naturally high groundwater levels.
Raglan	128	4th	Areas of Flood Zone 3 constrain space available for a wetland and Public Right of Way may require fencing with wetland creation. The site is underlain by Secondary A bedrock and superficial aquifers with high groundwater vulnerability and is characterised by floodplain soils with naturally high groundwater levels.
Usk	133	5th	Constraints associated with direct discharge into the River Usk SSSI and SAC and located within a surface water DwPA designated at risk. Underlain by Secondary A bedrock and superficial aquifers with medium groundwater vulnerability associated with freely draining floodplain soils. Extensive Flood Zone 3 and historic landfill constrains the extent of potential wetland.
Llanellen	137	6th	Some constraints associated with direct discharge into the River Usk SSSI and SAC and located within a surface water DwPA designated at risk. It is characterised by Secondary A bedrock and superficial aquifers with high groundwater vulnerability and is associated with freely draining floodplain soils. Located within Flood Zone 3, and Himalayan Balsam is present upstream of the WwTW, with potential for its occurrence on site.
Aberbaiden	138	7th	Some constraints associated with topography, location of the ancient woodland next to the outfall, and direct discharge into the River Usk SSSI and SAC. Located in the Bannau Brycheiniog National Park. The entire area is located within a surface water DwPA designated at risk. The site is also characterised by being underlain by Secondary A bedrock and superficial aquifers with high groundwater vulnerability with a freely draining floodplain. There are also constraints associated with public rights of ways.
Llanfoist	141	8th	Located within Flood Zone 3 and associated with direct discharge into the River Usk SSSI and SAC. The site is also located within two surface water DwPA designated at risk. The site is underlain by Secondary A bedrock and superficial aquifers with high groundwater vulnerability associated with both bedrock and superficial deposits and freely draining soils. There are also areas of artificial ground and a terrestrial monument which may constrain wetland placement and size. Non-

			native invasive species Himalayan Balsam and Butterfly Bush have been identified upstream of the WwTW and may pose a risk to the future management of the wetland.
Monmouth	145	9th	Located within Flood Zone 3 and Area of Outstanding Natural Beauty (AONB), directly bordering the River Wye SSSI and SAC and with nearby public rights of way. The entire area is also located within a surface water DwPA which is currently at risk and has a safeguard zone is in place, and also within DwPA groundwater body which has Poor overall status. The site is underlain by Secondary A bedrock and superficial aquifer designations with high groundwater vulnerability.

Table 8 Summary of Engineering Constraints

WwTW name	Constructability review rank	Description of key engineering constraints
Goytre	1	Based on high level review this site has potential for multiple gravity fed constructed wetland sites over the length of the existing outfall that could be investigated further. There is potential to increase the size and number of individual wetland areas from that highlighted if ecology, liaison with landowners, and treatment requirements allow.
Aberbaiden	2	There is potential to consider further a wetland to the east and west of the WwTW. However, there will likely be higher costs associated with pumping, construction of a new outfall, and a minor watercourse crossing.
Monmouth	2	Based on high level review this site has some more limited potential for a constructed wetland but with a more expensive pumped inlet arrangement. This is due to other more suitable areas being ruled out due to environmental and engineering constraints (e.g. within AONB, adjacent to County Showground or being within Flood Zone 3).
Llanellen	2	Site shows potential for a potential constructed wetland given available area of around 1.5 ha that could be investigated further. However, viability is based on the feasibility of pumping arrangements and whether the existing outfall to the river can be used.
Usk	2	A wetland may be technically feasible (subject to more detailed investigations) but is likely to have higher costs due to the need for a river crossing and 10 m pumping head requirement (more favourable land is located with Flood Zones 2/3 and so has been ruled out). However, the existing outfall is pumped and if this infrastructure can be re used, it may mitigate some of the higher cost.
Devauden	3	The combination of a 30m elevation gain to the wetland area, requirement for pumping and a new outfall, and limited treatment volumes associated with a small works results in an unfavourable cost benefit ratio.
Raglan	3	The WwTW is constrained by steep watercourses either side, directly upstream of the confluence. Although two potential wetland sites have been identified outside of environmental constraints (e.g. Flood Zone 3 and mature trees), both options would require pumped inlets, a watercourse crossing and a new outfall. Given the relative size of the WwTW this site looks to provide a poor cost to benefit ratio.
Llanfoist	N/A	Site ruled out as entire area is within Flood Zone 3.
Little Mill	N/A	Site ruled out as no suitable location due to hill topography.

This assessment concluded that viable wetland locations are not available at all the relevant WwTWs. Llanfoist WwTW, was ruled out due to its location in Flood Zone 3, noting that there was a small area outside of the flood zone ruled out for containing a terrestrial monument, while Little Mill WwTW was excluded due to unsuitable hillside topography. At the remaining sites, feasible wetland areas were identified along existing outfalls or within adjacent low-gradient farmland, subject to varying requirements for pumping, earthworks or modifications to existing discharge arrangements. These areas, along with available TP concentration and flow data were input into the P-k-C* model[18] to estimate the potential TP mitigation for each wetland, presented in Table 9. Refer to Volume II Appendix B for further details (available upon request).

Table 9 presents annual TP reduction based on the potential maximum available wetland area based on a desk study and certain assumptions as described later. For Goytre, Llanellen, Usk, Devauden and Raglan, the estimated TP reductions, even when assuming only 80% of the total area operates as active treatment (to act as a buffer), exceed the allocated nutrient budgets. In contrast, at Monmouth and Aberbaiden, TP reduction at 80% of the total available area does not meet the allocated nutrient budgets, suggesting that further refinement of TP removal rates may be required, potentially achievable through careful wetland design.

Table 9 Annual total phosphorus mitigation potential for a wetland utilising the maximum estimated available area at each WwTW.

WwTW name	Environ-mental Constraints RAG Score	Construct-ability review rank	Allocated sites served / downstream of WwTW / wetland outfall	Nutrient budget from relevant allocated sites (in 2033)* (TP/yr)	Max estimate available area for wetland (ha)	TP reduction at full area	TP reduction at 80% area	TP reduction at 60% area	TP reduction at 40% area
Goytre^	126 (=1st)	1	HA10, HA11, HA12, HA14, HA15, HA16	70.15 kg TP/yr	3.49	252	224	189	143
Aberbaiden	138 (7th)	2	All allocated sites are downstream	264 kg TP/yr	0.8	260	214	162	110
Monmouth	145 (9th)	2	HA4, HA6, HA7, HA8	103 kg TP/yr	1	106	86	66	44
Llanellen	137 (6th)	2	HA10, HA11, HA12, HA14, HA15, HA16, HA17	85.67 kg TP/yr	1.5	112	106	98	83
Usk	133 (5th)	2	HA11, HA10, HA14	42.24 kg TP/yr	1.25	300	258	209	152
Devauden	126 (=1st)	3	HA14	11.93 kg TP/yr	2	132	126	117	101
Raglan	128 (4th)	3	HA10, HA14	18.37 kg TP/yr	2.45	24	22	19	15
Llanfoist	141 (8th)	Site not assessed as not considered to have sufficient potential for constructed wetland development.							
Little Mill	126 (=1st)	Site not assessed as not considered to have sufficient potential for constructed wetland development.							

*Based on worst case scenario.

^Influent conc. for Goytre wetland were assumed as a constant 1.4 mg/l to reflect the WwTW 2030 permit requirement.

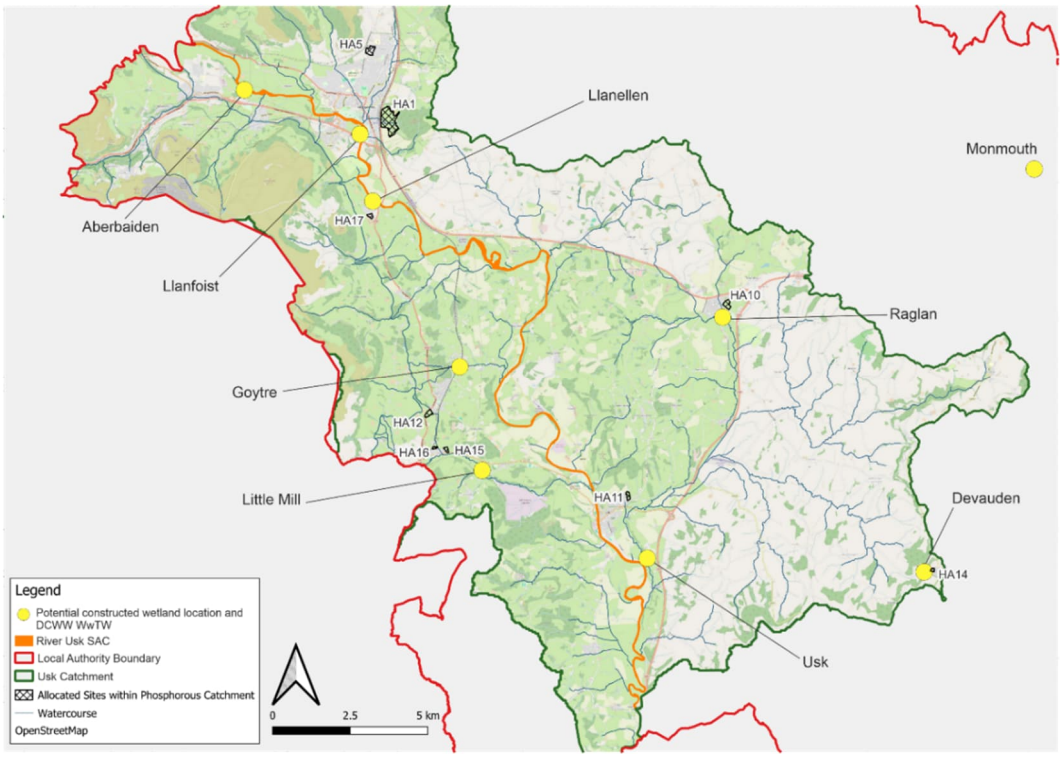

Figure 7 Location of all considered constructed wetlands and allocated sites

Table 10 presents an alternative assessment that focuses on optimising wetland size so that TP removal more closely aligns with the maximum nutrient budget that may be generated by allocated development served by the relevant WwTW and any development sites further downstream. The assessment assumes that 80% of the constructed wetland footprint functions as active treatment area, with the remaining 20% as a buffer. However, actual removal rates will be highly dependent on detailed design and long-term maintenance. Under this approach, wetland areas are sized so that the TP reduction achieved by the effective 80% treatment area meets or marginally exceeds the allocated nutrient budget.

Table 10 Constructed wetland areas required to meet site-specific total phosphorus nutrient budgets, assuming 80% of the wetland footprint functions as active treatment area

WwTW name	Environmental Constraints RAG Score	Construct-ability review rank	Nutrient budget from relevant allocated sites (in 2033)* (TP/yr)	Area required to mitigate 2033 nutrient budget* from relevant allocated sites with 20% buffer (ha)	Estimated TP reduction at 80% built wetland area
Goytre	126 (=1st)	1	70.15 kg TP/yr	0.75	72.23 kg TP/yr
Aberbaiden	138 (7th)	2	264 kg TP/yr	0.80	260 kg TP/yr**
Monmouth	145 (9th)	2	103 kg TP/yr	1.0	106 kg TP/yr**
Llanellen	137 (6th)	2	85.67 kg TP/yr	0.8	85.72 kg TP/yr
Usk	133 (5th)	2	42.24 kg TP/yr	0.16	44.56 kg TP/yr
Devauden	126 (=1st)	3	11.93 kg TP/yr	0.06	14.02 kg TP/yr
Raglan	128 (4th)	3	18.37 kg TP/yr	2	19.85 kg TP/yr

*Based on worst case scenario.

**Estimated TP reduction at 100% area.

The combined constraints assessment, constructability review, and P-k-C* estimation identify **Goytre WwTW** as the most feasible site for delivering a constructed wetland as a strategic phosphorus mitigation measure, with a maximum estimation of **252 kg TP/year** when utilising the total available area of 3.45 hectares (Table 9), or the wetland area can be reduced to 0.75 hectares to meet its allocated sites nutrient budget. Key advantages for constructing a wetland to treat Goytre WwTW effluent include:

- Lowest scoring in the environmental constraints screening (i.e. a higher score indicates more issues).
- Scope for the wetland to be gravity fed.
- Available land for multiple wetland cells, improving treatment reliability and hydraulic efficiency.

Despite this potential, a wetland at Goytre would only be applicable to mitigating development at the allocated sites served by it, or downstream of it, namely HA10, HA11, HA12, HA14, HA15, HA16. This does not include the developments HA1 and HA5 at Abergavenny.

As such, it is also recommended that **Aberbaiden WwTW** is investigated further through feasibility studies and design, as this site has the advantage of being upstream of all allocated sites in the Usk catchment. It can therefore be used as mitigation for all the allocated sites in this catchment, whereas the other potential wetland sites can only be used as mitigation for the allocated sites that it serves, or those downstream of it. As such, Aberbaiden WwTW appears to be the only feasible wetland option for mitigating the allocated developments at Abergavenny (i.e. HA1 and HA5). Based on the estimates presented herein, a wetland at Aberbaiden WwTW would have the potential to remove up to 260 kgTP/yr. Pumping would be required and there are other constraints requiring consideration (e.g. location in the Bannau Brycheiniog National Park authority area) but this is considered a key option for strategic mitigation. If an alternative site was required, WwTW further upstream in the SAC catchments within Powys or Herefordshire may be considered through further study. Providing mitigation

is upstream along the SAC it would be suitable to offset any excess phosphorous generated by allocated developments HA1 and HA5.

Finally, it is also recommended that the **Usk WwTW** should also be considered further. This site might have the potential to treat 300 kgTP/yr, although it would only serve allocated sites HA10, HA11, and HA14. While pumping will be required, the presence of existing pumped outfall infrastructure may reduce costs and make this option more cost-effective for delivering mitigation for HA10, HA11, HA14.The three preferred site locations are shown in Figure 8.

Of the remaining amber sites in Table 9, Monmouth WwTW is not considered further at this stage as it is located in the Wye SAC catchment which does not require mitigation (see Section 3.4). Llanellen WwTW is in the Usk catchment but has much lower nutrient removal capabilities than other sites in this catchment and so is not prioritised for further consideration at this stage.

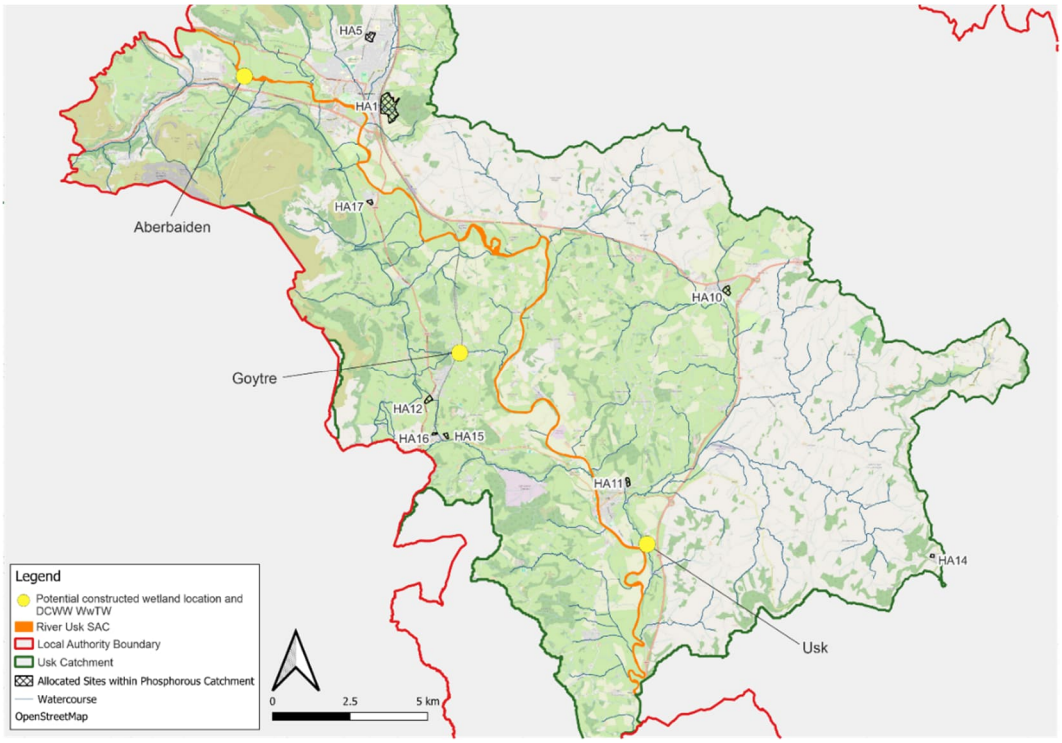

Figure 8 Location of preferred constructed wetlands

Potential Cost of TP Reductions from Constructed Wetlands

Construction costs for a constructed wetlands have been estimated using an AECOM tool that considers the additional costs smaller and standalone projects incur that are not typically reflected in SPONs costings. A high-level cost summary has been included in Table 11 assuming a wetland spanning 4 ha with 6 no. treatment cells.

