AECOM

Torfaen Replacement Local Development Plan

Habitats Regulation Assessment Scoping Report

Torfaen County Borough Council

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Quality information

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1. Glossary

Appropriate Assessment = The term given to the second, detailed, stage of the Habitats Regulations Assessment process. An assessment that is appropriate to determine whether the integrity of a European site will be affected

Emerald Network = the network of internationally important wildlife sites established under the Bern Convention, 1979, signed in Bern, Switzerland

European sites = an informal term for the network of SACs, SPAs and Ramsar sites

HRA = Habitats Regulations Assessment; the term given in England and Wales for assessments of impacts on European sites designated through the Conservation of Habitats and Species Regulations 2017 (as amended)

Impact pathways = Mechanisms through which a particular activity can affect a particular SAC, SPA or Ramsar site such as air quality, water quality or recreational pressure

Test of Likely Significant Effects = The term given to the first stage of the Habitats Regulations Assessment process. An initial high-level examination of a plan or project to determine whether the potential for significant negative effects on a European site exists

Ramsar site = An internationally important wildlife site designated under the Ramsar Convention on Wetlands of International Importance, 1979, signed in Ramsar, Iran

SAC = Special Area of Conservation; an internationally important wildlife site designated for its habitats or for species other than birds

SANG = Suitable Alternative Natural Greenspace; areas of natural recreational greenspace created to draw visitors away from other sensitive areas of land and spread the recreational load

Site integrity = the ability of a European site to achieve its conservation objectives

SPA = Special Protection Area; an internationally important wildlife site designated for its bird interest

SSSI = Site of Special Scientific Interest; a nationally important wildlife site. All European sites on the UK mainland are also designated as SSSIs

2. Executive Summary

Torfaen County Borough Council (TCBC) is in the early stages of producing the Replacement Local Development Plan (RLDP) (2022-2037) for the authority. The RLDP will set out the spatial vision, objectives, levels and types of growth, strategic and development management policies that will guide planning across the Borough. It will also identify infrastructure requirements and allocate sites for development in the period covered by the RLDP including to meet the housing and economic development needs of Torfaen. AECOM has been appointed to undertake the report to inform the Habitats Regulations Assessment (HRA) of the emerging Torfaen RLDP.

TCBC is a Competent Authority as defined in Regulation 7 of the Conservation of Habitats and Species Regulations 2017 (as amended). Regulation 105 states that '*A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which… is likely to have a significant effect on a European site* [a Special Area of Conservation, Special Protection Area or, as a matter of Government policy, a Ramsar site] *or a European offshore marine site (either alone or in combination with other plans or projects) …must make an appropriate assessment of the implications of the plan or project for that site in view of that site's conservation objectives*'. This process is called Habitats Regulations Assessment (HRA).

This Scoping Report is being prepared to inform the HRA, although there is no legal requirement to do so. Its purpose is to set out:

- Current legal requirements (with summary of key applicable case law) and how these may change under planning reforms.
- Proposed methodology for the HRA.
- Information on the Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsars in, and within 15km of, the Torfaen County Borough boundary.
- Impact pathways requiring appraisal in an HRA of the Torfaen RLDP.
- Agencies / stakeholders that need to be involved in the process.
- Overview of all Conservation Objectives, current threats and pressures facing relevant European sites.
- Strategic mitigation solutions already in place at relevant European sites;
- Identifying any opportunities or threats that RLDP spatial options for development could have on European sites.
- In-combination plans and projects that will be covered in the HRA.

In relation to the RLDP, it was determined that for the initial screening process, European sites within the authority boundary, and up to a 15km distance from it, require consideration (see Table 1).

Table 1 Relevant European sites and their location in relation to Torfaen..

European site	Location
Usk Bat Sites SAC	The closest SSSI underpinning this SAC, the Mynydd Llangatwg (Mynydd Llangattock) SSSI, is located approx. 1.4km to the north of Torfaen County Borough in the adjoining authority of Monmouthshire.
Cwm Clydach Woodlands SAC	Located approx. 840m to the north of Torfaen in the adjoining authority of Monmouthshire.
River Usk SAC	At its closest the SAC runs approx. 3.5km to the east of Torfaen County Borough.
Aberbargoed Grasslands SAC	Located approx. 6km to the west of the Torfaen County Borough
Sugar Loaf Woodlands SAC	Located approx. 6km to the north-east of the Torfaen County Borough
Severn Estuary SAC / SPA / Ramsar	This is an extensive estuarine site 6.9km to the south of Torfaen and directly adjoins Cardiff, Newport and Monmouthshire.
Coed y Cerrig SAC	Located approx. 10km to the north-east of the Torfaen County Borough
Wye Valley and Forest of Dean Bat Sites SAC	Located approx. 1.4km to the north of the Torfaen County Borough.
Cardiff Beech Woods SAC	The closest component part of this SAC to Torfaen lies approx. 12.5km to the south-west in the nearby authority of Cardiff.

Consideration of the relevant site sensitivities indicates that a wide range of impact pathways will need to be considered, including recreational pressure, water quality, water quantity / level / flow, loss of functionally linked

habitat, atmospheric pollution, noise and visual disturbance, and coastal squeeze. Recreational pressure is one of the dominant pressures on the Severn Estuary SAC / SPA / Ramsar, which is sandwiched between Local Planning Authorities in Wales (Vale of Glamorgan, Cardiff, Monmouthshire) and England (e.g. Stroud District). Currently, there is no formal strategic mitigation framework in place for the SAC / SPA / Ramsar, although several authorities have undertaken visitor survey work to establish a core recreational catchment for the estuary. Survey data from various stretches of the estuary indicate that a standardised 7km catchment is likely to be adequate for the site, which would place Torfaen just at the upper limit the of this catchment.