Table 11 Indicative constructed wetland construction costs

Cost component	Indicative Cost (£)
Preliminary items	100,000
Site clearance	20,250
Plant hire	77,000
Plant fuel	30,000
Labour	92,500
Materials / installed works	1,250,500
Provisional sums	30,000
Subtotal (base)	***1,600,250***
CPI uplift (Sep 2025 → Dec 2025: +0.07%)	1,900
Risk allowance	18,750
Total Cost	**1,620,900**

Whilst the material costs which build up the bulk of the works can be scaled, the additional costs consisting of preliminary and other capital costs cannot. The resulting cost of a constructed wetland can therefore be split into material costs and additional fees, of approximately £315,000 per hectare and £365,500, respectively. Furthermore, where solutions are required to be pumped, an additional cost of £350,000 has been allowed for, based on historic projects carried out by AECOM. These costs have been applied to the wetlands below; however, these are indicative and would require the undertaking of a feasibility study prior to accurate costing. Furthermore, the figures below account for construction costs only, and exclude full life and maintenance costs.

Table 12 Indicative constructed wetland construction costs

WwTW name	Wetland area to achieve the nutrient budget target (hectares)	Material cost (£)	Additional fees (£)	Estimated cost (£)	Estimated cost inc. pumping (£)
Goytre	0.75	236,250.00	365,500.00	**601,750.00**	
Monmouth	1	315,000.00	365,500.00	680,500.00	**1,030,500.00**
Llanellen	0.8	252,000.00	365,500.00	617,500.00	**967,500.00**
Usk	0.16	50,400.00	365,500.00	415,900.00	**765,900.00**
Raglan	2	630,000.00	365,500.00	995,500.00	**1,345,500.00**
Devauden	0.06	18,900.00	365,500.00	384,400.00	**734,400.00**
Aberbaiden	0.80	252,000.00	365,500.00	617,500.00	**967,500.00**
Llanfoist	-	-	-	-	-
Little Mill	-	-	-	-	-

It is good practice when costing at this level of detail to include an optimism bias to cover unknown factors. It is generally recommended to allow for a 60% optimism bias[20] for anything up to feasibility design, which has not been quoted in the figures above. As the design progresses, the optimism bias associated with the costing would decrease as the level of confidence in the design increases.

Limitations and Uncertainty

The assessment of constructed wetlands as a strategic phosphorus mitigation option is subject to several limitations arising from data availability, modelling assumptions, and the feasibility-stage nature of the study. These include:

- **Flow data -** WwTW effluent flow discharge rates were not made available from DCWW and were therefore estimated using sewer catchment area as a proxy, scaled against comparable Carmarthenshire WwTWs. While this approach provides a reasonable indication of relative flow magnitude, it introduces uncertainty in the absolute hydraulic loading rates and therefore the TP mitigation potential, as the P-k-C* model is highly dependent on the TP influent loading.
- **TP effluent concentration –** WwTW effluent concentrations were derived from 1 to 3 sampling repeats per month, reducing certainty of monthly averages used to estimate annual TP reduction. For Goytre, the effluent concentration was set as a constant 1.4 mg/l to reflect the WwTW 2030 permit requirement, which will not reflect the actual effluent concentrations.
- **P-k-C* model**[18] **–** TP reduction was estimated using the P-k-C* model, where despite its wide use, the approach simplifies complex biogeochemical and hydraulic behaviour. It also does not account for short-term variability to stressor events (i.e., storms), seasonal dynamics, sediment phosphorus release and long-term performance.
- **P-k-C* model parameter constants –** Constant parameters including the TP rate constant, tanks-in-series and background concentrations, were derived from literature values and standard design assumptions rather than site-specific data that accounts for natural short-term variability. While these assumptions are consistent with accepted guidance for feasibility-level assessment, they may not reflect actual performance under local conditions and would require refinement through detailed design, monitoring data, and site investigations.

[20] Scottish Government / Flood protection schemes - assessment of economic, environmental and social impacts: guidance. Available at: ANNEX C. Optimism Bias Data for Flood Protection Costs - Flood protection schemes - assessment of economic, environmental and social impacts: guidance - gov.scot. (Accessed: 29 April 2026).

- **Maximum feasible wetland areas –** The identification and use of maximum wetland areas do not account for detailed layout design and land ownership constraints, which could reduce the effective treatment area. Sensitivity testing using reduced effective areas (80%, 60%, and 40%) was undertaken to partially account for this, but uncertainty remains regarding final deliverable extents until detailed design is developed and subsequent wetland monitoring undertaken.

7.3 SuDS

Overview of strategic mitigation options

SuDS are a nature-based mitigation option capable of providing nutrient removal from surface water runoff from highways. SuDS interventions including bioswales, raingardens, and permeable paving can provide treatment of surface water runoff through specially designed filter layers, particularly when deployed in 'treatment trains'. They can be designed to directly capture surface water runoff from highways through designed inlets, or to capture surface water from existing surface water sewers via a diversion. They can be retrofitted into urban environments with high nutrient loading from vehicles as an effective mitigation solution. The treatment potential of individual SuDS interventions is limited and therefore they must be deployed on a large scale. Furthermore, the viability of SuDS interventions as a treatment solution is highly dependent on the land available that is suitable for SuDS interventions including assessment of topography, available catchment area, and utilities.

Identifying potential locations for SuDS implementation

MCC provided a long list of potential SuDS locations across Monmouthshire. These identified SuDS locations were assessed through a RAG assessment comprising GIS-based constraints screening followed by a more detailed engineering-led constructability review. This approach enabled the identification of areas where SuDS could reasonably be delivered, taking into account topography, flood risk, ecological constraints, available catchment area, and existing street furniture of vegetation. The RAG assessment of the longlist provided by the client is provided in Volume II Appendix C (available upon request).

This assessment concluded that there were several viable locations suitable for SuDS interventions. Some locations were ruled out as they are located in Flood Zone 3 or 2. A selection of others were deemed unlikely to be feasible due to a lack of obvious catchment area available or the catchment area available was likely to have low nutrient loading, or due to the gradient of the land being too steep. The most suitable areas identified include Bailey Park (including the car park), Castle Street Car Park, Lansdown Road green space, Hillcrest Road verges, and Old Barn Way green space.

The sites recommended for further investigation including nutrient removal calculations were Bailey Park, Bailey Park Car Park, and Old Barn Way green space. A detailed assessment of each of these locations is provided in Volume II Appendix C (available upon request).

Additional sites rated as either amber or green are within the long list found in Volume II Appendix C.3 (available upon request). Taken together, the combined use of all three shortlisted options indicates potential nutrient removal of approximately **0.57 kg TP/year**. Whilst only an indicative analysis, this mitigation potential suggests the SuDS Retrofit approach is not feasible as an approach that could be expanded to a strategic level in Monmouthshire. A far greater land area of MCC owned impermeable areas would be required to generate significant nutrient benefits and it would not be cost effective to pursue retrofit upgrades on a sufficient scale for nutrient mitigation for the rLDP. Further details are given in Volume II Appendix C (available upon request), including details of constraints analysis, shortlisted sites potential costs and limitations of SuDS as a strategic mitigation approach.

8. Recommendations

It is notable that the current NRW guidance[10] suggests that if the relevant WwTW for proposed developments has an environmental permit that has been reviewed against the nutrient targets set out in the conservation objectives for the river SAC, it may be possible for a planning authority to conclude that there will be no likely significant effect with regard to phosphorus if certain criteria are met. Further mitigation can therefore be 'screened out'.

Where NRW are not content to screen the phosphorus loading out on the basis of the Review of WwTW permits, then the Welsh Government and NRW guidance outline several hierarchal approaches (or 'pathways') to mitigation, through which it would be feasible to mitigate the phosphorus loads associated with the rLDP, thereby providing confidence that no adverse effects on the site integrity of the SACs would occur. This report has considered 'pathway step 3' which relates to nutrient neutrality, and in particular, strategic mitigation options that could be led by Monmouthshire County Council.

Constructed wetlands have emerged from this exercise as the key strategic option with the potential to deliver the greatest nutrient mitigation benefit for the Usk catchment. Preferred sites have been identified at Goytre WwTW, Aberbaiden WwTW, and Usk WwTW. Aberbaiden WwTW is located upstream of all allocated sites in the Usk catchment of the rLDP and so may be able to provide mitigation across all sites, subject to appropriate design and implementation. It has the potential to deliver 260 kgTP/yr reduction, against the overall budget for the rLDP in the Usk catchment of 264 kgTP/yr. Wetlands at Goytre and Usk would provide mitigation for those allocated sites directly served by them, as well as those down catchment. However, any developments further upstream would not be able to apply for credits. Please note that at this stage only a high-level desk-based feasibility study has been undertaken to consider the initial potential at these sites. Further investigations, scheme development, and consultation with DCWW, landowners and NRW etc. is required if a viable scheme is to be developed, and this is reflected in the actions below.

Retrofit SuDS would provide very limited nutrient mitigation in comparison to wetlands based on available sites and are not considered a cost-effective solution. On this basis they are not recommended to be progressed.

Overall, the following recommended steps to further investigate and deliver a strategic wetland(s) have been included in the Nutrient Mitigation Action Plan:

- **Action 1:** MCC to continue ongoing consultation with DCWW regarding development of the preferred wetland site(s), and if agreement can be reached MCC will undertake concept design to ensure sufficient phosphorus reduction to offset a significant proportion of development proposed in the rLDP.

  Outcome: Confirmation of feasibility stage and progression to scheme development.

- **Action 2:** MCC to consider implementation and future operating costs and determine feasibility of nutrient credit scheme.

  Outcome: Determination of suitable mechanism for charging developers for nutrient credits and ensuring the option is sufficiently attractive for full implementation.

- **Action 3:** MCC to consult with NRW and DCWW regarding permit requirements.

- **Action 4:** MCC to seek agreement with DCWW over points of compliance for the existing permit and which party has 'ownership' of the water passing through, and discharged from, the wetland.

  Outcome: An agreed position documented through a Memorandum of Understanding between MCC and DCWW, or similar document.

- **Action 5:** MCC to undertake detailed design.

- **Action 6:** MCC/DCWW to apply for required Environmental Permits / planning permission.

- **Action 7:** MCC to construct and commission wetland.

- **Action 8:** MCC to prepare and implement Wetland Monitoring and Maintenance Plan (expected to be a condition of planning).

  Outcome (Actions 5-8): Design, build and operation of constructed wetland with nutrient credit system for prospective developers.

Appendix C Nutrient Mitigation Action Plan

rLDP Nutrient Neutrality Support

Task 7 Nutrient Management Action Plan

Monmouthshire County Council

April 2026

Delivering a better world

Quality information

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Revision History

Revision	Revision date	Details	Authorized	Name	Position
0.1	24.04.26	Final draft for client review	OT	Owen Tucker	Technical Director, Water Science
1.0	30.04.26	Final	JR	James Riley	Technical Director, Ecology

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1. Introduction

The Inspectors appointed to examine the Monmouthshire County Council (MCC) Replacement Local Development Plan (rLDP) have requested additional information on the Council's approach to addressing the effect of proposed development in the rLDP on riverine Special Areas of Conservation (SACs) in relation to the discharge of phosphorus. The affected riverine SACs are the River Wye and River Usk sites.

In February 2026, MCC commissioned a study to estimate the potential increase in nutrient (phosphorus) loading from implementation of the rLDP. This study has been published within the Monmouthshire Replacement Local Development Plan 2018-2033 – Phosphate Position Paper (April 2026)[1]. The determination of phosphorus budgets was undertaken for all allocated and committed development in both the River Usk and River Wye catchments, with results presented on a 'year by year' basis. As this study concluded that there will be an excess of phosphorus from foul wastewater from the proposed developments, mitigation will be required to ensure that the rLDP can be considered nutrient neutral (i.e. the developments do not contribute additional phosphorous loads to the River Wye SAC or River Usk SAC sites). Further details of the SAC sites are provided in Section 2.

This document sets out an initial Action Plan (AP) that MCC will implement and deliver in order to ensure that the rLDP can be enacted alongside the necessary reductions in phosphorous. The AP should be read in conjunction with the Strategic Mitigation Opportunities Report, which seeks to further develop the understanding of feasible, strategic mitigation opportunities and pathways within the affected catchments in Monmouthshire.

1.1 Aims and Objectives

The AP aims to set out the mitigation pathways and associated requirements that ensure that nutrient mitigation can be implemented and secured when needed, demonstrating that the rLDP is deliverable in line with its milestones.

The Welsh Government have recently (March 2026) provided a clarification note on how "*Tests of Soundness*" should be applied to LDPs where the impact of additional nutrients on SAC's has been identified[2]. This guidance indicates that an indicative mitigation action plan should include the following information:

- An estimate of the impacts arising from the plan proposals (see summary in **Section 3**);
- An estimate of the improvements from existing and future measures necessary to avoid further deterioration of the SAC, including from plan proposals (see **Section 3**).
- The securing of the appropriate steps to be taken including appropriate delivery mechanisms (see Section 4 and 6) and agreed milestones (see details of timescales in **Section 5 and 6**).
- Identifying integrated mitigation where this can be secured and appropriate developer contributions identified (which is interdependent with the on-going steps and measures) (see **Section 4 and 6**).
- Clear monitoring framework for implementing policies and proposals relative to the adaptive management framework (see **Section 6**).

In achieving these objectives, the MCC Nutrient Management AP has been developed to:

- Be **Outcome focused**.
- Outline a **phased programme** of necessary steps for each mitigation measure taken forward, with **indicative timing** outlined for each step (e.g. short-, medium-, long-term).
- Set out **details of engagement required with delivery partners** (and at what point in the process).
- Describe likely **funding routes** and **delivery mechanisms**.

[1] Monmouthshire County Council. April 2026. Monmouthshire Replacement Local Development Plan 2018-2033 – Phosphate Position Paper. 60pp. Available at: Monmouthshire-Phosphate-Position-Paper-Update-April-2026.pdf [Accessed on 30/07/2026]

[2] Clarification note: applying the tests of soundness to Local Development Plans (LDPs)

- Include information on each strategic measure to be taken forward, including information on **indicative costs for strategic mitigation solutions**, expected phosphorous reduction, and governance responsibilities.
- Include a prioritisation framework of actions (using a Red-Amber-Green system).
- Consider what **monitoring and review arrangements** are required.

Figure 1 shows the elements that constitute a robust action plan, which have been incorporated herein:

Figure 1 Elements forming a robust Action Plan

1.2 Approach

The AP is based on the current understanding of the situation within Monmouthshire and current nutrient management policy and guidance in Wales, most notably the following:

- Natural Resources Wales / Advice to planning authorities for planning applications affecting nutrient sensitive Special Areas of Conservation.
- Welsh Government / Clarification note: applying the tests of soundness to Local Development Plans (LDPs).
- Welsh Government / Planning Guidance - Development in SAC Rivers.
- Welsh Government Position Statement (June 2026) Monmouthshire County Council Replacement LDP – Nutrients.

Nonetheless, the guidance and AP requirements around nutrient neutrality continue to evolve, and as such the AP will be reviewed and updated periodically where necessary. This will be undertaken **annually** by MCC.

The AP has been developed collaboratively with partners, including MCC, Dwr Cymru Welsh Water (DCWW), Natural Resources Wales (NRW), and Nutrient Management Boards (NMBs) supported by a workshop with AECOM consultants on 15th April 2026. MCC intend to continue collaboration with regulators, delivery partners and potentially landowners and developers through delivery of the AP to ensure the efficient implementation of actions to enable development outlined within the rLDP to come forward (see Figure 2).

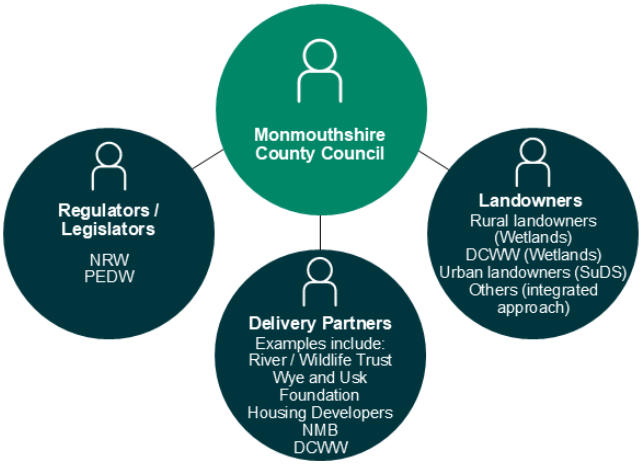

Figure 2 Organisations involved in delivery of the AP

2. Southeast Wales designated sites

2.1 Overview

The affected riverine SACs in Monmouthshire to which the nutrient neutrality principles apply are the River Usk SAC and the River Wye SAC. Figure 3 illustrates the location of the two SACs, along with their phosphorus nutrient neutrality catchment, and the Local Planning and National Park Authority boundaries.

The River Wye SAC is the largest Welsh SAC river, with its catchment divided into 43 Water Framework Directive (WFD) water bodies in Wales, while the River Usk SAC consists of 23 WFD water bodies. Both SACs are designated under the Conservation of Habitats and Species Regulations 2017[3] for the protection of Annex I habitats and Annex II species.

In January 2021, NRW published a report that presented the assessment of compliance against recently tightened phosphorus water quality targets for SAC rivers[4]. The report showed that over 60% of SAC water bodies were failing the new targets for phosphorus.

Within the Usk 88% of its water bodies were failing for phosphorous. As a result, new developments leading to an increase in phosphorus discharges to this site may contribute to the unfavourable condition of the designated site or make its restoration to favourable status more difficult to achieve. This is typically undertaken as part of a Habitat Regulations Assessment supported by Nutrient Neutrality and Mitigation Assessments.

Whilst previously failing (2021) the Lower River Wye is now considered by NRW (as of 2026) to no longer be failing for phosphorus. However, it is still important that any new development that may lead to an increase in phosphorous discharged to the SAC considers whether that discharge would risk causing deterioration of the river back to less than good conservation status.

Further details for the two riverine SACs are provided in 2.1.1 (River Usk) and 2.1.2 (River Wye).

[3] Participation, E. (no date) The Conservation of Habitats and Species Regulations 2017. Statute Law Database. Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents (Accessed: 8 January 2026).
[4] Natural Resources Wales / Compliance Assessment of Welsh River SACs against Phosphorus Targets (2021). Available at: compliance-assessment-of-welsh-sacs-against-phosphorus-targets-final-v10.pdf (Accessed: 13 April 2026).

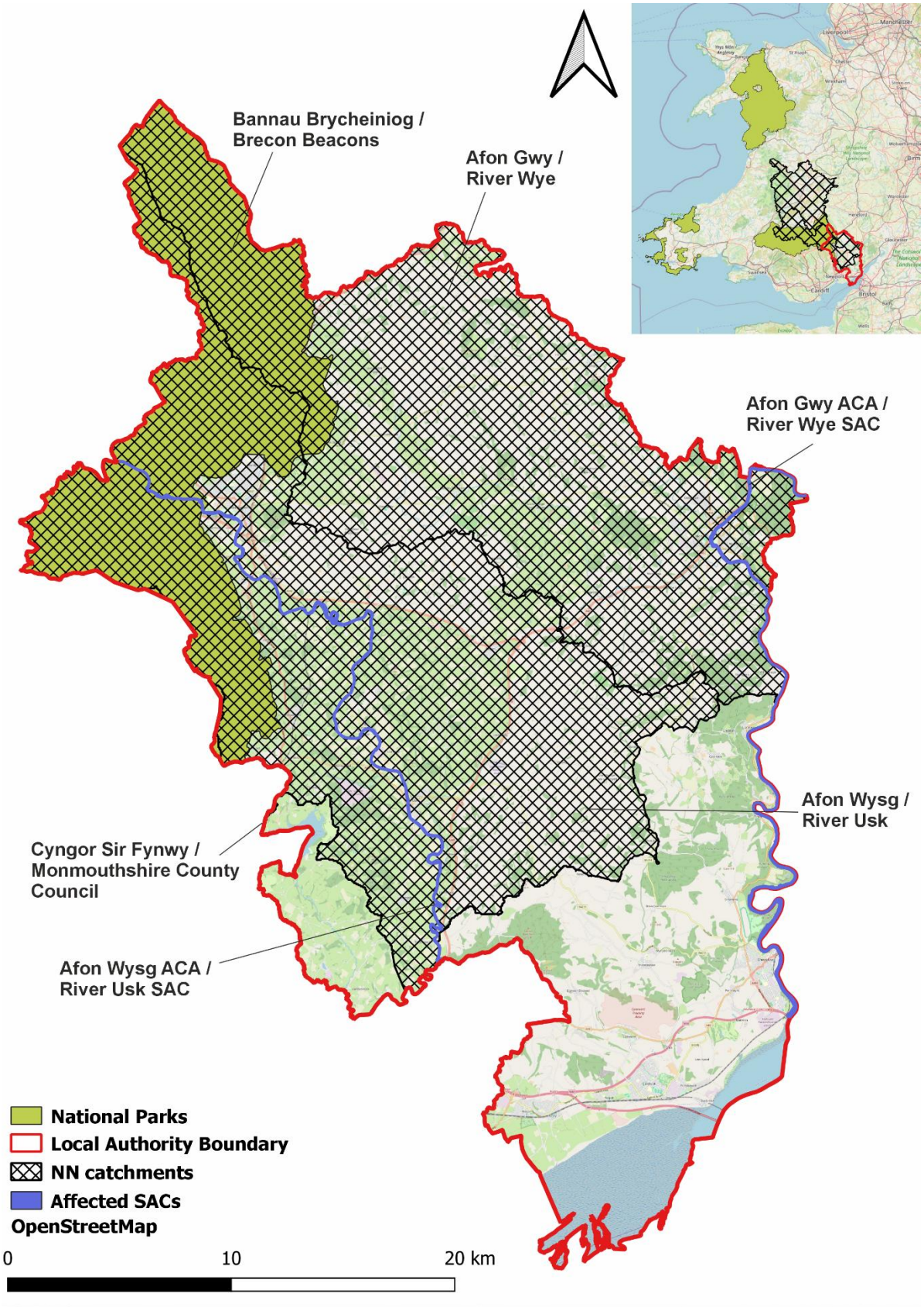

Figure 3 Location of the two riverine SACs in South East Wales (River Usk SAC and River Wye SAC) where phosphorus pressures have contributed to unfavourable site conditions (source: Welsh Government Data Map Wales online data)

2.1.1 River Usk SAC

Figure 4 River Usk at Usk Island[5]

Summary Description	The Usk is a medium sized catchment in southeast Wales with a primarily sandstone geology and frequently carries heavy sediment loads following periods of rainfall[6]. The Usk is by some distance the worst performing SAC river in Wales with respect to its phosphorus targets and is the only river where there are extensive failures in the headwaters.
Annex I habitats that are a primary reason for designation[7]:	• Not Applicable
Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site[7]:	• Watercourses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation
Annex II species that are primary reason for selection of this site[7]:	• Sea lamprey (*Petromyzon marinus*) • Brook lamprey (*Lampetra planeri*) • River lamprey (*Lampetra fluviatilis*) • Twaite shad (*Alosa fallax*) • Atlantic salmon (*Salmo salar*) • Bullhead (*Cottus gobio*) • Otter (*Lutra lutra*)
Annex II species present as a qualifying feature, but not primary reason for designation[7]:	• Allis shad (*Alosa alosa*)

[5] Monmouthshire County Council (2025). Available at: https://www.monmouthshire.gov.uk/our-main-parks-and-gardens/#Usk (Accessed: 14 April 2026).
[6] Natural Resources Wales (2021). Compliance Assessment of Welsh River SACs against Phosphorus Targets. Available at: https://cdn.cyfoethnaturiol.cymru/693025/compliance-assessment-of-welsh-sacs-against-phosphorus-targets-final-v10.pdf?mode=pad&rnd=132557227300000000 (Accessed: 14 April 2026).
[7] River Usk / Afon Wysg - Designated Special Area of Conservation (SAC) (no date). Available at: https://sac.jncc.gov.uk/site/UK0020020 (Accessed: 14 April 2026).

2.1.2 River Wye SAC

Figure 5 River Wye at Bigsweir[8]

Summary Description	The Wye is the largest SAC river, with a catchment covering much of southern Powys and part of the Bannau Brycheiniog National Park before crossing the border into England. Much of the Upper Wye catchment is rural and until recently has been predominantly farmed for sheep and cattle. More recently there has been a rapid expansion of poultry units, which has been the source of public concern[6].
Annex I habitats that are a primary reason for selection of this site[9]:	– Watercourses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation
Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site[9]:	• Transition mires and quaking bogs
Annex II species that are primary reason for selection of this site [9]:	• White-clawed (or Atlantic stream) crayfish (*Austropotamobius pallipes*) • Sea lamprey (*Petromyzon marinus*) • Brook lamprey (*Lampetra planeri*) • River lamprey (*Lampetra fluviatilis*) • Twaite shad (*Alosa fallax*) • Atlantic salmon (*Salmo salar*) • Bullhead (*Cottus gobio*) • Otter (*Lutra lutra*)
Annex II species present as a qualifying feature, but not primary reason for site selection[9]:	• Allis shad (*Alosa alosa*)

[8] Monmouthshire County Council (2025). Available at: https://www.monmouthshire.gov.uk/2025/03/mcc-welcome-investment-to-transform-the-river-wye/river-wye-at-bigsweir_14589368845_o/ (Accessed: 14 April 2026).
[9] River Wye / Afon Gwy- Designated Special Area of Conservation (SAC) (no date). Available at: https://sac.jncc.gov.uk/site/UK0012642 (Accessed: 14 April 2026).

3. Context and Progress to Date

3.1 Potential rLDP Nutrient Load Impact

In February 2026, MCC commissioned a study to estimate the potential increase in phosphorus loading from implementation of MCC rLDP. This phase of work included three tasks:

- **Task 1** – Nutrient budget calculations for committed/allocated developments in the Usk/Wye catchments.
- **Task 2** – High level review of non-residential development and its potential impacts on designated sites.
- **Task 3** – High level review of mitigation options available in the affected catchments.

The allocated and committed development sites within each catchment considered in these initial nutrient budget estimates are shown in Figure 6.

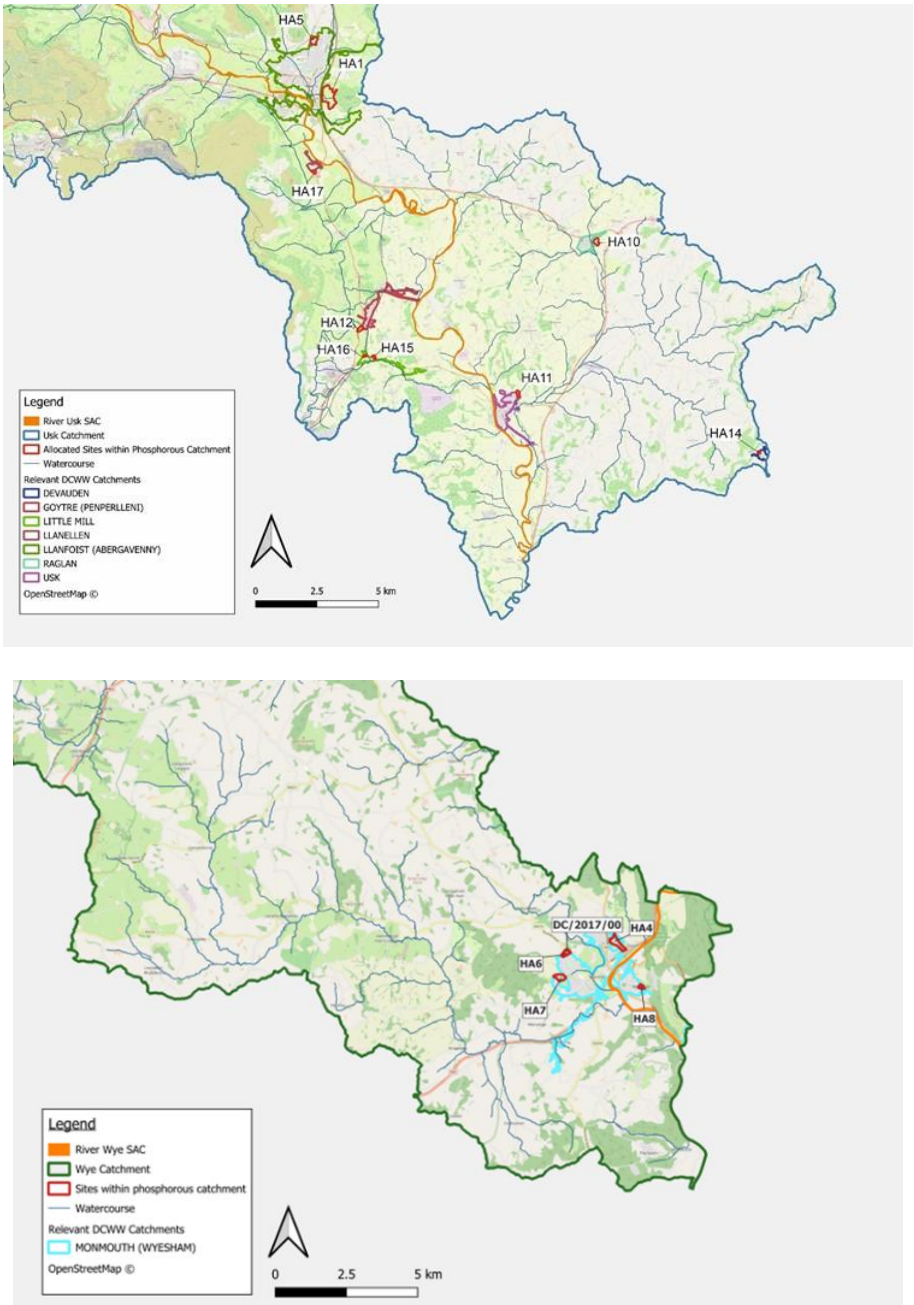

Figure 6 Allocated sites within the Usk SAC catchment (top) and Wye SAC catchment (bottom)

The final cumulative nutrient budget for each catchment under two scenarios is presented in Table 1:

- **Scenario 1 (Worst Case Scenario)** – Includes all housing types with no reduction in occupancy for affordable homes.
- **Scenario 2 (Best Case Scenario)** – Discounts 50% of affordable homes on the basis that half of allocated affordable homes are provided to local people who are likely to already be living within the nutrient neutrality catchment.

For both scenarios and both catchments, the proposed development allocated in the rLDP plus any committed development results in the generation of excess phosphorus (via foul wastewater). Significantly more phosphorus requires mitigation in the Usk catchment compared with the Wye, reflecting the quantum of proposed development in each catchment (see Table 1).

Table 1 Summary results for the final nutrient budget in each catchment in 2033

Scenario	Usk Nutrient Budget 2033 (kg/yr TP)	Wye Nutrient Budget 2033 (kg/yr TP)
Scenario 1 (Worst-Case Scenario)	265	136
Scenario 2 (Best-Case Scenario)	199	103
Nutrient budget if proposed AMP8 phosphorus removal upgrades to WwTW had not taken place	*534*	*136*

3.2 Lower Wye 'No deterioration' Investigation

As mentioned earlier, the Lower River Wye is no longer failing for phosphorus, and so MCC have undertaken an investigation for this river to determine whether the development proposed in the rLDP risks causing deterioration of the river to less than good conservation status.

To achieve this, it was necessary to determine the effect on phosphorus concentrations in the Lower Wye from the projected increase in phosphorus load arising from the rLDP proposed developments. Only the additional input via Monmouth WwTW (at SO 51532 11795) was required to be considered, as all the allocated or committed development sites in the Lower Wye catchment fall within this WwTW catchment. The location of data used in the assessment is provided in Figure 7.

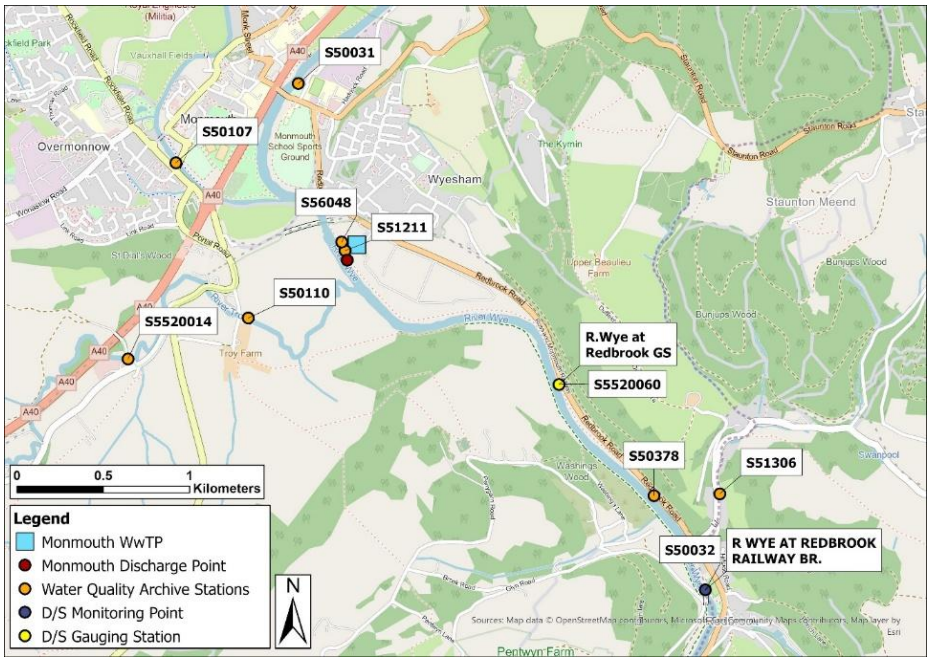

Figure 7 Monmouth WwTW and nearby water quality and flow monitoring stations.

The assessment concluded that when allowing for the maximum planned level of development (by 2033), the additional TP loading projected (i.e. 135.61 kg/year) would result in an estimated additional 0.13 mg/l TP in the average discharge concentration at Monmouth WwTW. This would increase the average discharge concentration to around 1.3 mg/l, which remains well within the permitted concentration of 2 mg/l.

The SAC Condition Assessment[4] is based on Monmouth WwTW operating under current permitted conditions for concentration and flow. As development comes forward in the future validation assessments will be required to confirm this initial assessment, reflecting on the phosphorus Environmental Quality Standard (EQS) for the Wye at that given point in time.