However, a visitor survey carried out by AECOM, started in 2020 and resumed in 2022 following the end of COVID restrictions, demonstrated that residential development coming forward in Torfaen does not fall within the core recreational catchment of 7km identified for the Severn Estuary SPA / Ramsar / SAC. While a total of 5 residents (2.8%) from Torfaen were interviewed in the estuary, the interviewee living closest to the site had travelled 8.8km from home, which is well beyond the 75th percentile of visitors. Applying the widely accepted methodology for delineating recreational catchments, Torfaen residents are not considered to meaningfully contribute to recreational impacts in the SPA / Ramsar / SAC. Therefore, housing that is projected to come forward under the Torfaen RLDP will not require mitigation.

Another impact pathway of relevance is atmospheric pollution resulting from housing and employment development within Torfaen. Several European sites within the 15km study area are sensitive to ammonia (NH_3) emissions and nitrogen (N) deposition resulting from commuter traffic, particularly the Severn Estuary SAC / SPA / Ramsar and Cardiff Beech Woods SAC. Traffic-related emissions within 200m of sensitive qualifying features due to the RLDP have the potential to change ecosystem composition in-combination with other plans and projects. It is likely that air quality modelling will be required in relation to some of these European sites to demonstrate that the emerging RLDP will not result in adverse effects on site integrity.

The emerging RLDP can take advantage of the opportunities identified in this report, either by using it to inform the spatial distribution of development, or by combining mitigation solutions with other biodiversity targets needing to be delivered:

- As part of the RLDP development process it will be necessary to consider where delivering residential growth may cause additional disturbance / trampling issues in the future. This analysis cannot be undertaken at the Scoping Stage, but will be relevant as specific site allocations and growth amounts come forward later in the planning process.
- Reducing the potential mitigation need associated with the RLDP would facilitate its deliverability. For example, TDBC may wish to explore the option of directing the majority of residential growth to the west of the authority and away from Llantarnam. This would reduce the mitigation burden (e.g. of SANG and on-site access management measures) associated with the emerging RLDP and make the delivery of housing more affordable for developers.
- Consideration should be given to changing legislation that may come into force during the RLDP process. For example, delivering land to achieve mandatory Biodiversity Net Gain may be co-located with SANG mitigation solutions for alleviating recreational pressure issues in the Severn Estuary SAC / SPA / Ramsar, such as by delivering significant biodiversity enhancements in new greenspaces. For example, Country Parks can be zoned to provide both biodiversity benefits and recreational opportunities. Moreover, any large area delivered for Net Gain purposes is likely to be informally used for recreation unless steps are taken to physically exclude the public. To achieve co-location, greenspaces would need to be sufficiently large and meet other SANG criteria. Alternatively, other types of natural greenspace or recreational resources could be delivered (also referred to as infrastructure projects), such as those originally devised for the Thames Basin Heaths.

It is the purpose of this Scoping Report to present an appraisal of relevant European sites, background knowledge of various impact pathways and identifying existing evidence sources that can be drawn upon in the subsequent screening for Likely Significant Effects (LSEs) and Appropriate Assessment (AA).

3. Introduction

3.1 Torfaen County Borough (TCB) lies in southern Wales, approx. 15 miles to the north-east of Cardiff City. It is bordered by several authorities, including Monmouthshire County to the east, the City of Newport to the south and the County Boroughs of Caerphilly to the south-west and Blaenau Gwent to the north-west. Torfaen covers an area of roughly 125,640ha of predominantly urban character with the three main settlements of Cwmbran, Pontypool and Blaenavon. The County Borough had an estimated population of 93,049 in June 2018.

3.2 Torfaen County Borough Council (TCBC) is in the early stages of preparing its Replacement Local Development Plan (RLDP) (2022-2037). It is a statutory requirement that Local Development Plans are reviewed every four years to ensure they are still fit for purpose. The RLDP preparation will involve two key stages, the Preferred Strategy stage (including the assessment of Candidate Sites) and Deposit Plan stage. Following consultation of the Deposit Plan, the RLDP will be submitted to the Welsh Government for approval by an independent Inspector. The aim of this Scoping Report is to identify European sites with potential linking impact pathways to the RLDP and help guide the planning process insofar as minimising any such impacts at an early stage in the RLDP development process. For example, directing housing and / or employment growth to particular geographic areas in the County Borough may, for example, reduce the number of new dwellings in the core recreational catchment of sensitive European sites. This in turn would reduce any potential mitigation requirements and facilitate deliverability of planning proposals.

3.3 TCBC adopted the current Local Development Plan guiding development and land use within the County Borough in December 2013. In line with a legal requirement for four-yearly reviews of adopted plans, a LDP Review Report was published in 2018. This review concluded that the LDP needed revision and a RLDP for Torfaen County Borough was formally announced by TCBC in April 2018. However, following consultation on a Preferred Strategy RLDP for Torfaen, TCBCC elected to withdraw its plan due to pressures on the RLDP timetable and associated deliverability issues. This Scoping Report is being prepared in support of the new RLDP, covering the period between 2022 and 2037.

3.4 The new RLDP will shape TCB over the next 15 years, determining where certain types of development will be permitted and outlining areas that will be protected. As such, the RLDP provides the framework against which individual planning applications will be assessed, consented or rejected. It will also encompass strategic policies that will allocate major development sites (both housing and employment development) in the period to 2037. AECOM has been appointed by TCBC to undertake the report to inform the Habitats Regulations Assessment (HRA) of the emerging RLDP.

3.5 TCBC is a Competent Authority as defined in Regulation 7 of the Conservation of Habitats and Species Regulations 2017 (as amended). Regulation 105 states that '*A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which… is likely to have a significant effect on a European site [a Special Area of Conservation, Special Protection Area or, as a matter of Government policy, a Ramsar site] or a European offshore marine site (either alone or in combination with other plans or projects) …must make an appropriate assessment of the implications of the plan or project for that site in view of that site's conservation objectives*'. Collectively, this process is called HRA.

3.6 This Scoping Report is being prepared to inform the RLDP HRA, although there is no legal requirement to do so. Its purpose is to identify:

- The current legal requirements (with summary of key applicable case law) and how these may change under planning reforms;
- The proposed methodology for the HRA;
- Information on the Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsars in, and within 15km of, Torfaen[1];

[1] There is no 'one size fits all' guidance regarding zones of influence around European sites. As a general rule it is uncommon for impact pathways arising from housing and conventional employment development to significantly affect European sites more than 15km distant, particularly if no hydrological linkages to aquatic habitats / species are present. Where there is reason to deviate from this 15km zone, a justification is provided in the main body of text.