A precautionary mass balance calculation was also undertaken, which indicated that an exceedance of the phosphorus EQS downstream of Monmouth WwTW would not be predicted based on the rLDP delivery. The receiving water is estimated to maintain good WFD status for Soluble Reactive Phosphorus (SRP) and therefore be at favourable conservation status even if the following worst-case assumptions are applied:

- Effluent flow is modelled as five times the DWF (dry weather flow).
- Effluent concentration is continuously at the permit threshold (i.e. 2 mg/l).
- The predicted dilution in the river is halved.
- All total phosphorus becomes available as SRP.

The report concludes that in principle the quantum of rLDP proposed development in the Lower Wye catchment can be delivered without resulting in a significant increase in phosphorous or a reduction in the conservation status of the SAC. However, it was also stated that these conclusions should be reviewed over time to confirm the receiving water remains at low risk in the context of evolving inputs to the river system as a whole. Therefore, future planning applications for allocated development are still likely to need to be supported by site specific Habitat Regulations Assessments including consideration of water quality risks to the Wye SAC. MCC propose to develop guidance to assist developers with these assessments, and this is a commitment included later in this AP (see also **Section 3.4**).

3.3 Strategic Mitigation Options Report

MCC have produced a Strategic Mitigation Options Report, which can be read in conjunction with the AP. This report considers in further detail the pathways available for delivering nutrient mitigation at a strategic scale for the rLDP developments, taking into account Welsh Government guidance for delivering mitigation in SAC river catchments[10]. The report includes consideration of the threshold (*de minimis*) approach, an integrated approach, developer led approach, and development of strategic solutions based on short-listing of potential options that are applicable in Monmouthshire. These approaches are also introduced in Section 3 of this AP. The most viable strategic mitigation option is currently considered to be construction of treatment wetlands. The viability and steps involved in taking strategic approaches forward are included at a high level in the AP but detailed further in the Strategic Mitigation Options Report.

3.4 Developer Mitigation Handbook

MCC are planning to produce a Developer Mitigation Handbook that can be used by developers to better understand the range of mitigation options available for phosphorus and how to implement these. This will be similar to the recently published Handbook prepared for Marine SACs by affected local authorities but led by Carmarthenshire County Council[11].

The Developer Mitigation Handbook will be a key document for the AP as it will outline further details that will allow different mitigation approaches to be taken forward, whether it be threshold, integrated catchment improvements, strategic or developer led nutrient neutrality approaches. The aim of the document is to provide:

- A planning guidance document for developers and Council Planning Officers alike on phosphorus mitigation for delivering nutrient neutrality development within the River Usk SAC and River Wye SAC catchments where needed. Guidance will be aligned with Welsh Government's latest guidance and All Wales nutrient budget calculator, and NRW's latest guidance.
- Specific guidance to developers in the Lower Wye catchment as to how to confirm that their proposals align with 'no deterioration' as discussed in Section 3.2.

[10] Planning Guidance - Development in SAC Rivers
[11] Report Marine and Estuarine DIN Mitigation Strategy 2025-11-20

- Clarity on how the threshold (*de minimis*) approach may be applied to the rLDP as a whole, based on further consultation with NRW.
- An outline of the integrated approach and how it might be applied in Monmouthshire. The initial draft of the Handbook is likely to detail the steps being undertaken to develop a mitigation pathway through the integrated approach. However, the Handbook should be updated regularly as a 'live' document in order to allow further guidance to be applied when available. For example, once established the Handbook could include links to a developer platform hosted on the MCC website through which developers could make positive contributions to restoration/improvement schemes.
- For developer led mitigation, the Handbook will contain a 'step by step' process showing when nutrient neutrality screening and assessment should occur within the planning process, how to identify and develop suitable mitigation measures, how they can be secured, and any subsequent monitoring that might be required.
- Building on NRW's Mitigation Menu, the Developer Mitigation Handbook will include an overview of on-site and off-site mitigation options relevant to proposed development, including for example urban and rural SuDS, constructed and other wetlands, land use change, septic tank/PTP upgrades and water efficiency options. Measures will usually need to qualify as Article 6(3) interventions under the Habitats Regulations[12] rather than Article 6 (2) measures for developer led mitigation, consistent with NRW guidance on additionality and effectiveness at the time of assessment.
- Worked examples to show how to estimate phosphorous reductions from some of these measures alongside outputs from the Welsh Government nutrient neutrality calculator or bespoke calculations.

[12] The Conservation of Habitats and Species Regulations 2017

4. Mitigation Pathways

The Welsh Government guidance for mitigation of phosphorus in river SACs (2025)[13] and the recent guidance on "*Tests of Soundness*"[2] 2026) indicates pathways of mitigation that may be applied to LDPs where the impact of additional nutrients on SAC's has been identified. NRW have also provided guidance with regard to mitigating nutrients within SACs (2026)[14]. Within these guidance documents are several hierarchal approaches (or 'pathways') to mitigation, through which it would be feasible to mitigate the phosphorus loads associated with the rLDP, thereby providing confidence that no adverse effects on the site integrity of the SACs would occur (see Figure 8). This section introduces the main 'pathway' approaches at a high level, before outlining the key steps proposed for their implementation in the AP in Section 5.

In keeping with the Welsh Governments Position Statement Monmouthshire County Council Replacement LDP – Nutrients (June 2026), where nutrient mitigation is required, the preferred pathway is the integrated approach as this presents greater opportunities for environmental enhancement as well as mitigating any increased nutrient impact from proposed new development. This position statement notes the inherent uncertainty in this approach at this stage of rLDP development, but acknowledges that this is not unusual, and should not prohibit this option being promoted as the preferred pathway. The policy caveat approach provides a suitable mechanism to establish a framework for the implementation of the integrated approach whether that is through the Catchment Nutrient Recovery Plans (CNRP) being developed by NRW or other nutrient reducing management measures being delivered through existing established bodies (e.g. Nutrient Management Boards (NMBs)) and organisations.

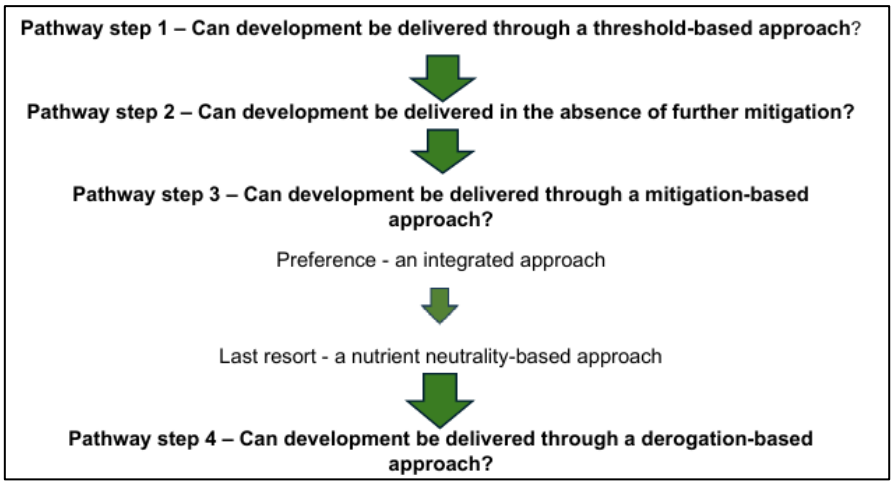

Figure 8 Hierarchal pathways to mitigation[2]

4.1 NRW Review of Consents and screening against WwTW Upgrades

Prior to considering mitigation pathways, it is notable that the current NRW guidance[7] suggests that if the relevant WwTW for proposed developments has an environmental permit that has been reviewed against the nutrient targets set out in the conservation objectives for the river SAC, it may be possible for a planning authority to conclude that there will be no likely significant effect with regard to phosphorus. Further mitigation can therefore be 'screened out'. This may be the case provided that:

- The WwTW is operating in compliance with the permit conditions.
- The WwTW has capacity to receive and treat the additional volume of wastewater within permit limits.

However, it is only possible to make these conclusions where:

- The WwTW is discharging into a water body that is meeting water quality targets for phosphorus and all downstream river water bodies are also meeting their phosphorus targets, **OR**:

[13] Planning Guidance - Development in SAC Rivers
[14] Natural Resources Wales / Advice to planning authorities for planning applications affecting nutrient sensitive Special Areas of Conservation

- Consultation with NRW and DCWW confirms that:
  - i) the final effluent phosphorus limits for the WwTW have been reduced through recent review.
  - ii) the WwTW was previously operating with phosphorus load higher than can be discharged under revised permit limits.
  - iii) the works will be operating within reduced limits at commencement of occupation[15].

The information currently known about relevant WwTW permit limits in the context of these requirements for the Usk SAC catchment is summarised in Table 2. All of the sites listed are allocated in the rLDP.

Table 2 Review of proposed permit limit upgrades at WwTW within the River Usk Catchment

rLDP Policy Rep	Site Name	WwTW	Consultation with NRW & DCWW confirms that the final effluent P limits for the WwTW have been reduced through recent review?	The WwTW was previously operating with P load higher than can be discharged under revised permit limits?	The works will be operating within reduced limits at commencement of occupation?	Permit Upgrade Date
HA1	Land to the East of Abergavenny	Llanfoist	Yes	Yes	Yes	31/12/2025
HA5	Land at Penlanlas Farm	Llanfoist	Yes	Yes	Yes	31/12/2025
HA10	South of Monmouth Rd	Raglan	Yes	Yes	Yes	13/04/2023
HA11	Land East of Burrium Gate	Usk	Yes	Yes	Yes	12/12/2023
HA12	Land West of Trem yr Ysgol	Goytre	Yes	Yes	No	31/03/2030
HA14	Land at Churchfields	Devauden	Yes	Yes	Yes	26/01/2027
HA15	Land East Little Mill	Little Mill	Yes	Yes	Yes	07/02/2024
HA16	Land North of Little Mill	Little Mill	Yes	Yes	Yes	07/02/2024
HA17	Land adjacent Llanellen Court Farm	Llanellen	Yes	Yes	Yes	15/02/2024
N/A	Windfall Allowance	Llanfoist	Yes	Yes	Yes	31/12/2025
N/A	Windfall Allowance	Raglan, Usk, Goytre	Yes	Yes	Yes	15/02/2024

The information currently known about relevant WwTW permit limits in the Wye SAC catchment is summarised in Table 3. All sites are allocated in the rLDP except HA7, HA8, and the committed development West of Rockfield Road, which are rollover allocations already with planning permission.

[15] NRW (2026) Advice to planning authorities for planning applications affecting nutrient sensitive Special Areas of Conservation Available at: Natural Resources Wales / Advice to planning authorities for planning applications affecting nutrient sensitive Special Areas of Conservation.

Table 3 Review of proposed permit limit upgrades at WwTW within the River Wye Catchment

RLDP Policy Ref	Site Name	WwTW	Consultation with NRW & DCWW confirms that the final effluent P limits for the WwTW have been reduced through recent review?	The WwTW was previously operating with phosphorous load higher than can be discharged under revised permit limits?	The works will be operating within reduced limits at commencement of occupation?	Permit Upgrade Date
HA6	Land at Rockfield Road	Monmouth	Yes	Yes	Yes	13/11/2023
HA4	Land at Leasbrook	Monmouth	Yes	Yes	Yes	13/11/2023
HA7	Land at Drewen Farm	Monmouth	Yes	Yes	Yes	13/11/2023
HA8	Tudor Road, Wyesham	Monmouth	Yes	Yes	Yes	13/11/2023
N/A	West of Rockfield Road	Monmouth	Yes	Yes	Yes	13/11/2023
N/A	Windfall Allowances	Monmouth	Yes	Yes	Yes	13/11/2023

DCWW provided data and through further discussion it was determined that all relevant WwTWs for the rLDP have had their final effluent phosphorus limits reviewed against the nutrient reduction targets set out in the conservation objectives for the respective SAC catchments. Nearly all will have reduced permit limits in place by 2030, with most already operating under tightened limits**.** The exception is Goytre WwTW, which will not be upgraded until 2030. However, only allocated site HA12 which proposed 42 dwellings would be served by Goytre. Devauden WwTW is not due to be upgraded until January 2027 but will be by the time of plan adoption. **Thus, on this basis, there would appear to be potential to conclude that for all proposed development other than HA12 there will be no likely significant effect on SAC site integrity with regard to phosphorus, subject to reaching such agreement with NRW.**

MCC will continue to engage with NRW to determine which WwTW catchments are considered appropriate to conclude no likely significant effects on SAC site integrity on the basis of the above criteria. Further mitigation would only be necessary where this conclusion cannot be agreed with NRW. The continued work in this regard is incorporated in the AP in Section 5 and it is anticipated that the Developer Mitigation Handbook will include guidance on which WwTW catchments can be screened out of further mitigation.

4.2 Threshold Approach / De Minimis

The Welsh Government clarification note[2] suggests that the first consideration with regards to mitigation pathways for nutrients (where significant effects on site integrity cannot be ruled out on the basis of WwTW upgrades) is whether it may be possible in some cases to screen out a certain quantum of development as being *de minimis,* i.e. the nutrient loading from the development falls beneath a defined threshold whereby plan proposals will not have any meaningful influence over the achievement of the conservation objectives for the SAC. Definition of any such threshold must be supported by relevant evidence and assessment[2] and be sufficiently certain.

Welsh Government guidance is clear that a threshold-based approach on a project-by-project basis is not advised. The cumulative effect of policies and proposals must be taken into account, and so consideration of whether development can be regarded as *de minimis* must be undertaken in terms of the scale of implementation across the whole plan period (through to 2033) and necessarily will inform the appropriate assessment.

HRA '*de minimis*' thresholds are therefore anticipated to be derived on the basis of an overall quantum of development over a defined timeframe. A threshold-based approach may be combined with a wider integrated approach (see next sub-section) across an area in the rLDP, reflecting catchment specific characteristics and circumstances. Case studies are given in the recent Welsh Government clarification note on tests of soundness.

To agree a threshold approach planning authorities will need to be satisfied that the additional loading from the rLDP will not undermine the achievement of the conservation objectives. In other words, the additional loading

will not exert any meaningful influence over the effectiveness of action to be taken to achieve the conservation objectives or otherwise delay the achievement of such objectives.

No thresholds for *de minimis* have been determined for the Usk and Wye catchments at this stage, nor for other catchments affected by nutrient issues in Wales (at the time of writing). It remains uncertain as to how such a threshold can be robustly defined and defended. Nonetheless, the AP has included an action for MCC to explore this approach further with NRW to determine whether this is potential for development of a threshold, where it can be sufficiently supported with evidence.

4.3 Integrated Approach

Where it is not possible to define a *de minimis* threshold and development requires mitigation, the Welsh Government clarification note on applying the Tests of Soundness to LDPs and Position Statement to Monmouthshire County Council regarding nutrient matters, indicates an integrated approach as the preferred solution to ensure no adverse effects to SAC rivers[2].

The overall aim of an integrated approach is to coordinate actions to deliver a long-term improving trend in nutrient levels within SAC catchments, whilst managing growth in accordance with the sustainable development principle. Appropriate steps to avoid deterioration or provide restoration (under Article 6(2) of the Habitats Regulations) in nutrient neutrality affected catchments could include the following:

- Planned upgrades to WwTWs and/or DCWW AMP8 schemes including storm overflow improvements.
- Ongoing SAC restoration measures being delivered by various bodies and organisations (e.g. NRW, NMBs, and Usk Catchment Partnership etc.) that represent a coordinated package of action supporting nutrient reduction, SAC recovery, sustainable land management, climate resilience, nature recovery, flood risk reduction and resilient communities.
- Work underway through the programme of measures under the River Basin Management Plan (RBMP).
- Forthcoming NRW CNRPs.

The integrated approach allows mitigation for nutrients by developers to be more closely integrated with the delivery of restoration under Article 6(2) where developer contributions:

- Increase the scale, magnitude, or scope of planned restoration measures (over and above what would otherwise have been delivered); **OR**
- Speed up delivery of planned restoration measures beyond what would normally be delivered, where the current implementation timescales risk meaningful ecological deterioration in the interim.

Overall, MCC recognises that the delivery of development proposed within the affected SAC catchments is interdependent with a range of nutrient reduction and restoration measures being progressed by a range of competent authorities and stakeholders. In addition to capacity identified through NRW's Review of Permits, various other measures including actions delivered through the NMB and associated catchment plans, land management and agricultural best practice initiatives, and wider Welsh Government, NRW and partner-led programmes are being progressed with the shared purpose of reducing nutrient inputs and improving river condition. MCC has, and will continue to, work collaboratively with delivery partners including DCWW, NRW, NMBs, catchment partnerships and developers to support and enable secure integrated mitigation opportunities to effectively address nutrients in affected SAC catchments throughout the Plan period and beyond.

Whilst many of these measures are outside the direct control of the Council, they are being advanced through established regulatory and governance frameworks and are, therefore, considered sufficiently secure to be taken into account within the evolving strategic approach advocated by Welsh Government and reflected in the Plan's evidence base, including the Nutrient Mitigation Action Plan. The Council recognises that the delivery of development within SAC catchments is dependent upon the availability of the necessary wastewater treatment and capacity, and delivery of other mitigation measures, where necessary. As such, development can only proceed where it can be demonstrated that the relevant capacity and necessary mitigation measures are in place, ensuring no adverse effect on the integrity of the SACs. To account for uncertainty at this stage with the delivery of other initiatives as well as future proposed CRNPs, a policy caveat approach has been adopted (see updated RLDP Policy NR3 set out in the Deposit LDP Schedule of Proposed Changes (July 2026)).

Actions for MCC are included in the AP (Section 5) through which it is expected to be demonstrated that there are sufficient schemes underway within the affected catchment to which an integrated approach could be applied. In particular, the AP proposes to:

- Identify existing mitigation/restoration proposals within the affected catchments, whether these are proposed by DCWW, NMBs, NRW/ Catchment Nutrient Recovery Plans or measures underway under the RBMP etc.
- Highlight opportunities for integrated mitigation that developers might contribute too through an appropriate platform, most likely to be hosted on the MCC website.

4.4 Strategic Mitigation

Where it is not possible to apply a threshold or integrated approach, the Welsh Government clarification note on applying the Tests of Soundness to LDPs[2] indicates that a nutrient neutrality-based approach is then required. As outlined in Section 2, MCC have progressed a Strategic Mitigation Opportunities Report (SMOR) to determine whether there are any feasible strategic mitigation approaches that might be applicable in Monmouthshire. The strategic mitigation approach could include an array of mitigation options developed at scale by MCC, and which could then be offered as part of nutrient credit scheme for developers to purchase and offset their nutrient contributions to the riverine SACs.

A long list of proven strategic nutrient mitigation approaches was considered, based on precedence for delivery in England where such solutions have been considered for longer. A short-list was then developed based on constraints within the Monmouthshire setting. For example, approaches such as land-use change which have been implemented elsewhere were not considered suitable in Monmouthshire due to a shortage of MCC owned agricultural land which enable the approach to be adopted. Similarly, MCC do not have a bank of housing stock to which additional water use efficiency measures could be applied.

Overall, the short-listing approach determined that urban retrofit SuDS and constructed wetlands were possible options, and these were taken forward for further consideration of their potential. This included initial environmental and engineering constraints analysis to identify potentially suitable sites that could be taken forward for concept design by MCC. High level estimates of nutrient removal were undertaken on the preferred sites to determine how much benefit they would provide in terms of nutrient mitigation for the rLDP developments. The details of the mitigation selection, constraints analysis and nutrient reduction potential estimates are discussed in more detail within the SMOR. Wetlands have emerged from this exercise as the key strategic option with the potential to deliver the most nutrient mitigation benefit, and it is recommended that a number of sites are taken forward for further evaluation of potential and delivery (see Table 4). Retrofit SuDS would provide very limited nutrient mitigation based on available sites and are not considered a cost-effective solution, and as such are not recommended to be progressed.

Table 4 Summary of Short Listed Strategic Approaches

Feature	Constructed Wetlands		
Proposed locations	Goytre WwTW	Usk WwTW	Aberbaiden WwTW
Allocated sites that could be mitigated	HA10, HA11, HA12, HA14, HA15, HA16 [total load 70.15 kgTP/yr]	HA10, HA11, HA14 [total load 42.4 kgTP/yr]	Could support all developments in the rLDP and committed [total load 264kgTP/yr]
Minimum area required to achieve predicted excess nutrient load from the above sites	0.75 ha	0.16 ha	0.8 ha
Partners	• Policy: Welsh Government • Regulation: NRW • Operations and drainage: DCWW • Delivery: Bannau Brycheiniog National Park Authority (regarding Aberbaiden WwTW), Usk Catchment Partnership, developers, highways, maintenance bodies		
Potential delivery issues	• Land requirement is high and therefore increases cost. • Designing, constructing and maintain a constructed wetland is complex. • Adjacent water table must not reach surface, increasing the complexity of site selection. • Wetland planting requires time to mature in order to function as per expected nutrient removal rate. • Aberbaiden WwTW is located within the Bannau Brycheiniog National Park and this may impact the ability to obtain planning permission.		

Funding mechanisms	• Project Delivery Grants, Local Governance Funding etc. • Secure future developer contributions via nutrient credit scheme and legal agreements (e.g. Section 106). • Capital grants from the Council.		
Indicative costs to mitigate predicted excess nutrient load from above named sites	Goytre c. £600k	Usk c. £770k	Aberbaiden c. £970k

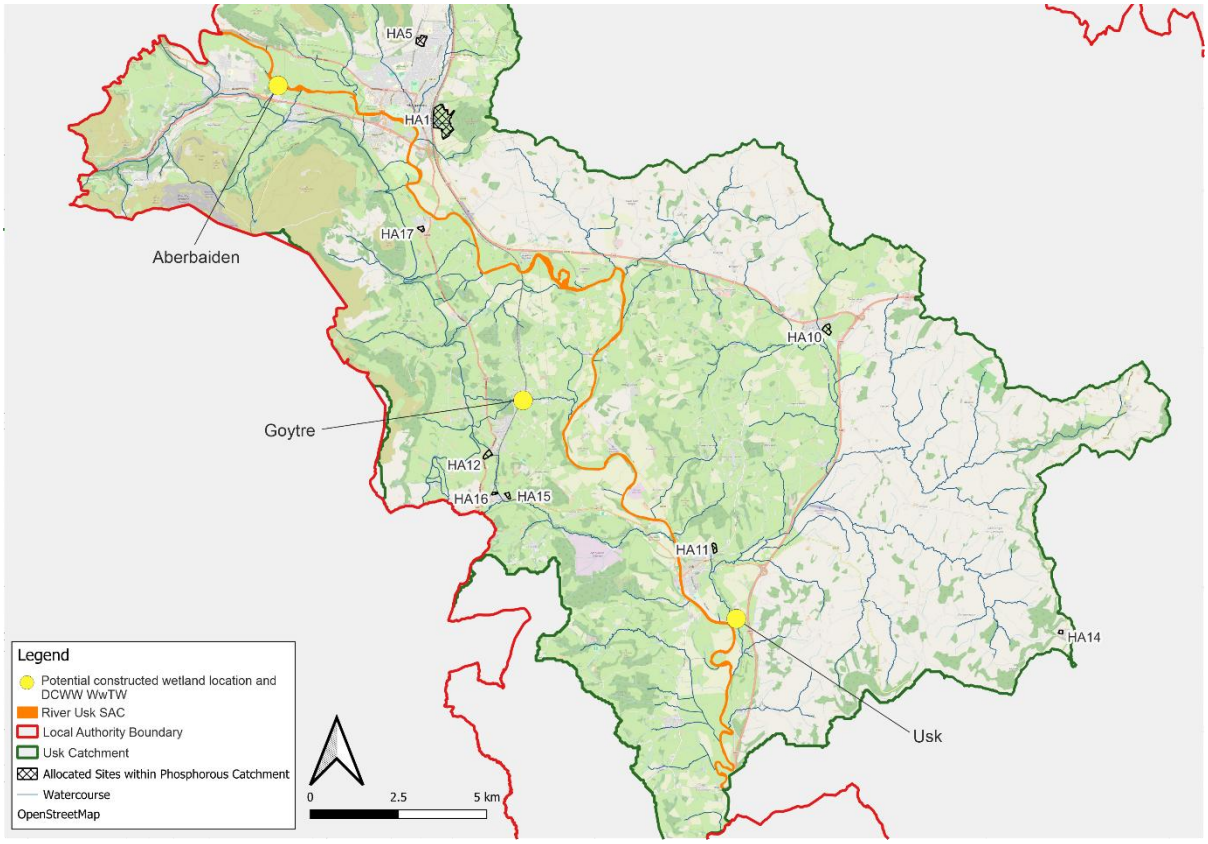

Figure 9 Location of preferred constructed wetlands (based on analysis in the SMOR)

4.5 Developer Led Mitigation

Where a threshold-based approach is not appropriate, there are no suitable integrated solution options, and if strategic scale mitigation approaches for the management of excess nutrients are not possible or have yet to come into fruition, developers can also lead on development of their own mitigation for a plan or project. Depending on the scale of mitigation, developer-led measures also have the potential to create headroom for other projects to proceed. A key action of the AP is therefore the creation of a Developer Mitigation Handbook for phosphorus in Monmouthshire. This will outline the nutrient neutrality assessment approach for developers and an array of potential mitigation options, including how these should be secured for the lifetime of the development. See **Section 3.4** for further details.

5. Timescales, Sequencing and Monitoring

5.1 Timescales

There is no fixed date for when the rLDP will be published as this depends on the completion of the ongoing Examination process. At this stage it is estimated that the rLDP will be adopted in 2027.

The timeline of the projected cumulative increase in phosphorus loading resulting from the rLDP developments is shown in Figure for the River Usk SAC and Figure 11 for the River Wye SAC. Further details are tabulated in Appendix B which also shows the number of units of housing to be brought forward on a 'year by year' basis in relation to each allocated development.

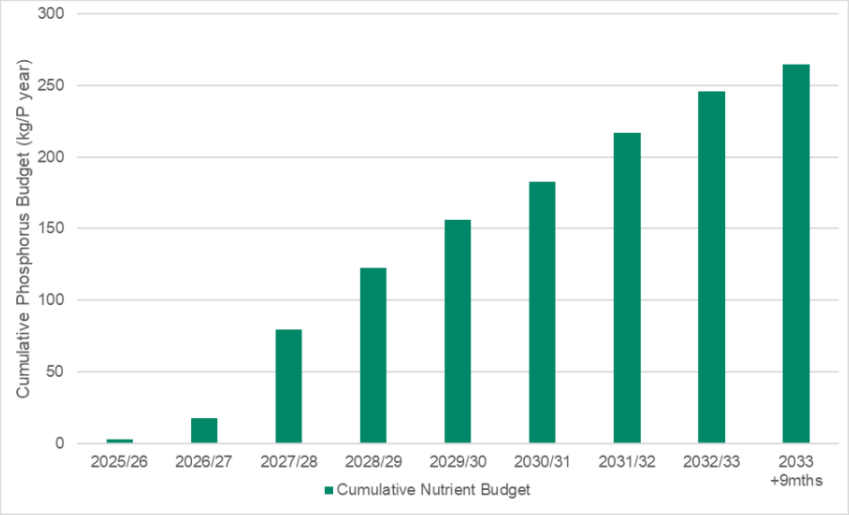

Figure 10 Usk Catchment Cumulative Nutrient Budget Scenario 1 (Worst Case Scenario)

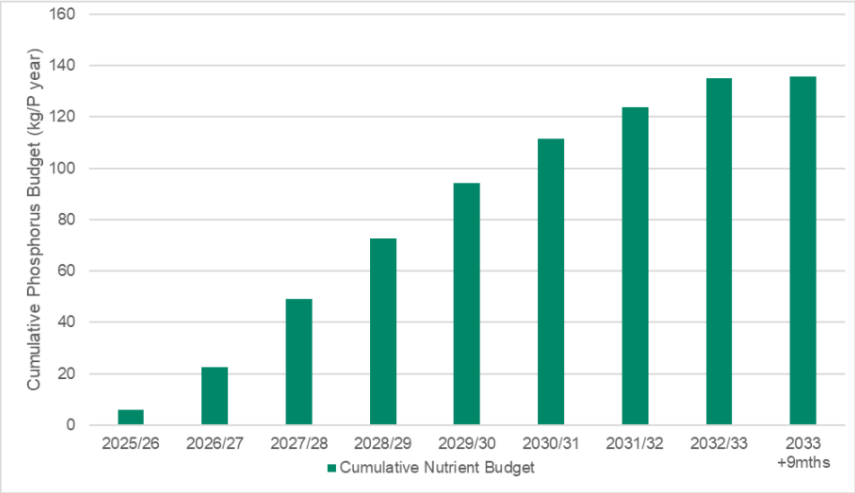

Figure 11 Wye Catchment Cumulative Nutrient Budget Scenario 1 (Worst Case Scenario)

Conditions may be tied to permissions to ensure occupation is concurrent with the delivery of mitigation, so planning conditions will be in place alongside mitigation. The majority of development within both catchments will take place from 2027 onwards.

The phasing of any necessary mitigation delivery will need to be aligned with the timing of housing units bought forward. Occupancy dates for new developments will be subject to planning permission and/or Grampian Conditions (restricting other development until the terms of a Section 106, or other specified actions, are met).

5.1 Sequencing

Timescales for the AP tasks will vary from short-term (<6 months) high priority tasks, to medium term tasks (6-12 months), and longer-term tasks (>12 months) that are dependent on preceding tasks (see also Section 6.1 Prioritisation of Actions and Figure 10).

In the short term (<6 months) there will be a focus on further consultation with relevant stakeholders (notably NRW and DCWW) as to the robust application of the latest emerging guidance (e.g. the Tests of Soundness[2]), followed by publication of the initial Developer Mitigation Handbook. This document will provide greater clarity on application of screening criteria, a threshold-based approach, and the integrated approach. It will also provide detail on how developers may deliver mitigation themselves, while integrated and strategic opportunities are still

under development. Detail should be sufficient to support proposed rLDP developments to come forward through to 2027, with these being relatively small in quantum compared to the remainder of the rLDP period through to 2033 (see Figure 8 and 9). In the short term, feasibility and constraints analysis tasks for strategic mitigation options suitable for credit trading will also be undertaken.

Over the medium to longer term, the focus will be on developing and delivering strategic options (notably constructed wetlands), which will involve a number of tasks from stakeholder consultation, through to developing outline and detailed designs, obtaining planning permission and relevant consents, and determining appropriate management and maintenance approaches for securing delivery of nutrient mitigation in the long term.

With regards to the integrated approach, MCC will work with relevant partners delivering improvement and restoration schemes (e.g. DCWW, NRW, NMBs etc) in order to develop a mechanism through which developers can contribute positively. This will also include development of a platform whereby developers have visibility of available schemes and guidance on how to contribute. Further detail with regard to timescales are provided in the AP in Section 6.

5.2 Monitoring

The Welsh Government clarification note on how “Tests of Soundness” requires that mitigation action plans include a clear monitoring framework for implementing policies and proposals relative to the adaptive management framework of nutrient issues. Therefore, monitoring proposals have been set out in Table 5 under each mitigation pathways and action, where relevant to do so.

The nature of the monitoring depends on the type of action, and at this stage there remains some uncertainty regarding the scope of site-specific monitoring or monitoring that may be required to be undertaken by third parties. The framework for monitoring will be kept under review as part of regular reviews of this AP with more detailed proposals to be brought forward at the required stages in the future if and when mitigation pathways are sufficiently progressed.

6. Action Plan

The list of Action Plan measures and outcomes are discussed below within Table 5. This includes identification of stakeholders, timescales to implementation, dependencies, funding considerations and monitoring requirements. Further detail regarding the timeline for strategic wetlands to be developed is provided in Appendix C.

Table 5 Action Plan Measures

Actions/Outcome	Stakeholders	Timescales	Dependencies and Risk Management	Implementation / Funding	Monitoring
Pathway 1: Screening against WwTW Headroom					
1. MCC to continue to consult with DCWW to confirm any ongoing or future upgrades to each WwTW relevant to the rLDP. Where tightened permit limits precede occupation of proposed developments further mitigation may not be required. **Outcome:** To identify the degree of alignment between rLDP phasing and WwTW upgrades and therefore how many homes need mitigating prior to new permit limits being applied. A provisional analysis of this is shown in Section 3.1.	• NRW • DCWW	• Consultation of DCWW upgrades timeframes for WwTW – **short term** (1-2 months). • Consultation with NRW to agree outcomes - **short term** (2-3 months). • WwTW upgrades – ongoing – **short to long term** (0-4 years), with some WwTW having already been upgraded and all those requiring upgrade to be complete by 2030.	**Dependencies** • DCWW implementation of WwTW upgrades within suggested timescales to meet reduced permit limits for phosphorus. • Agreement from NRW on allocated sites where no significant adverse effects would occur. **Risk Management** • If consultation determines that there is limited potential to screen out developments, or should timings mean that significant nutrient reductions are still required in the short term or proposed WwTW upgrades are delayed, then it is considered that there are sufficient alternative approaches within the AP to mitigate this risk and enable rLDP development to proceed as per the proposed timescales. • The Developer Mitigation Handbook will be a 'live' document that will be updated to reflect changes in nutrient mitigation requirements as and when required.	• Upgrades funded by DCWW. • MCC to condition timing of development to correspond with delivery of future improvements at WwTW. Grampian conditions may be used but, as development specific mitigation, should be considered on a case-by-case basis as part of an Appropriate Assessment.	• DCWW permit compliance monitoring. Regulated by NRW.
2. MCC to consult NRW to seek agreement over which rLDP allocations (or subset of the allocation depending on phasing) MCC consider appropriate to conclude no likely significant effects on SAC site integrity on the basis of planned permit limit tightening. **Outcome**: Agreement to screen out a certain quantum of development from requiring mitigation. This outcome would be outlined on the MCC webpages and within the forthcoming Developer Mitigation Handbook.					