- The impact pathways requiring consideration in the HRA;
- The agencies / stakeholders that will need to be involved;
- An overview of the Conservation Objectives, current threats and pressures facing relevant European sites;
- Any strategic mitigation solutions already in place at relevant European sites;
- Advantages or threats that local plan growth could have on European sites, with a view to informing the evolution of spatial options; and
- The list of other plans and projects that will be covered in the HRA (i.e. the in-combination assessment).

3.7 This Scoping Report will be shared with key stakeholders following its completion. Natural Resources Wales (NRW) are the statutory consultee for environmental matters in Wales (including HRA) and it is a legal requirement for them to be involved where an Appropriate Assessment (AA) is likely to be required.

4. HRA Law and Methodology

Legal Context

4.1 The UK left the EU on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 ("the Withdrawal Act"). However, the Withdrawal Act retains the body of existing EU-derived law within our domestic law. Therefore, the requirement for HRA continues as set out in the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019[2], unless this changes through future legislative amendments. Note that there are Government plans to change the Habitats Regulations although how they may change is currently unclear. Similarly, although EU case law is currently still considered of relevance in the UK courts, this position may change during the plan preparation process or the RLDP period. Therefore, all stages of the HRA will need to be mindful of potential changes in legislation and case law.

4.2 The need for Appropriate Assessment (AA) is set out in the Conservation of Habitats and Species Regulations 2017 (as amended; Figure 1). The HRA process applies the 'Precautionary Principle'[3] to European sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of European site(s). Plans and projects with anticipated adverse impacts on the integrity of European sites may still be permitted if there are No Reasonable Alternatives (that would deliver the same objectives), Imperative Reasons of Overriding Public Interest (IROPI) apply and adequate compensation has been identified. To ascertain whether or not site integrity will be affected, an AA should be undertaken of the plan or project in question:

> Conservation of Habitats and Species Regulations 2017 (As Amended)
>
> The Regulations state that:
> "A competent authority, before deciding to … give any consent for a plan or project which is likely to have a significant effect on a European site … shall make an appropriate assessment of the implications for the site in view of that sites conservation objectives… The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site".

Figure 1: The legislative basis for Appropriate Assessment.

4.3 Over time the phrase HRA has come into wide currency to describe the overall process set out in the Habitats Directive from screening through to IROPI. This has arisen to distinguish the overall process from the individual stage described in the law as AA.

4.4 In spring 2018 the 'Sweetman' European Court of Justice ruling[4] clarified that mitigation (i.e. measures that are specifically introduced to avoid or reduce a harmful effect on a European site that would otherwise arise) should **not** be taken into account when forming a view on LSEs. Mitigation should instead only be considered at the AA stage.

4.5 In 2018 the Court of Justice of the European Union (CJEU) also ruled in combined cases C-293/17 and C-294/17 (often dubbed the Dutch Nitrogen case). The case related to atmospheric nitrogen deposition from agriculture and the concept of 'headroom' for further deposition. The Dutch government argued that because other measures they were taking (through a national programme known as the PAS) would reduce atmospheric nitrogen deposition considerably, this would create headroom for agricultural growth, such that individual farms would not need AA or mitigation as long as they remained within that headroom. However, there was considerable uncertainty over the effectiveness of the PAS reductions, and even with these taken into account, large areas of the relevant European sites would still be above the Critical Load (i.e. the threshold below which damage could be ruled out with confidence). As a result, the Advocate-General advising the court disagreed with the Dutch Government due to the degree of uncertainty over the effectiveness of the PAS and argued that if the Critical Load was still exceeded, there was effectively no

[2] these don't replace the 2017 Regulations but are just another set of amendments
[3] The Precautionary Principle, which is referenced in Article 191 of the Treaty on the Functioning of the European Union, has been defined by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2005) as: *"When human activities may lead to morally unacceptable harm* [to the environment] *that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. The judgement of plausibility should be grounded in scientific analysis".*
[4] People Over Wind and Sweetman v Coillte Teoranta (C-323/17)

headroom available since damage would still arise from further deposition. In other words, to create sufficient headroom at a national level to entirely avoid the need for AA or mitigation, one would need to not just reduce nitrogen inputs from other sources but do so to such an extent the damage thresholds for the European site was no longer exceeded. The Court concurred, ruling that where a site is already in a negative state the room for permitting further harm is necessarily limited.

4.6 The RLDP HRA will be mindful of these rulings.

Introduction to HRA Methodology

4.7 The HRA will be carried out with reference to the general EC guidance on HRA[5]; as well as guidance published by the UK government[6]. Figure 2 below outlines the stages of HRA according to statutory guidance. The stages are essentially iterative, being revisited as necessary in response to more detailed information becoming available, recommendations being made and relevant changes to the plan being incorporated until no significant adverse effects remain.

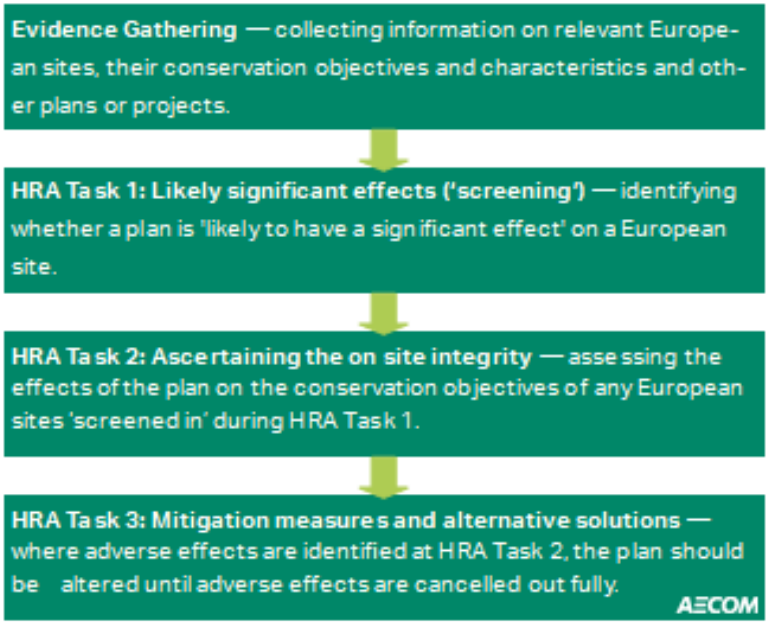

Figure 2. Four Stage Approach to Habitats Regulations Assessment. Source EC, 2001[1].