Actions/Outcome	Stakeholders	Timescales	Dependencies and Risk Management	Implementation / Funding	Monitoring
Pathway 2: Threshold Approach / De Minimis					
3. MCC to investigate suitability of a threshold-based approach across the rLDP period as a whole (for those developments remaining following previous steps relating to WwTW permit tightening). This approach has been advocated by Welsh Government, however, such an approach has yet to be adopted successfully in Wales and requires consultation with NRW to confirm feasibility for Monmouthshire and how aspects such as monitoring would be accounted for. **Outcome:** Determine whether threshold approach can be used in Monmouthshire.	• MCC • NRW • DCWW	• Consultation with NRW to agree feasibility of a threshold-based approach - **short term** (2-6 months) • MCC to prepare Developer Mitigation Handbook which is to include outline of how a threshold-based approach will be applied to the rLDP Plan as a whole, if agreed with NRW – **short term** (2-6 months).	**Dependencies** • Definition of a threshold will be based on NRW source apportionment data, and consideration of the rLDP nutrient budget within that context. • MCC must demonstrate to NRW's satisfaction that a defined level of growth will not undermine the achievement of the conservation objectives or otherwise delay the achievement of such objectives. • There must be no credible evidence to support a view that the delivery of development provided for within the rLDP will meaningfully undermine or hinder the ability of relevant authorities to adapt or modify current initiatives as part of their duty to take appropriate steps to avoid deterioration which are necessary to achieve the conservation objectives. **Risk Management** • There is considered a risk of challenge given that a threshold-based approach has no precedent for nutrient neutrality that MCC are aware of, at the time of writing. Nonetheless, Welsh Government are advocating the approach through their guidance and so it should be explored through the AP. This risk is to be mitigated through close consultation with NRW in regard to their expectations and correct definition of a defensible *de minimis* threshold. • Should a robust *de minimis* threshold not be obtainable and agreed with NRW for these riverine SACs then it is considered that there are sufficient alternative approaches within the AP to mitigate this	• None required once threshold agreed for the rLDP Plan as a whole. The requirement for implementation of further mitigation would be screened out through the *de minimis* threshold.	• NRW to monitor the SAC condition status. Should there be a decline then the *de minimis* threshold may require re-evaluation.
4. Assuming the threshold approach is confirmed to be appropriate, MCC to determine what the *de minimis* threshold would be across the rLDP period and agree this with NRW. **Outcome**: Publication of a de minimis threshold.					
5. MCC to prepare **a Developer Mitigation Handbook** prior to rLDP finalisation. This will outline how the threshold-based approach will be applied to the rLDP if confirmed to be appropriate by NRW. **Outcome**: Provide advice to developers where and how the threshold-based approach can be used.					

Actions/Outcome	Stakeholders	Timescales	Dependencies and Risk Management	Implementation / Funding	Monitoring
			risk and enable rLDP development to proceed as per the proposed timescales. • The Developer Mitigation Handbook will be a 'live' document that will be updated to reflect changes in nutrient mitigation requirements as and when required.		
Pathway 3: Integrated Approach					
6. MCC to identify proposed enhancement/ improvement schemes proposed or already implemented in Monmouthshire, which may be suitable for support through developer contributions (through expediting or expanding the scale of the scheme). At this stage a number of schemes have been identified at a high level by DCWW through AMP8, including storm overflow improvements. Numerous restoration and enhancement schemes are also proposed within the Usk Catchment Partnership NMP and forthcoming Wye NMP and are expected through future Catchment Nutrient Management Plans (CNMPs), all of which may have potential to benefit from an integrated approach.	• MCC • NRW • DCWW • NMBs • Wildlife/ Rivers Trusts • Wye and Usk Foundation • Housing developers • Farming Unions • Others as yet not identified	• Potential schemes: AMP8 improvements to WwTW with a final date of 2032 but most sites will be upgraded by 2030 – **medium to very long term** (0-6 years). • Timelines for current enhancement / restoration activities are set out in CNMPs/NMPs, with timelines being variable due to differing nature of the schemes – **medium to very long term** (1-10 years). • MCC to prepare Developer Mitigation Handbook which is to include an outline of how the integrated can be applied – **short-term** (2-6 months). Next steps for practical delivery will be outlined therein. • MCC to update Developer Mitigation Handbook once further clarity on the integrated approach has developed and further potential schemes comes forward – **medium to long term** (6 months to several years).	**Dependencies** • The approach relies on appropriate schemes to which developers can positively contribute, primarily DCWW, NMB and NRW schemes. • Align with the test of soundness published by Welsh Government. Notably, delivery of growth contained within the plan will be inherently linked to progress being made on the steps to be taken and measures identified to improve the SAC. **Risk Management** • An interdependency between the contribution of developers with these steps and measures will need to be demonstrated. The rLDP can account for this by establishing a policy caveat approach towards implementation, which renders the granting of planning permission conditional upon the delivery milestones identified for on-going and future improvement measures. • As with the threshold approach, there is not yet precedent for this approach having been implemented in Wales at the time of writing, and this does raise some risk. Nonetheless, Welsh Government are also advocating the approach through their guidance and so it should be explored through the AP. This risk is to be mitigated through close consultation with NRW in regard to their	• Welsh Government grants to be used to develop further improvement / restoration measures where possible. • Developer payments will be used to increase scale of planned restoration or speed of delivery on a 'case by case' basis. • DCWW, NRW (or others with suitable schemes) will have funded their own projects. Developer contributions would be used to enable faster implementation of these or and expansion in scale of the measures.	• SAC condition assessments will indicate whether there is an improving baseline condition as forecast. • Comparison with improvement targets and trajectories as to be set out in future CNMPs. • Additional water quality monitoring targeted at specific mitigation / restoration approach (case by case basis). These would be anticipated to be undertaken by the organisation delivering the overall scheme (e.g. DCWW, NRW etc).
7. MCC to investigate approaches that will allow developers to gain visibility of integrated approaches so they can consider positive contributions. This is expected to be via a council webpage.					
8. MCC to investigate how positive developer contributions could be reconciled with the quantum of nutrient contributions from their development and secured in perpetuity.					
9. MCC to agree approach with NRW. **Outcome (6-9)**: Production of relevant guidance within the forthcoming Developer Mitigation Handbook. This					

Actions/Outcome	Stakeholders	Timescales	Dependencies and Risk Management	Implementation / Funding	Monitoring
will include further description of available schemes and directions to developers to follow for positively contributing to their delivery and hence securing mitigation in perpetuity. 10. MCC to periodically update Developer Mitigation Handbook with any further developments with regard to the integrated approach and schemes coming forward. **Outcome**: Guidance that maintains relevance across the rLDP period.			expectations for delivery and required evidence base. • The Developer Mitigation Handbook will be a 'live' document that will be updated to reflect changes in nutrient mitigation requirements as and when required.		
Pathway 4: Strategic Mitigation - Constructed Wetland					
11. MCC have completed a Strategic Mitigation Options Report which includes identification and feasibility appraisal of potential options for development of constructed wetlands close to DCWW WwTW's in the Usk catchment. **Outcome:** A preferred location has been identified at Goytre WwTW. Additional options may also be viable at Usk WwTW and Aberbaiden WwTW, although these site would likely rely on pumping which will increase costs. 12. MCC to continue ongoing consultation with DCWW regarding development of the preferred wetland site(s), and if agreement can be reached MCC will undertake concept design to ensure sufficient P reduction to offset a significant proportion of development proposed in the rLDP. **Outcome**: Confirmation of feasibility stage and progression to scheme development. 13. MCC to consider implementation and future operating costs and determine feasibility of nutrient credit scheme.	• MCC • Bannau Brycheiniog National Park Authority (with regards Aberbaiden WwTW) • NRW • DCWW • Usk Catchment Partnership • Private Landowners	1. Pre-Planning (**short term** – 1-6 months from day 1). 2. Planning and Design (**medium term** - c. 1-18 months from day 1) – Identify and secure land. – Baseline monitoring to inform design / quantify nutrient reduction. – Planning / impact assessment. 3. Regulatory Approval (**long term** - c. 18-24 months from day 1) – Submit planning application. – Obtain NRW permits. 4. Construction (**long-term** - c. 24-30 months from day 1) – Physical basin creation. – Planting of macrophytes. – Flow control structures. 5. Commissioning / Maturation (**long term** – 30+ months from day 1) – Establish vegetation in order for effective basin functioning. – Monitoring of performance. – Strategic credit system launch.	**Dependencies** • DCWW agreement to use WwTW discharge. • Land availability. • Feasibility Assessment and Concept Design. • Constraint analysis and surveys (e.g. heritage, ecology, contaminated land, utilities, water resource zones etc). • Detailed design indicating sufficient removal potential. • Planning permission. Aberbaiden WwTW is located within the Bannau Brycheiniog National Park. • Permits applications. **Risk Management** • Seek early agreement with DCWW on permitting aspects, as constructed wetlands raise questions over the point of compliance for existing DCWW permits. Involve NRW in permitting discussions at an early stage through pre-application consultation.	• Project Delivery Grants, Local Governance Funding etc. • Secure future developer contributions via nutrient credit scheme and legal agreements (e.g. Section 106). • Capital grants from the Council.	• Monitoring requirements and responsibilities to be outlined in a Wetland Monitoring and Maintenance Plan. This will include: – Visual inspection by relevant experts and officers to ensure wetland maturing and implemented as per design and planting strategy. – Silt levels / desilting and other ongoing management requirements.

Actions/Outcome	Stakeholders	Timescales	Dependencies and Risk Management	Implementation / Funding	Monitoring
Outcome: Determination of suitable mechanism for charging developers for nutrient credits and ensuring the option is sufficiently attractive for full implementation. 14. MCC to consult with NRW and DCWW regarding permit requirements. 15. MCC to seek agreement with DCWW over points of compliance for the existing permit and which party has 'ownership' of the water passing through, and discharged from, the wetland. **Outcome Actions 13 and 14**: would be an agreed position documented through a Memorandum of Understanding between MCC and DCWW, or similar document. 16. MCC to undertake detailed design. 17. MCC/DCWW to apply for required Environmental Permits / planning permission. 18. MCC to construct and commission wetland. 19. MCC to prepare and implement Wetland Monitoring and Maintenance Plan (expected to be a condition of planning). **Outcome Actions 16 to 19**: Design, build and operation of Constructed Wetland with nutrient credit system for prospective developers upstream of the wetland location on the SAC.		– Ongoing asset inspection / reporting). Further details regarding the constructed wetland timeline are given in **Appendix C**.	• Determine any likely upgrades to phosphorus treatment at an early stage through DCWW consultation as this may impact future nutrient reduction potential. • If poorly maintained there are risks around poor performance, and so an appropriate Wetland Monitoring and Maintenance Plan will be developed. • Landowners to be engaged at an early stage to avoid abortive works. • Ecology appraisal to be undertaken at an early stage to identify any prohibitive habitats or species for wetland development. • Wetland design to be precautionary when calculating the rate of nutrient removal and when sizing the wetland. It will be important to demonstrate how the inflow source is linked to the wetland, to calculate nutrient load entering and leaving wetland, to be conservative with assumptions on performance, and to develop an adaptive Monitoring and Maintenance Plan. Areas of uncertainty may influence how wetlands are treated within HRA, reinforcing the need for robust monitoring and review.		
Pathway 5: Developer Led Mitigation					
20. MCC are preparing guidance for developer led mitigation, along with worked examples, for inclusion in a Developer Mitigation Handbook.	• Developers • MCC • NRW • Landowners	• Prepare Developer Mitigation Handbook prior to rLDP finalisation (**short term** – 2-6 months).	**Dependencies** • NRW agreement regarding the use of threshold and integrated approaches will be required prior to inclusion in the	• Developer funded. • Implemented through rLDP policy requirements for nutrient mitigation/betterment.	• Mitigation to be maintained and monitored in perpetuity / for the lifetime of a

Actions/Outcome	Stakeholders	Timescales	Dependencies and Risk Management	Implementation / Funding	Monitoring
Outcome: Publication of a Developer Mitigation Handbook.	• DCWW	• Handbook will need to be updated periodically to reflect latest nutrient mitigation requirements (ongoing).	Handbook (see above dependencies for these cases). • MCC Strategic Mitigation Options Report. **Risk Management** • Guidance and advice will change over time. Therefore, the Developer Mitigation Handbook will need to be periodically reviewed and updated to remain current good practice. Developers will be advised to seek pre-planning advice from MCC.	• Developer led mitigation likely to be secured using Section 106 agreements. • Grampian condition can be used to ensure mitigation is operational prior to occupation.	development as required. The Developer Mitigation Handbook will outline at a high level the monitoring requirements of different types of approach.

6.1 Prioritisation of Actions

The high-level list of actions and their priority is displayed in Figure 11. The priority of each action is indicated with a Red, Amber, Green (RAG) colour coding as follows:

- Red indicates a high priority action.
- Amber indicates a medium priority action.
- Green indicates a lower priority action.

There are five key pathways to the AP through which it is possible to screen out or mitigate phosphorus loadings relating to the rLDP. Given the array of pathways and that threshold and integrated approaches are being actively encouraged by Welsh Government as a preference to, but potentially alongside strategic and develop-led mitigation, MCC has set out an AP that provides a suitably robust roadmap for ensuring that appropriate mitigation can be delivered to mitigate any increase in phosphorus loading to the Usk SAC or Wye SAC as a result of the implementation of the rLDP. This will ensure that any adverse significant effects on the site integrity of the riverine SACs can be prevented.

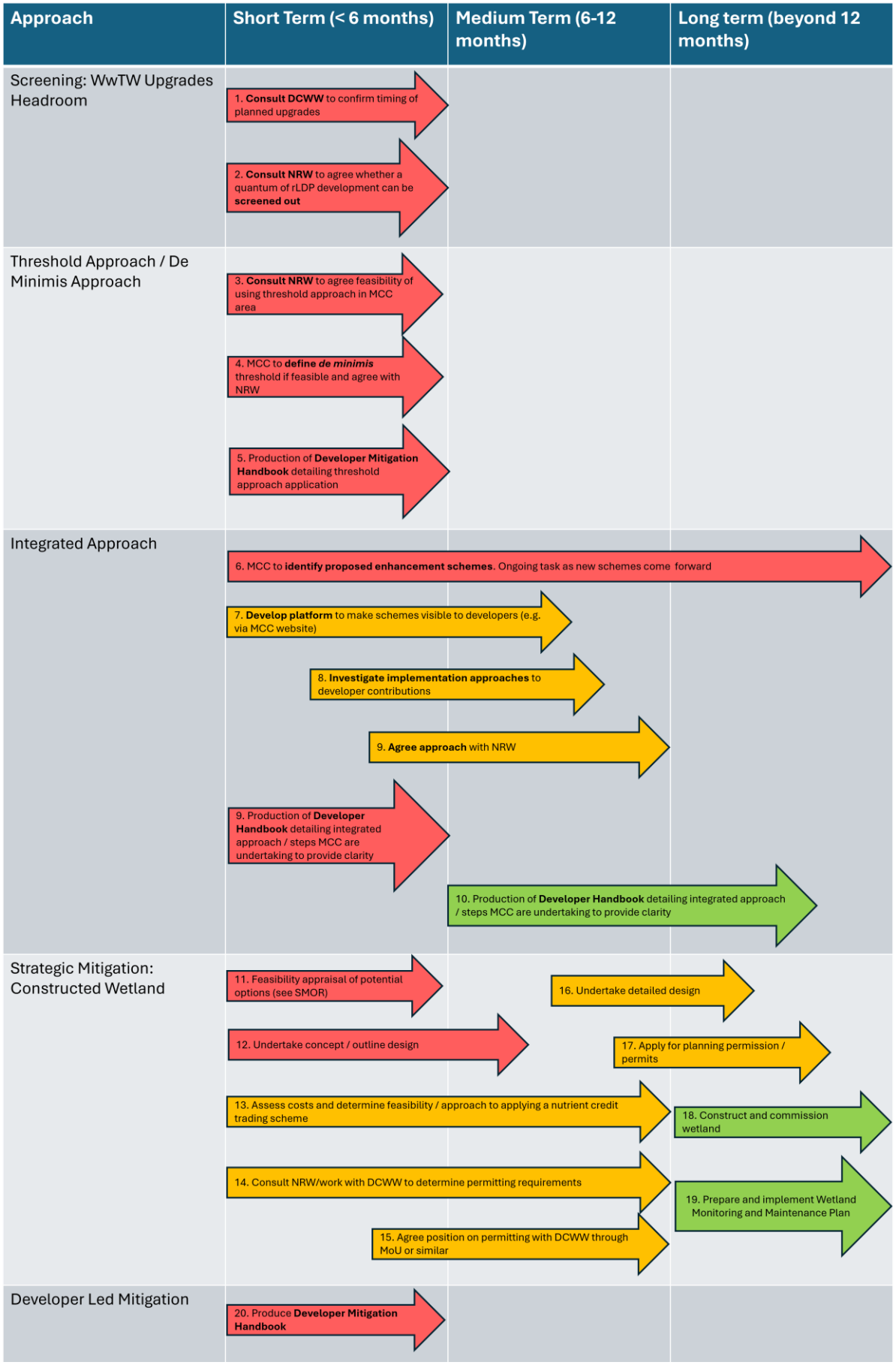

Figure 12 Timescale of proposed actions and RAG prioritisation

Appendix A Existing River Usk restoration measures and delivery programmes

Appendix B rLDP Nutrient budget by proposed phasing of the rLDP

Table A1 Timeline of projected housing units from the rLDP to be constructed annually within the River Usk catchment.