Description of HRA Tasks

HRA Task 1 - Screening for Likely Significant Effects (LSEs)

4.8 Following evidence gathering, the first stage of any HRA is a screening for LSEs. This is a brief, high-level assessment to decide whether the full subsequent stage known as AA is required. The essential question being:

”Is the project, either alone or in combination with other relevant projects and plans, likely to result in a significant effect upon European sites?”

4.9 The objective is to ‘screen out’ those plans and projects that can, without any detailed appraisal, be concluded not to result in significant adverse effects upon European sites (usually because there is no mechanism for an adverse interaction). The LSEs screening is based on the identification of impact sources, pathways linking to ecological receptors and relevant European sites at risk from the plan or project. These typically encompass the designated features themselves, but may also include habitats and species fundamental to those designated features achieving favourable conservation status (notably functionally linked habitats outside European site boundaries).

[5] European Commission (2001): Assessment of plans and projects significantly affecting Natura 2000 Sites: Methodological Guidance on the Provisions of Article 6(3) and 6(4) of the Habitats Directive.
[6] https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site

4.10 In the Waddenzee case[7], the European Court of Justice ruled on the interpretation of Article 6(3) of the Habitats Directive, including that:

- An effect should be considered 'likely', "*if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site*" (para 44);
- An effect should be considered 'significant', "*if it undermines the conservation objectives*" (para 48); and
- Where a plan or project has an effect on a site "*but is not likely to undermine its conservation objectives, it cannot be considered likely to have a significant effect on the site concerned*" (para 47).

4.11 The LSEs Screening determines whether there are any policies that could result in negative impacts on ecological receptors (i.e. the impact source) and if sensitive European sites that might be affected are present. Furthermore, it also considers whether there is a realistic pathway between the impact source and identified ecological receptors. This Scoping Report identifies the impact pathways associated with the RLDP and European sites most likely requiring consideration.

4.12 Due to the aforementioned 2018 case law, the conclusion of 'no LSEs' must not take account of any measures specifically introduced to avoid or reduce harm to European sites. Embedded measures (i.e. those that are integral to the plan itself) can be considered at this stage but other types of mitigation must be deferred to the AA. It is also important to note that the LSEs screening must generally follow the Precautionary Principle as its main purpose is to determine whether the subsequent stage of AA (i.e. a more detailed investigation) is required.

HRA Task 2 - Appropriate Assessment (AA)

4.13 Where it is determined that LSEs cannot be excluded, the analysis must proceed to the next stage of HRA known as AA. Case law has clarified that 'Appropriate Assessment' is not a technical term. In other words, there are no particular technical analyses, or level of technical analysis, that are classified by law as belonging to AA rather than the screening for LSEs. AA refers to whatever level of assessment is required to form a conclusion regarding effects on the integrity (coherence of structure and function) of European sites in light of their Conservation Objectives.

4.14 There is a clear implication that the analysis in the AA should be more detailed than undertaken at the LSEs stage. One of the key considerations in the AA is whether there is available mitigation that would entirely address any potential impact. In practice, the AA takes any policies or allocations that could not be dismissed following the high-level LSEs screening and assesses the potential for an effect in more detail. The purpose is to conclude whether there would actually be an adverse effect on site integrity (in other words, disruption of the coherent structure and function of European site(s)). In evaluating significance, AECOM will rely on professional judgement, interpretation of bespoke studies and previous stakeholder consultation regarding potential impacts of development.

4.15 In 2018 the Holohan ruling[8] was handed down by the European Court of Justice. This included paragraph 39 which stated that '*As regards other habitat types or species, which are present on the site, but for which that site has not been listed, and with respect to habitat types and species located outside that site, … typical habitats or species must be included in the appropriate assessment, if they are necessary to the conservation of the habitat types and species listed for the protected area*' [emphasis added]. This is particularly important regarding the potential loss of functionally linked habitat in relation to the Severn Estuary SPA / Ramsar.

4.16 Where necessary, measures will be recommended for incorporation into the emerging RLDP to avoid or mitigate adverse effects on European sites. There is considerable precedent, both nationally and locally, concerning the level of detail that a Plan document needs to contain regarding mitigation of identified impact pathways, such as recreational pressure. The implication of this is that it is not necessary for all measures to be fully deployed or developed prior to adoption of the RLDP, but the planning document must provide an adequate policy framework within which these measures can be delivered. When discussing mitigation

[7] Case C-127/02
[8] Case C-461/17

at a strategic plan level, one is concerned primarily with the policy framework to enable the delivery of such mitigation rather than the detail of the mitigation measures themselves.

HRA Task 3 - Avoidance and Mitigation

4.17 Once the AA has been completed there may be a requirement for avoidance or mitigation. This will most likely encompass suggestions for amendments to policy wording, or the identification of strategic mitigation solutions for smaller sites unlikely to be able to deliver their own mitigation. The purpose is to ensure an adequate framework exists to protect European sites from any potential adverse effects.

4.18 Consideration should also be given to the role of any new legal requirements that may emerge during the RLDP process. Delivering land to achieve Biodiversity Net Gain could potentially be co-located with mitigation solutions required for recreational pressure, such as by increasing the amount of available recreational greenspace and delivering significant biodiversity enhancements at the same time. For example, a country park could be zoned to provide both considerable biodiversity benefits and significant recreational opportunity. Moreover, any large area of Biodiversity Net Gain is likely to be informally used for recreation unless steps are taken to physically exclude the general public. To achieve this dual benefit, any proposed site for co-location would need to be large and meet formal SANG or Heathland Infrastructure Project (HIP) criteria[9].