RLDP Policy Rep	Site Name	Settlement	Catchment Area	Status	Gross Site Area (ha)	Total Site Capacity	Open Market Homes	Affordable Homes	Phasing of Development (Base Date 1st April 2025) Estimated Completions								
									2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033 +9mnths
HA1	Land to the East of Abergavenny	Abergavenny	Usk	Allocation	35.9	500	250	250	0	0	0	70	90	90	90	90	70
HA5	Land at Penlanlas Farm	Abergavenny	Usk	Allocation	6.17	100	50	50	0	0	50	50	0	0	0	0	0
HA10	South of Monmouth Rd	Raglan	Usk	Allocation	4.5	54	27	27	0	0	40	14	0	0	0	0	0
HA11	Land East of Burrium Gate	Usk	Usk	Allocation	2.6	40	20	20	0	10	30	0	0	0	0	0	0
HA12	Land West of Trem yr Ysgol	Penperlleni	Usk	Allocation	3.4	42	21	21	0	0	30	12	0	0	0	0	0
HA14	Land at Churchfields	Devauden	Usk	Allocation	1	20	10	10	0	0	0	10	10	0	0	0	0
HA15	Land East Little Mill	Little Mill	Usk	Allocation	1.68	20	10	10	0	5	15	0	0	0	0	0	0
HA16	Land North of Little Mill	Little Mill	Usk	Rollover allocation	0.87	15	7	8	5	10	0	0	0	0	0	0	0
HA17	Land adjacent Llanellen Court Farm	Llanellen	Usk	Allocation	1.56	26	13	13	0	0	0	0	10	16	0	0	0
N/A	Windfall Allowance	Abergavenny	Usk	Windfall		100	50	50	0	0	0	0	0	30	30	30	10
N/A	Windfall Allowance	Secondary Settlements of Raglan, Penperlleni, Usk	Usk	Windfall		20	10	10	0	0	0	0	0	10	10	0	0

Table A2 Timeline of projected housing units from the rLDP to be constructed annually within the River Wye catchment.

RLDP Policy Ref	Site Name	Settlement	Catchment Area	Status	Gross Site Area (ha)	Total Site Capacity	Open Market Homes	Affordable Homes	Phasing of Development (Base Date 1st April 2025) Estimated Completions								
									2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033 +9mths
HA6	Land at Rockfield Road	Monmouth	Wye	Allocation	1.5	60	30	30	0	0	0	0	40	20	0	0	0
HA4	Land at Leasbrook	Monmouth	Wye	Allocation	11	270	135	135	0	0	25	50	50	50	50	45	0
HA7	Land at Drewen Farm	Monmouth	Wye	Rollover allocation with planning permission	6.6	110	71	39	0	10	50	50	0	0	0	0	0
HA8	Tudor Road, Wyesham	Monmouth	Wye	Rollover allocation with planning permission	2.1	50	0	50	25	25	0	0	0	0	0	0	0
N/A	West of Rockfield Road	Monmouth	Wye	Commitment	2.86	70	45	25	0	35	35	0	0	0	0	0	0
N/A	Windfall Allowances	Monmouth	Wye	Windfall		10	6	4	0	0	0	0	0	2	2	2	2

Appendix C Indicative Wetland Planning, Design and Construction Timeline

Table B. 1 Indicative timeline for planning, design and construction of wetlands.

Stage	Timescale	Requirements	Timescale reasoning
Pre-planning	1-6 months from Day 1	• Consultation with NRW and DCWW • Early feasibility studies	6 months of pre-planning is a precautionary estimate for early consultation with NRW and DCWW to ensure that proposals can be taken forward and for early feasibility studies. This stage can be completed concurrently with the planning and design stage.
Planning and design	1 – 18 months from Day 1	• Identify and secure land. • Baseline monitoring to inform design / quantify nutrient reduction. • Planning / impact assessment	18 months generally considered a precautionary timescale for the planning and design stage. This is to take into account a full survey window for ecology and mitigation design. Other stages such as identifying and securing land and quantifying nutrient reduction may be completed at an earlier stage.
Regulatory approval	18 – 24 months from Day 1	• Submit planning application. • Obtain NRW permits.	A further 6 months is likely required after planning and design to submit the planning application and obtain NRW permits.
Construction	24 – 30 months from Day 1	• Physical basin creation. • Planting of macrophytes. • Flow control structures.	A further 6 months of construction is likely required before completion of the wetland.
Commissioning / Maturation	30 months from Day 1	• Establish vegetation in order for effective basin functioning. • Monitoring of performance. • Strategic credit system launch. • Ongoing asset inspection / reporting.	Commissioning and maturation will take place over the months and years following completion of construction. Performance monitoring will be used to determine maturation.

Appendix D Briefing Note - River Usk SAC: Restoration Measures, Delivery Programmes and Implications for Welsh Government and RLDP Phasing

APPENDIX 1

Briefing Note

River Usk SAC: Restoration Measures, Delivery Programmes and Implications for Welsh Government and RLDP Phasing

Purpose

This report sets out the restoration measures relevant to the River Usk Special Area of Conservation (SAC), including delivery mechanisms, timescales, monitoring arrangements and their relationship to environmental improvement and RLDP phasing.

It draws together existing, funded and emerging programmes being delivered or developed by Monmouthshire County Council and partners. These are presented as a coordinated package of action supporting nutrient reduction, SAC recovery, sustainable land management, climate resilience, nature recovery, flood risk reduction and resilient communities.

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1. Strategic Catchment Context

The principal strategic framework for catchment restoration is provided by the Usk Catchment Partnership, a Welsh Government-supported initiative hosted by Bannau Brycheiniog National Park Authority. The Partnership brings together statutory bodies, local authorities, environmental organisations, farming interests and community representatives around a shared aim to restore the ecological health and resilience of the River Usk and its catchment. Its membership includes Monmouthshire County Council, Powys County Council, Natural Resources Wales, Dŵr Cymru Welsh Water, Wye and Usk Foundation, Gwent Wildlife Trust, Save the River Usk and Beacons Water Group (Usk Catchment Partnership, n.d.).

The Partnership has published the *River Usk Nutrient Management Plan*, dated April 2025. This provides the catchment-level framework for addressing nutrient pressures, water quality, flood risk, sustainable farming, nature recovery and resilient communities. It identifies a range of pressures on the river, including agriculture, Dŵr Cymru Welsh Water assets, private sewage systems, biosolids, housing need, climate change and modified watercourses (Usk Catchment Partnership, 2025).

The Partnership provides the governance and evidence framework through which individual projects can be coordinated into a wider catchment restoration programme. Its Knowledge Hub supports this by identifying pressures and barriers, quantifying the impact of actions, and developing metrics to monitor progress.

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2. Intended Outcomes for the Usk Catchment

The Usk Catchment Partnership's published vision is long-term. By 2043, it seeks a river with thriving wildlife, sheltered by trees, bordered by a diverse mosaic of habitats, and supported by regenerative practices that produce food, manage water flows, store and manage carbon, and support a sustainable local economy.

The Usk Catchment Partnership has identified the following long-term outcomes for the river and wider catchment:

- improved water quality through the reduction of phosphorus and other pollutants affecting river health;
- improved management of water quantity, including climate change impacts and abstraction pressures;
- improved ecological integrity, including biodiversity, habitat quality and the removal of invasive non-native species;
- climate adaptation and mitigation;
- development that is water and nutrient neutral or net positive;
- the long-term objective that the features for which the Usk is designated as a SAC are in favourable condition and that nutrient levels are within safe limits.

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3. Restoration Programmes and Delivery Mechanisms

3.1 Ffermio Bro – Landscape-Scale Farming in Designated Landscapes

Ffermio Bro was launched by Welsh Government on 1 April 2025 as a collaborative farming programme operating across Wales' Designated Landscapes, including National Parks and National Landscapes. The programme supports farmers and land managers to deliver projects that improve nature and the environment, with local priorities set by the relevant Designated Landscape bodies (Welsh Government, 2026; Landscapes Wales, n.d.; Monmouthshire County Council, n.d.).

Welsh Government has confirmed a further £6.5 million investment for the period 2026–2028, with £5.5 million going directly to farmers to carry out on-farm projects. The funding will also enable Designated Landscape bodies to recruit additional staff, carry out ecological surveys, and provide training and advisory support (Welsh Government, 2026).

The Bannau Brycheiniog National Park Authority states that Ffermio Bro launched on 1 April 2025 and will run until March 2028. It also confirms that Year 2 of the scheme began on 1 April 2026 (Bannau Brycheiniog National Park Authority, n.d.).

Within Bannau Brycheiniog National Park, improving water quality within the River Usk catchment is identified as a priority theme, with support for natural flood management, wetland creation, riparian habitat restoration, livestock exclusion, woodland and hedgerow creation, and soil management measures (Monmouthshire County Council, n.d.).

Ffermio Bro provides an ongoing mechanism for collaborative catchment management across multiple holdings, enabling landscape-scale improvements in water quality, habitat condition, nutrient retention, soil health and ecological connectivity. It also informs the future collaborative layer of the Sustainable Farming Scheme.

Relevant timescale: April 2025 to March 2028.

Relevant funding: £6.5 million confirmed by Welsh Government for 2026–2028, including £5.5 million direct support to farmers.

What this will achieve: improved sustainable land management, nature recovery, climate adaptation, collaborative farming, nutrient reduction and practical development of the future Sustainable Farming Scheme collaborative layer.

3.2 Landscape Connections – A Healthy Usk Catchment

The Landscape Connections proposal, *Dalgylch iach yr Wysg / Landscape Connections – A Healthy Usk Catchment*, is being developed by Bannau Brycheiniog National Park Authority and the Usk Catchment Partnership. The proposal describes a catchment-wide, landscape-scale partnership programme to support ecological, economic, social and cultural advancement in the Usk catchment (Bannau Brycheiniog National Park Authority and Usk Catchment Partnership, n.d.).

The proposal includes actions to restore wetlands, ponds, floodplains, soil health, peatlands and woodlands; increase terrestrial and aquatic biodiversity; tackle invasive species; improve species-rich grasslands and floodplain meadows; and support climate change mitigation and adaptation through tree planting, coppice, woodland management and biomass production.

Landscape Connections would provide a long-term delivery mechanism for catchment-scale restoration, combining physical interventions with capacity building, monitoring, community participation, natural capital assessment, policy integration and partnership development.

Relevant costs and funding: total project cost estimated at £12.5 million; development phase approximately £800,000; delivery phase approximately £11.7 million; proposed Heritage Fund request £10 million; anticipated 20% contribution through BBNPA and partner cash and non-cash contributions (Bannau Brycheiniog National Park Authority and Usk Catchment Partnership, n.d.).

Relevant timescale: proposed development phase July 2027 to March 2029; proposed delivery phase October 2029 to March 2037; development phase application proposed by 11th November 2026 (updated by Landscape Connections workshop 15th June 2026).

What this will achieve: long-term SAC recovery, catchment restoration, nature-based solutions, natural capital development, community participation, sustainable land management, biodiversity recovery and climate resilience.

3.3 Nature Networks 5 – Gwent Green Grid Resilient Connections

The proposed Nature Networks 5 project, *#NNF5 Gwent Green Grid Resilient Connections*, would deliver the next stage of the Gwent Green Grid's work to implement Resilient Ecological Networks across South East Wales. The proposal identifies work across five Gwent landscape areas: Eastern Valleys, Newport, Central Monmouthshire, Bannau Brycheiniog and the Black Mountains, and Wye Valley and Wentwood (Gwent Green Grid Partnership, n.d.).

The project focuses on freshwater ecosystems and the habitats that connect them, including ponds, watercourses, marshes, bogs, fens, wet woodlands, marshy grassland, enclosed farmland, woodland, urban habitats, semi-natural grassland, and mountain, moorland and heath.

Proposed capital actions include invasive non-native species management, natural flood management, riparian planting, river cleans, installation of leaky dams, pond restoration, scrape creation, reedbed restoration, wet woodland management, tree planting, hedgerow management, grassland restoration and urban blue-green infrastructure improvements.

Nature Networks 5 addresses a key condition for river recovery: improving the condition, extent and connectivity of habitats across the wider ecological network. While not solely a nutrient mitigation programme, it supports freshwater ecosystem resilience linked to the Usk and Wye SACs.

The proposal also supports Welsh Government's 30 by 30 commitment by using Resilient Ecological Networks to help identify Core and Nature Recovery Areas and deliver action beyond protected site

boundaries. It also proposes work with NRW using the Monitoring Ecosystem Performance and Condition Assessment indicator to develop a monitoring pilot for Resilient Ecological Networks (Gwent Green Grid Partnership, n.d.).

Relevant timescale: proposed project delivery from 1 April 2026 to 31 March 2029.

Delivery detail: Year 1 focuses on planning, engagement, communications, green skills and monitoring development; capital delivery begins in Year 2 from April 2027 and continues through Year 3 to March 2029.

What this will achieve: progress towards 30 by 30, stronger resilient ecological networks, improved protected site resilience, freshwater habitat recovery, better monitoring capacity, green skills, community participation and climate adaptation.

3.4 Four Rivers for LIFE – Natural Resources Wales

The Four Rivers for LIFE project is a large-scale river restoration initiative led by Natural Resources Wales to improve the ecological condition of four Special Areas of Conservation (SACs): the Teifi, Cleddau, Tywi and Usk rivers. The project aims to restore 776 km of river habitat through nature-based solutions that address key pressures including poor water quality, habitat degradation, barriers to fish migration, invasive non-native species and the impacts of climate change (Natural Resources Wales, n.d.).

For the River Usk catchment, the project is particularly relevant because it supports the recovery of internationally important species such as Atlantic salmon, lamprey, shad, otter and freshwater pearl mussel. Planned actions include improving fish passage at migration barriers, reconnecting rivers with their floodplains, restoring natural river processes, planting native riverside trees, reducing invasive species and working with farmers to minimise sediment and nutrient pollution (Natural Resources Wales, n.d.).

These measures will enhance biodiversity, improve water quality, increase climate resilience and reduce flood risk across the Usk catchment. By engaging landowners, local communities and partner organisations, the project seeks to deliver long-term, sustainable restoration benefits while supporting the ecological integrity and resilience of the River Usk SAC.

Relevant timescales: The project began in 2022 with surveys, baseline monitoring, restoration planning and identification of priority sites for habitat improvement, fish passage, invasive species control and freshwater pearl mussel conservation. It then moved into delivery, including river habitat restoration, riparian tree planting, fencing, community engagement, invasive species management, fish passage improvements, floodplain reconnection, wetland creation and work with farmers to reduce pollution. The final phase focuses, up to March 2027, on completing restoration works, monitoring ecological benefits, continuing habitat management and establishing long-term stewardship with communities, landowners and partner organisations to secure lasting improvements across the River Usk and other SAC catchments (Natural Resources Wales, 2022).

What this will achieve: The Four Rivers for LIFE project will restore 776 km of river habitat, improve water quality, reconnect floodplains, remove fish migration barriers, control invasive species and enhance biodiversity across four catchments, including the River Usk catchment (Natural Resources Wales, n.d.).

3.5 Central Monmouthshire Opportunity Catchment – Natural Resources Wales

The Central Monmouthshire Opportunity Catchment (CMOC) Project supports restoration of the River Usk catchment by working with farmers and landowners to implement nature-based solutions that improve water quality, reduce soil erosion and strengthen ecosystem resilience. Measures include planting hedgerows and native trees, creating riparian buffer zones, installing livestock-exclusion fencing and introducing natural flood management features such as leaky barriers (Natural Resources Wales, 2024; Natural Resources Wales, n.d.).

These interventions reduce sediment and nutrient runoff, protect fish spawning habitats, improve conditions for wildlife including otters, bats and dormice, and help mitigate climate change through carbon storage. By slowing water flows, improving soil health and enhancing habitat connectivity, the project delivers long-term benefits for both sustainable farming and the ecological recovery of tributaries that feed the River Usk (Natural Resources Wales, 2024).

The project, which is a delivery mechanism for the Water Framework Directive objectives, has a newly appointed project officer who is currently developing the next stages of delivery.

Relevant timescales: Whilst the project relates to the third cycle of River Basin Management Plans (2021–2027), it has been confirmed that it will continue as a priority for NRW to 2030 (pers. comm., People and Places Team, 6 July 2026).

What will this achieve: Long term benefits for sustainable farming, water quality and flow.

3.6 River Gavenny Project

The River Gavenny Project, hosted by Monmouthshire County Council through its Green Infrastructure Team, is a catchment-scale partnership initiative that acts as a local delivery mechanism for restoring the ecological health of the River Gavenny, a key tributary of the River Usk. The project was relaunched in 2024 to bring together Town and Community Councils, Natural Resources Wales, environmental organisations, landowners and residents around a shared programme of river restoration and stewardship (Monmouthshire County Council, n.d.).

The project supports River Usk restoration by tackling pressures at source within the Gavenny catchment. Its stakeholder led objectives include improving biodiversity, enhancing habitat connectivity, addressing pollution and litter, controlling invasive species, increasing climate resilience and promoting community engagement with the river environment.

Early delivery has included collaborative river clean-up events involving Monmouthshire County Council, Keep Wales Tidy, Groundwork Wales, local councils and volunteers. The partnership is working to control invasive Himalayan balsam and exploring other practical measures to improve river condition and habitat quality.

By improving the condition of the River Gavenny before it enters the Usk at Abergavenny, the project contributes to wider River Usk catchment objectives, helping deliver Water Framework Directive outcomes, nature recovery, ecosystem resilience and community wellbeing through integrated catchment management.

Relevant timescales: The project is funded through the Local Places for Nature project in 2025/26, with funding from the Gwent Green Grid Nature Networks project providing capital funding up to March 2029 (Monmouthshire County Council, n.d.; Gwent Green Grid Partnership, n.d.).