4.19 There is significant value in committing to building a strong network of greenspaces, large parks and accessible Green / Blue Infrastructure corridors in the RLDP process from the outset, located appropriately to draw new residents away from sensitive European sites. This is likely to be required in addition to working with landowners and managers of designated sites to address the direct effects of increased recreational pressure within the site boundaries. At other European sites for which recreational pressure is a concern, the latter is often achieved through providing Strategic Access Management & Monitoring (SAMM), although landowner involvement is essential.

4.20 Department for Levelling Up, Housing & Communities (DLUHC) and Ministry of Housing, Communities and Local Government (MHCLG) guidance[10] makes it clear that when undertaking HRAs of land-use plans, the AA should be undertaken at a level of detail that is appropriate and proportional to the level of detail provided within the plan itself:

- "*The comprehensiveness of the [Appropriate] assessment work undertaken should be proportionate to the geographical scope of the option and the nature and extent of any effects identified. An AA need not be done in any more detail, or using more resources, than is useful for its purpose. It would be inappropriate and impracticable to assess the effects [of a strategic land use plan] in the degree of detail that would normally be required for the Environmental Impact Assessment (EIA) of a project.*"

- The Court of Appeal[11] ruled that providing the Council (in their role as Competent Authority) was duly satisfied that proposed mitigation could be '*achieved in practice*' to satisfy that the proposed development would have no adverse effect, then this would suffice. This ruling has since been applied to a planning permission (rather than a Local Plan)[12]. In that case the High Court ruled that for *'a multistage process, so long as there is sufficient information at any particular stage to enable the authority to be satisfied that the proposed mitigation can be achieved in practice it is not necessary for all matters concerning mitigation to be fully resolved before a decision maker is able to conclude that a development will satisfy the requirements of Regulation 102 of the Habitats Regulations*'.

- The same principle has also been applied in Buckinghamshire with regard to the former Wycombe District Local Plan. In paragraph 175 of his ruling in case [2020] EWHC 1984 (Admin), 2020 WL 04248573 (Keep Bourne End Green v Buckinghamshire Council (formerly Wycombe District Council), The Secretary of State for Housing, Communities and Local Government v Catesby Estates Plc, Leopold Noe) when a policy in this plan was challenged for being insufficiently detailed regarding mitigation for European sites, Mr Justice Holgate noted that '*I accept the Council's*

[9] https://www.woking2027.info/allocations/sadpdexam/neguidelinessang
[10] Department for Levelling up, housing and communities 2019. Guidance on Appropriate assessment https://www.gov.uk/government/organisations/department-for-levelling-up-housing-and-communities https://www.gov.uk/guidance/appropriate-assessment [accessed 17/11/2022]
[11] No Adastral New Town Ltd (NANT) v Suffolk Coastal District Council Court of Appeal, 17th February 2015
[12] High Court case of R (Devon Wildlife Trust) v Teignbridge District Council, 28 July 2015

submission that, as a matter of law, the wording of Policy BE2 did not need to go further [and provide full details regarding the mitigation for impacts on a European site that would be required]. *It was appropriate for the Plan as a development plan forming part of a multi-stage decision-making process, which includes a more detailed application for the grant of a development consent and a further HRA at that point. It was sufficient for the examination and adoption of the Plan that there was sufficient information before the Council enabling it to be satisfied, as it was, that the proposed mitigation could be achieved in practice… The requirement of s.106 contributions to a "suitable natural alternative green space" ("SANG") is a well-established form of mitigation under the 2017 Regulations for dealing with recreational pressure on a European protected site. The wording of Policy BE2, understood within the multi-stage nature of the statutory scheme, complies with the requirements of the Habitats Directive.'*

4.21 In other words, there is an acceptance that AA can be tiered and that all impacts are not necessarily appropriate for consideration to the same degree of detail at all tiers. The fullest level of detail is required at the reserved matters or full planning application stage that it is '*sufficiently certain that a measure will make an effective contribution to avoiding harm, guaranteeing beyond all reasonable doubt that the project will not adversely affect the integrity of the area'*, as per Cooperatie Mobilisation [2019] Env LR (CSFG§97).

4.22 Similarly, in any strategic planning document, there are numerous policies for which there is a limit to the degree of assessment that is possible at this level. This is because either:

- The policy in question does not contain any specifics as to what will be delivered so cannot be assessed in detail at the plan level. In this case, the AA would focus on precautionary mitigation that can be included in the plan to ensure that whatever proposals come forward will not result in adverse effects on integrity; or

- The nature of the potential impacts (notably lighting, noise and visual disturbance during construction, or loss of functionally linked habitat) are very closely related to exactly where and how the development will be delivered. Therefore, these impact pathways cannot be assessed in detail at the plan level. In these instances, the AA centres around available mitigation measures, the extent to which such measures would be achievable / effective and whether an adequate protective policy framework exists to ensure that development coming forward under the relevant policies will not lead to adverse effects on the integrity of European sites.

4.23 On these occasions the advice of Advocate-General Kokott[13] is worth considering. She commented 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 the procedure. Rather, adverse effects on areas of conservation must be assessed at every relevant stage of the procedure* ***to the extent possible on the basis of the precision of the plan***. ***This assessment is to be updated with increasing specificity in subsequent stages of the procedure'*** [emphasis added]. This is the approach taken in the HRA and is in line with the Department for Levelling Up Housing and Communities guidance referenced in paragraph 4.27, and Court rulings that regarding level of detail of the assessment which is appropriate at each stage of the planning process.

In-Combination Assessment

4.24 It is a requirement of the Regulations that the impacts and effects of any plan document are not only considered in isolation but in-combination with other plans and projects that may also be exerting pressures on the relevant European site(s). In practice, in-combination assessment is of greatest importance when a policy would otherwise be screened out because its individual contribution is not significant. When undertaking in-combination assessment for specific development sites, it is important to avoid double-counting since housing and employment projects that deliver growth will usually themselves be part of the strategic plan as site allocations. In these instances, the development of a planning application can be considered to provide further detail on growth that is already being assessed.

[13] 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

4.25 Similarly, where growth is being delivered in surrounding authorities this is captured in the in-combination assessment through consideration of the relevant adopted LDPs or emerging RLDPs, which set out the total amount of growth delivered across the authorities over the relevant timescales.

Geographical Scope

4.26 There are no standard criteria for determining the physical scope of an HRA. Rather, the source-pathway-receptor model should be used to determine whether there are potential linking impact pathways connecting to development allocated in the plan document.

5. European Sites

5.1 In the case of the Torfaen RLDP, it was determined that for the initial coarse screening European sites within 15km of the authority boundary require consideration (Table 2). Their geographic location is illustrated in **Appendix A, Figure A1**.

Table 2: Relevant European sites and their location in relation to Torfaen.

European site	Location
Usk Bat Sites SAC	The SAC consists mainly of open moorland and bog, representing one of the largest sections of exposed upland limestone crag in south Wales. It supports lesser horseshoe bat roosts across cave systems, as well as a notable assemblage of habitats and plants.
Cwm Clydach Woodlands SAC	This composite site in the north-west corner of the county borough supports *Asperulo-Fagetum* beech forests close to the limit of their north-west distribution. Characteristic plant species within the SAC comprise whitebeam, mountain sedge, yellow bird's-nest and bird's-nest orchid.
River Usk SAC	The source of the River Usk SAC is in the west of the Brecon Beacons National Park, flowing in a south-easterly direction before joining the Severn Estuary at Newport.
Aberbargoed Grasslands SAC	The Aberbargoed Grasslands SAC lies approx. 6.2km to the west of Torfaen in the adjoining authority of Caerphilly. It covers an area of 42.5ha and lies on a south-west facing hillside in the Rhymney Valley, approx. 1km from Bargoed.
Sugar Loaf Woodlands SAC	The Sugar Loaf Woodlands SAC, a composite site, lies approx. 6.6km to the north-east of Torfaen County Borough in the adjoining authority of Monmouthshire.
Severn Estuary SAC / SPA / Ramsar	This is an extensive estuarine site that, at its closest in the adjoining authority of Newport, lies approx. 7km to the south of Torfaen.
Coed y Cerrig SAC	The closest parcel of the Coed y Cerrig SAC lies approx. 10.7km to the north-east of Torfaen County Borough in the adjoining authority of Monmouthshire.
Wye Valley and Forest of Dean Bat Sites SAC	This is a composite site that encompasses 13 SSSIs, including nine in England and four in Wales.
Cardiff Beech Woods SAC	The closest component part of this SAC to Torfaen lies approx. 13km to the south-west in the nearby authority of Cardiff.

Usk Bat Sites SAC

Introduction

5.2 The site encompasses a series of lesser horseshoe bat roosts, upland habitats, woodlands and cave systems located around the valley of the River Usk near to Abergavenny.

5.3 Mynydd Llangatwg is an area of open moorland and bog, with an impressive limestone escarpment along the northeastern edge, and is one of the largest exposures of upland limestone crag in south Wales. A small raised bog (Waun Ddu) bordered by two small streams has developed below the escarpment. An extensive system of caves lies beneath Mynydd Llangatwg and the plateau is peppered with sinkholes.

5.4 The chasmophytic vegetation encompasses the various crevices, nooks and crannies on the cliffs, boulders and partially vegetated unstable slopes of the limestone escarpment. It supports a typical range of ferns, bryophytes and calcareous lichens; these include ferns such as maidenhair spleenwort, mosses like *Tortella tortuosa*, and liverworts like *Scapania aspera*. This site is known to support a number of notable lichen species and provides some of the best examples in the area of calcicolous lichen communities, which include the jelly lichen *Collema cristatum* and examples of lichen communities like the *Leproplacetum chrysodetae* and *Aspicilion calcarea.*

5.5 Patches of Tileo-Acerion forest are also scattered along the length of the cliffs on Mynydd Llangatwg and intermixed with beechwood in the Clydach gorge. These areas also support a number of rare whitebeams (*Sorbus* spp.).

Qualifying Features[14]

5.6 Annex II species present as a primary reason for site selection:

- Lesser Horseshoe Bat *Rhinolophus hipposideros*

5.7 Annex I habitats that present but that are not a primary reason for selection of this site:

- Blanket bog
- Tilio-Acerion forests of slopes, screes and ravines
- Calcareous rocky slopes with chasmophytic vegetation
- Caves not open to the public
- Degraded raised bogs still capable of natural regeneration
- European dry heaths

Conservation Objectives[15]

5.8 The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

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

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

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

Threats / Pressures to Site Integrity[16]

5.10 The following factors affecting the Usk Bat Sites SAC are specified in Natural Resources Wales' (NRW) Core Management Plan for the site:

Maternity roosts:

- Site security

[14] https://naturalresources.wales/media/674281/Usk%20Bat%20Sites%20Management%20Plan%20Feb%2008.pdf [accessed on the 20/07/2023]
[15] Ibid
[16] https://naturalresources.wales/media/674281/Usk%20Bat%20Sites%20Management%20Plan%20Feb%2008.pdf [accessed on the 20/07/2023]

- External condition of building
- Roost entrance – buildings and underground
- External disturbance
- Internal condition of building/ underground site in roost area
- Temperature of roost area
- Internal disturbance

Hibernation sites:

- Site entrance
- External conditions of site
- Internal conditions
- Internal disturbance

Foraging areas and links to roosts:

- Habitat quality
- Connectivity

Annex I Habitats:

- Peat erosion
- Burning
- Drainage
- Air quality
- Grazing
- Non-native species
- Woodland management
- Quarrying
- Rock climbing
- Condition of the habitat
- Erosion/ bare ground

Cwm Clydach Woodlands SAC

Introduction

5.11 The site is situated on the southern side of the River Clydach valley, approximately 2km east, north east of Brynmawr. The underlying geology varies across the site, consisting of sedimentary rocks that range from Old Red Sandstone through Carboniferous Limestone into shales and sandstones of the Millstone Grit and Coal Measures. Soils mainly consist of typical brown earths and humo-ferric podsols. Altitude ranges from 170m by the River Clydach to 350m in Cwm Llammarch.