What will this achieve: Community engagement and understanding of the River Gavenny alongside practical delivery.

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4. Collective Outcomes of the Programme Package

The programmes address different but connected aspects of River Usk SAC recovery and should be presented as a single, layered restoration pathway.

Together, these programmes will achieve:

- nutrient reduction and water quality improvement;
- restoration of natural hydrological processes;
- improved habitat condition and ecological connectivity;
- climate adaptation and nature-based flood risk management;
- resilient ecological networks and 30 by 30 outcomes;
- sustainable land management and regenerative farming;
- community participation, citizen science and green skills;
- long-term governance and monitoring through catchment-scale partnership working.

Together, these programmes provide immediate delivery, medium-term ecological network implementation and longer-term catchment recovery. This reduces reliance on a single project or funding source and provides a phased programme of intervention across the RLDP period and beyond.

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5. Delivery Pipeline: 2025–2037

The delivery pipeline demonstrates that restoration activity begins before significant RLDP growth is delivered, continues through the early and middle parts of the plan period, and extends beyond it.

Period	Delivery mechanism	Role in restoration pathway	What this will achieve
2022–2027	Four Rivers for LIFE	Improving fish passage, enhancing habitats, reconnecting floodplains, improving water quality, controlling invasive species and promoting sustainable land management to	Restores river habitat, improves water quality, reconnects floodplains, removes fish migration barriers, controls invasive species and enhances biodiversity.

		achieve long-term ecological recovery.	
2021–2030	Central Monmouthshire Opportunity Catchment	Working with farmers and landowners to implement nature-based solutions.	Reduces sediment and nutrient runoff, restores habitat, stores carbon and slows flows.
2024–2029	River Gavenny Project	Working with communities to deliver practical action including invasive species control and litter management.	Reconnects communities to their local watercourse alongside practical projects to reconnect the floodplain and improve water quality.
2025–2028	Ffermio Bro	Collaborative land management, farm-based nature recovery, water quality improvements and habitat restoration in Designated Landscapes.	Supports sustainable land management, nutrient reduction, nature recovery, climate adaptation and the emerging Sustainable Farming Scheme collaborative layer.
2025 onwards	Usk Catchment Partnership and Nutrient Management Plan	Catchment-wide governance, evidence gathering, monitoring and prioritisation.	Supports coordinated SAC recovery, nutrient management, water quality improvement and development that is water and nutrient neutral or net positive.
2026–2029	Nature Networks 5 Gwent Green Grid Project	Implementation of Resilient Ecological Networks, freshwater habitat restoration, monitoring pilots and green skills.	Supports 30 by 30, resilient ecological networks, protected site connectivity, freshwater habitat recovery and community participation.
2027–2037	Landscape Connections – Healthy Usk Catchment	Long-term catchment-scale restoration, partnership delivery, natural capital outcomes and community engagement.	Supports long-term SAC recovery, climate resilience, sustainable land management, nature recovery and catchment-wide governance.

6. Monitoring and Adaptive Management

Monitoring is embedded across the programme package. The Usk Catchment Partnership Knowledge Hub has a specific role in identifying pressures and barriers, quantifying the impact of actions and developing metrics to monitor progress.

The Natural Flood Management project includes flow monitoring, infiltration tests, Visual Evaluation of Soil Structure scores, groundwater monitoring and hydrological modelling.

Nature Networks 5 proposes a monitoring pilot for Resilient Ecological Networks using the Monitoring Ecosystem Performance and Condition Assessment indicator, alongside citizen science activity and an update to the Gwent Resilient Ecological Network Mapper (Gwent Green Grid Partnership, n.d.; Gwent Green Grid Partnership, 2026).

Landscape Connections proposes coordinated monitoring at scale and monitoring of measurable indicators and natural capital outcomes for water, nature, climate, people and place.

This enables delivery to be reviewed and adapted over time, providing a clear basis for tracking implementation, environmental outcomes and any need for further intervention.

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7. Replicable Projects on neighbouring catchments

7.1 Welsh Government FCERM Natural Flood Management – River Monnow Working with Water

Monmouthshire County Council has submitted a Welsh Government Flood and Coastal Erosion Risk Management Natural Flood Management grant application for the River Monnow – Working with Water project. The project cost is identified as £293,746, including £150,000 for NFM interventions and £44,000 as a contribution to the Resilient Rivers Monnow project (Monmouthshire County Council, 2025a).

The proposed works include buffer strips, hedges, shelterbelts, bunds, in-field storage, infiltration-enhancing seed mixes and flow-pathway disruption. These works are intended to improve infiltration, reduce runoff and slow catchment response during storm events.

The application identifies wider environmental benefits including improved soil health, improved infiltration, reduced soil and nutrient loss, enhanced biodiversity, improved ecological connectivity and improved water quality.

Although funded primarily for flood risk management, the programme also supports nutrient management and river restoration by slowing surface water, increasing infiltration and reducing sediment and nutrient movement into watercourses.

Relevant timescale: estimated start date 1 April 2026; estimated end date 12 March 2027.
Relevant funding: total project cost £293,746.
What this will achieve: reduced flood risk, slower runoff, improved soil function, reduced nutrient movement, improved water quality and stronger community resilience.

7.2 Resilient Rivers Monnow

The River Monnow NFM application includes a £44,000 contribution towards Resilient Rivers Monnow. The application states that this contribution will help unlock further funding from NRW

and Network Rail and support the establishment of a catchment market capable of longer-term NFM funding across the Monnow (Monmouthshire County Council, 2025a).

The value of Resilient Rivers Monnow lies in its potential to move beyond short-term grant-funded interventions towards a more durable catchment finance model. The application identifies that the programme will help establish a pipeline of NFM and nature-based solutions that can be delivered in future funding rounds and through longer-term catchment investment.

This is relevant because river recovery in the Usk catchment will require sustained investment beyond individual grant-funded projects. A catchment finance approach could support ongoing land management changes that reduce runoff, improve resilience and strengthen rural economies.

Relevant timescale: feasibility and evidence work during 2026–27.
Relevant funding: £44,000 contribution from the FCERM NFM project towards Resilient Rivers Monnow.
What this will achieve: a stronger pipeline of nature-based solutions, longer-term catchment investment, natural flood management opportunities, sustainable land management and future delivery routes.

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8. Relevance to Welsh Government and RLDP Phasing

The programme package provides a practical delivery framework for environmental improvement in the River Usk catchment. It brings together funded, proposed and developing measures that support nutrient reduction, improved water quality, habitat recovery, catchment resilience and the alignment of restoration activity with RLDP phasing.

The confirmed extensions of Ffermio Bro to March 2028 and the Central Monmouthshire Opportunity Catchment to 2030 are significant because they provide continuity for landscape-scale agricultural delivery beyond the initial programme year. This strengthens the overall restoration pathway by maintaining support for land management changes that can contribute to water quality, nature recovery and catchment resilience.

The combined programme demonstrates that:

- restoration activity is already underway through Ffermio Bro, Four Rivers for Life, River Gavenny Project and Usk Catchment Partnership activity;
- Welsh Government-funded landscape-scale farming intervention is now confirmed through to March 2028;
- medium-term ecological network delivery is proposed through Nature Networks 5 between 2026 and 2029;
- long-term landscape-scale catchment recovery is being developed through Landscape Connections from 2027 to 2037;
- monitoring and evidence gathering are embedded through the Usk Catchment Partnership Knowledge Hub, NFM monitoring, Nature Networks monitoring pilots and Landscape Connections proposals.

These measures provide a basis for linking development phasing to demonstrable environmental progress. The programme operates as a phased restoration pathway, with delivery milestones,

monitoring mechanisms and partnership governance that can help ensure RLDP growth is aligned with catchment recovery.

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9. Conclusion

The evidence set out in this briefing demonstrates that restoration of the River Usk SAC is not dependent on a single project, funding stream or future aspiration. Rather, it is being delivered through an integrated programme of catchment-scale interventions that are already underway and which extend through the early, middle and later stages of the RLDP period. The combined activity of the Usk Catchment Partnership, Four Rivers for LIFE, Ffermio Bro, the Central Monmouthshire Opportunity Catchment, the River Gavenny Project, Nature Networks 5 and the proposed Landscape Connections programme represents a comprehensive restoration pathway operating from 2022 through to at least 2037.

Collectively, these programmes address the principal pressures affecting the River Usk SAC through nutrient reduction, habitat restoration, natural flood management, sustainable land management, ecological network enhancement, invasive species control, community engagement and long-term monitoring. Importantly, they also provide the governance, evidence base and adaptive management framework required to demonstrate progress and respond to emerging evidence over time.

The delivery pipeline shows that environmental improvement is occurring ahead of, and alongside, planned development. Restoration actions are therefore not deferred until after growth takes place but are embedded within a long-term programme of catchment recovery with clear milestones, investment mechanisms and partnership commitments. This provides a realistic and defensible basis for linking development phasing to environmental outcomes.

In this context, the River Usk SAC should be viewed not as a static constraint to growth, but as the focus of a coordinated programme of environmental recovery. The scale, diversity and duration of the measures identified provide confidence that meaningful ecological improvement can be achieved over the RLDP period and beyond. Consequently, a policy approach that ties the release and timing of development to demonstrable restoration progress, monitoring evidence and catchment recovery milestones is both justified and consistent with the principles of sustainable development, ecosystem resilience and the long-term objectives of Welsh Government policy.

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APPENDIX 2

Policy NR3 – Protection of Water Sources and the Water Environment[1]

(Updated policy text shown as underscored)

Development, which may impact upon the water environment and associated land, will only be permitted where it:

a) Would not harm or pose an unacceptable risk to the capacity or flow of groundwater, surface water or coastal water systems;
b) Would not harm or pose an unacceptable risk to the quality and quantity of ground waters, surface waters, wetlands or coastal water systems including, where appropriate, their ecological and amenity value; and
c) Where practicable and reasonable, improves water quality.

Notwithstanding the above, development likely to have a significant effect on a European Site, either alone or in combination with other plans or projects, will only be permitted where the competent authority is satisfied, through a Habitats Regulations Assessment, that there will be no adverse effect on site integrity and that the conservation objectives of the designated site can be met. This may be achieved through avoidance measures, wider restoration measures, strategic and/or project-specific mitigation, or a combination of such measures, where these are demonstrated to be effective, deliverable and sufficiently certain.

Thus, within the hydrological catchment of the riverine SACs which are evidenced to be failing regarding nutrients, development proposals will only be permitted where it can be demonstrated that:

a) They are not a source of additional phosphorus or other nutrient pollution; or
b) Where they are a source of additional phosphorus or nutrient pollution, there is no pathway by which those nutrients can enter the SAC water body environment; or
c) Measures associated with the proposed development are put in place that remove reasonable scientific doubt, in perpetuity and for the lifetime of the development, to enable a conclusion of no adverse effect on site integrity.

For development creating wastewater discharges, planning permission will only be granted where it can be demonstrated that sufficient capacity exists within the environmental permit limits of the Wastewater Treatment Works serving the development, taking account of fair-share principles which may include the implementation of restoration measures within the relevant SAC catchment as part of a coordinated approach to improving river health. Where necessary, the phasing of development will be required to align with the delivery of wastewater infrastructure improvements.

[1] The previous version of Policy NR3 and supporting text to nutrient impacts on water quality in the Riverine SACs can be viewed in the updated Deposit RLDP Schedule of Proposed Changes (July 2026)

Where a fair-share approach cannot be demonstrated as secure, development proposals may be permitted where alternative mitigation measures are agreed with the Council and are demonstrated to be able to avoid adverse effects on site integrity. In such circumstances, support of the integrated approach, strategic or developer-led mitigation must achieve nutrient neutrality for the lifetime of the development.

Where mitigation measures are required, applications must be accompanied by a ***Nutrient Mitigation Assessment*** demonstrating a mitigation strategy that is effective, deliverable, and legally secured in perpetuity where required, and provides reasonable scientific certainty that no adverse effect on site integrity will occur and that site conservation objectives can be met.

UPDATED SUPPORTING TEXT TO REVISED NUTRIENT IMPACTS ELEMENT OF POLICY NR3

Nutrient Impacts on Water Quality in Riverine Special Areas of Conservation (SAC)

The impact of excess nutrients, including phosphates, has become a significant environmental challenge in riverine SACs across the country, including Wales. These rivers are designated for their high ecological value; however, many are failing to meet strict phosphorus targets designed to protect sensitive habitats and species.

The Rivers Usk and Wye in Monmouthshire are designated as SACs and are, therefore, subject to strict protection under the Conservation of Habitats and Species Regulations 2017 which require any plan or project likely to have a significant effect on a European site to be subject to Habitats Regulations Assessment (HRA). The extent of the Usk and Wye River SAC catchments in Monmouthshire are illustrated in Map XX and the Constraints Map accompanying the RLDP.

In January 2021, NRW published a report that presented the assessment of compliance against recently tightened phosphorus water quality targets for SAC rivers. The report indicated that over 60% of SAC water bodies were failing the new targets for phosphorus. More recent data does, however, indicate that water quality across the rivers in Monmouthshire has improved since 2021.

The latest monitoring data for the River Usk catchment demonstrates that 54% of waterbodies in the catchment are meeting their phosphorus targets which is an improvement from 2021[2]. Notwithstanding this, as of 2026 nutrient neutrality remains a requirement across the whole Usk catchment. As a result, new developments leading to an increase in phosphorus discharges to this site may contribute to the unfavourable condition of the designated site or make its restoration to favourable status more difficult to achieve. Ongoing actions to address phosphorus levels in the Usk catchment are expected to continually improve water quality in this waterbody throughout the RLDP period. The position will be kept under review.

Whilst previously failing the Lower River Wye is now considered by NRW (as of 2026) to no longer be failing for phosphorus. However, it is still important that any new development that may lead to an increase in phosphorous discharged to the SAC considers whether that discharge would risk causing deterioration of the river back to less than good conservation status.

[2] River Usk Nutrient Management Plan (April 2025)

The Council is required to ensure, through the RLDP and development management process, that development within the relevant catchments will not result in adverse effects on the integrity of the European sites, either alone or in combination with other plans and projects. Development proposals that generate excess phosphorus within these catchments must, in the absence of sufficient headroom created by the Review of Permits or where de minimis can be robustly evidenced, provide mitigation to demonstrate nutrient neutrality to ensure that there is no net increase in nutrient loading to the affected sites.

Reflecting the requirements of the Habitats Regulations and nutrient neutrality guidance in Wales[3], Policy NR3 makes clear that development proposals that are likely to result in a significant effect on a European site will be subject to an HRA to demonstrate there will be no adverse effect on site integrity, including where necessary through the provision of appropriate mitigation measures. As such, planning permission may only be granted where the competent authority is able to conclude that there will be no likely adverse effect on the integrity of a European site, either alone or in combination with other plans and projects.

The policy provides a clear framework to ensure that development proposals with the potential to affect the integrity of European sites are assessed appropriately and consistently, in accordance with national legislation and guidance. It allows proposals to proceed where impacts can be avoided or adequately mitigated.

Prior to considering mitigation pathways, current NRW guidance suggests that if the relevant Wastewater Treatment Works (WwTW) for proposed developments has an environmental permit that has been reviewed against the nutrient targets set out in the conservation objectives for the river SAC, it may be possible for a planning authority to conclude that there will be no likely significant effect with regard to phosphorus. Further mitigation can therefore be 'screened out'. Further detail on this approach will be set out in SPG.

Where it cannot be confirmed that a site is able to be 'screened out', for example due to location in a WwTW catchment that is yet to be upgraded, then mitigation measures may be secured where necessary to ensure there is no adverse impact on the integrity of European sites. In accordance with Welsh Government and NRW guidance, mitigation may take a variety of forms, including on-site and off-site measures (but upstream of the point of impact to the SAC), contributions to strategic mitigation schemes under the integrated approach or developer-led/project specific mitigation, provided that such measures are demonstrated to be effective, deliverable, and secured in perpetuity.

To grant planning permission, the planning authority must be satisfied that appropriate measures to avoid deterioration of water quality and adverse effects on site integrity and the attainment of conservation objectives are secured. Evidence must demonstrate:

- That any improvements necessary to avoid adverse effects on site integrity have been quantified;

[3] Including NRW advice Natural Resources Wales / Advice to planning authorities for planning applications affecting nutrient sensitive Special Areas of Conservation and WG planning guidance Clarification note: applying the tests of soundness to Local Development Plans (LDPs)and Planning Guidance - Development in SAC Rivers

- That the actions required have been clearly identified and are supported by an appropriate delivery mechanism;
- That there is a clear and deliverable timetable for implementation that will achieve the relevant conservation objectives and nutrient targets.

Supplementary Planning Guidance (SPG) will be prepared to provide further clarification on the implementation of this policy. This will reflect the nutrient neutrality evidence base that has been prepared to inform the RLDP, including a Strategic Mitigation Options Report, Nutrient Mitigation Action Plan and the forthcoming Developer Mitigation Handbook. These documents identify and provide detail on the range of mitigation options available and their implementation, including consideration of threshold (de minimis) approaches, integrated catchment improvements, strategic or developer-led nutrient neutrality approaches.

As national guidance and requirements in relation to nutrient neutrality continue to evolve, the Developer Mitigation Handbook will be reviewed and updated periodically to reflect changes in nutrient mitigation requirements as and when required.