5.12 Cwm Clydach is of special interest for its stands of broadleaved woodland dominated by beech, intergrading with more open habitats, which together support a number of rare and scarce vascular plants including whitebeams *Sorbus* spp. and soft-leaved sedge *Carex montana.* There are important woodland and

grassland fungi assemblages with rare species such as *Squamanita paradoxa*. The site also includes two localities of national geological importance.

Qualifying Features[17]

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

- *Asperulo – Fagetum* beech forests
- Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Ilici-Fagenion*)

Conservation Objectives[18]

5.14 The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

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

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

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

Threats / Pressures to Site Integrity[19]

5.16 The following factors affecting the Cwm Clydach Woodlands SAC are specified in NRW'S Core Management Plan for the site:

- Livestock grazing
- Non-native and invasive species

River Usk SAC

Introduction

5.17 The River Usk SAC originates in the west of the Brecon Beacons National Park and flows south-east, joining the Severn Estuary at Newport. The overall from 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.

[17] https://naturalresources.wales/media/675017/cwm-clydach-sac-plan-english.pdf [accessed on the 20/07/2023]
[18] Ibid
[19] Ibid

5.18 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.

5.19 Example 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. None of the SAC flows through Torfaen. However, at its closest point, the river system lies only approx. 1.2km to the south of Torfaen, relatively close to its confluence with the Severn Estuary SPA / Ramsar.

Qualifying Features[20]

5.20 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

5.21 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*

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

- Allis shad *Alosa alosa*

Conservation Objectives[21]

5.23 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.

[20] https://sac.jncc.gov.uk/site/UK0013007 [Accessed on the 20/07/2023]
[21] https://naturalresources.wales/media/673384/River_Usk%20SAC%20core%20plan.pdf. As published by the Countryside Council for Wales (2008). [Accessed on the 20/07/2023]

- 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 river banks 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 set by 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 set by 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 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 set by 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.
- Levels of suspended solids will be set by 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[22]

5.16 The following factors affecting the River Usk SAC are specified in NRW's Core Management Plan for the site:

- Inappropriate habitat management (e.g. barriers to migration)
- Water quality

[22] https://naturalresources.wales/media/673384/River_Usk%20SAC%20core%20plan.pdf. [Accessed on the 20/07/2023]

- Water flow / level
- Noise / acoustic disturbance
- Non-marine fisheries: recreational and commercial
- Increased sedimentation / siltation

Aberbargoed Grasslands SAC

Introduction

5.24 Aberbargoed Grasslands covers an area of 42.5ha and lies on a southwest facing hillside in the Rhymney Valley, 1km east of Bargoed. The site occupies an urban fringe position, between 200m and 290m above sea level.

5.25 The fields in the south and west of Aberbargoed Grasslands have impeded drainage and contain a mixture of marshy grassland communities. Areas of particular interest are characterised by abundant purple moor grass *Molinia caerulea* and meadow thistle *Cirsium dissectum* with devil's bit scabious *Succisa pratensis* and carnation sedge *Carex panicea.* Other species such as saw-wort *Serratula tinctoria* and lousewort *Pedicularis sylvatica* occur frequently in heavily flushed areas. Associated stands of *Molinia caerulea – Potentilla erecta* mire contain abundant purple moor grass with tormentil *Potentilla erecta,* mat grass *Nardus stricta,* common sedge *Carex nigra* and spotted orchid *Dactylorhiza maculata.* Small stands of rush pasture are scattered across the site, with soft rush *Juncus effusus,* greater bird's foot trefoil *Lotus uliginosus* and marsh bedstraw *Galium palustre.*

Qualifying Features[23]

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

- *Molinia* meadows on calcareous, peaty or clayey-silt laden soils (*Molinion caeruleae*)

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

- Marsh fritillary butterfly *Euphydryas aurinia*

Conservation Objectives[24]

5.28 The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

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

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

- Population dynamics data on the species indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and

[23] https://naturalresources.wales/media/670637/Aberbargoed%20Grasslands%20Core%20SAC [Accessed on the 20/07/2023]
[24] Ibid

- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Threats / Pressures to Site Integrity[25]

5.30 The following factors affecting the Aberbargoed Grasslands SAC are specified in NRW's Core Management Plan for the site:

- Appropriate grazing levels
- Recreational pressure

Sugar Loaf Woodlands SAC

Introduction

5.31 The Sugar Loaf Woodlands SAC comprises 173.1ha of broad-leaved deciduous woodland (76.7%), and heath and scrub (23.3%). It is the largest area of old sessile oak woods near the south-eastern fringe of the habitat's range in the UK and Europe. Due to the relatively dry conditions in the SAC, the development of the Atlantic flora is restricted. However, the main plant components of the site are sessile oak *Quercus petraea*, bilberry *Vaccinium myrtillus*, wavy hair-grass *Deschampsia flexuosa*, and extensive fern and bryophyte cover. While the woodland is grazed, it regenerates around the fringes, where transitions to upland grassland and heathland communities occur. The Sugar Loaf Woodlands SAC lies outside of Torfaen, approx. 6km to the north-east in the county of Monmouthshire.

Qualifying Features[26]

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

- Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

Conservation Objectives[27]

5.33 The overarching conservation objectives are outlined in the Core Management Plan for the Sugar Loaf Woodlands SAC published by Natural Resources Wales.

5.34 The vision for this feature is for it to be in favourable conservation status within the site, as a functioning and regenerating* oak wood, where all of the following conditions are satisfied:

- The wooded area is no less than 122 ha;
- The remainder of the site is semi-natural acid grassland, heathland, bracken and scrub, often forming a transition zone at the woodland edge;
- Saplings of birch *Betula* spp, oak *Quercus petraea*, alder *Alnus glutinosa* or holly *Ilex aquifolium* dominate the tree regeneration;
- Young beech *Fagus sylvatica* and sycamore *Acer pseudoplatanus* trees are rare;
- The woodland ground flora is composed of a range of typical native plants including bilberry *Vaccinium myrtillus*, wavy-hair grass *Deschampsia flexuosa* and the mosses *Plagiothecium undulatum, Rhytidiadelphus loreus, Dicranum majus.*
- The liverwort *Bazzania trilobata* to continue to be present in its core area of Unit 1.
- All factors affecting the achievement of these conditions will under control.

[25] Ibid
[26] https://sac.jncc.gov.uk/site/UK0030072 [Accessed on the 21/07/2023]
[27] https://naturalresources.wales/media/674063/Sugar_Loaf_Woodlands_core_management_plan_Mar_2008%20_A_.pdf. As published by the Countryside Council for Wales (2008). [Accessed on the 21/07/2023]

* A "functioning and regenerating oak woodland" would include all the positive attributes described in the performance indicators.

Threats and Pressures to Site Integrity[28]

5.35 The following factors affecting the Sugar Loaf Woodlands SAC are specified in NRW's Core Management Plan for the site:

- Inappropriate habitat management
- Invasive species

Severn Estuary SAC

Introduction

5.36 The Severn Estuary SAC was designated as a SAC in 2009, because it supports a significant number of habitats and species. It covers an area of 74,000ha and is designated partly for its estuary feature. Within this feature, subtidal sandbanks, intertidal mudflats and sandflats, Atlantic salt meadows and biogenic reefs are included. The SAC also harbours three migratory fish species, including river lamprey, sea lamprey and twaite shad. The Severn Estuary also comprises hard substrate habitats, an assemblage of 114 estuarine and marine fish species and various waterfowl species. The Severn Estuary SAC overlaps with the Severn Estuary SPA / Ramsar, designated for a range of overwintering waders and waterfowl.

Qualifying Features[29]

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

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

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

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

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

- Sea lamprey *Petromyzon marinus*
- River lamprey *Lampetra fluviatilis*
- Twaite shad *Alosa fallax*

Conservation Objectives[30]

5.40 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;

5.41 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;

[28] https://naturalresources.wales/media/674063/Sugar_Loaf_Woodlands_core_management_plan_Mar_2008%20_A_.pdf. [Accessed on the 21/07/2023]
[29] https://sac.jncc.gov.uk/site/UK0013030 [Accessed on the 25/04/2023]
[30] http://publications.naturalengland.org.uk/publication/6081105098702848 [Accessed on the 25/04/2023]

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

Threats and Pressures to Site Integrity[31]

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

- Public access / disturbance
- Physical modification
- Impacts of development
- Coastal squeeze
- Change in land management
- Changes in species distributions
- Water pollution
- Air pollution: Impact of atmospheric nitrogen deposition
- Marine consents and permits: Minerals and waste
- Fisheries: Recreational marine and estuarine
- Fisheries: Commercial marine and estuarine
- Invasive species
- Marine litter

- Marine pollution incidents

Severn Estuary SPA / Ramsar

Introduction

5.43 The Severn Estuary SPA / Ramsar is located between the borders of Wales and England in south-western Britain. It is a 24,700.91ha large estuary with extensive intertidal mudflats, sandflats, rocky platforms and small islands. The coastline is fringed by saltmarsh, grazing marsh, freshwater and brackish ditches. Its seabed is mainly rocky, gravelly and sub-tidal sandbanks. Due to the estuary's funnel shape, the Severn experiences the second highest tidal range in the world.

5.44 Because of this extreme tidal condition, the SPA / Ramsar is inhabited by plant and animal assemblages that tolerate the physical conditions in the tidal-swept liquid mud, sand and rock. The invertebrate community is species-poor and harbours high densities of ragworms and lugworms. These form important food sources for migrant and wintering waders. The SPA / Ramsar has particular importance as a stopover point for spring and autumn migrant waders,

[31] http://publications.naturalengland.org.uk/publication/4590676519944192 [Accessed on the 25/04/2023]

and overwintering swans, ducks and waders. The site also has an extensive intertidal zone, as a consequence of its tidal range.

SPA Qualifying Features[32]

5.45 This site qualifies under **Article 4.1** of the Directive (79/409/EEC) by supporting populations (counts are all at time of designation and could have changed since) of European importance of the following species listed on Annex I of the Directive:

Over winter

- Bewick's swan *Cygnus columbianus bewickii*, 280 individuals representing at least 4.0% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)

5.46 This site also qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

5.47 **On passage**

- Ringed plover *Charadrius hiaticula*, 655 individuals representing at least 1.3% of the Europe/Northern Africa - wintering population (5 year peak mean 1991/2 - 1995/6)

5.48 **Over winter**

- Curlew *Numenius arquata*, 3,903 individuals representing at least 1.1% of the wintering Europe - breeding population (5 year peak mean 1991/2 - 1995/6)
- Dunlin *Calidris alpina alpina*, 44,624 individuals representing at least 3.2% of the wintering Northern Siberia/Europe/Western Africa population (5 year peak mean 1991/2 - 1995/6)
- Pintail *Anas acuta*, 599 individuals representing at least 1.0% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)
- Redshank *Tringa totanus*, 2,330 individuals representing at least 1.6% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6)
- Shelduck *Tadorna tadorna*, 3,330 individuals representing at least 1.1% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)

Assemblage qualification: A wetland of international importance

5.49 The area qualifies under **Article 4.2** of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl.

5.50 Over winter, the area regularly supports 93,986 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Gadwall *Anas strepera*, shelduck *Tadorna tadorna*, pintail *Anas acuta*, dunlin *Calidris alpina alpina*, curlew *Numenius arquata*, redshank *Tringa totanus*, Bewick's swan *Cygnus columbianus bewickii*, wigeon *Anas penelope*, lapwing *Vanellus vanellus*, teal *Anas crecca*, mallard *Anas platyrhynchos*, shoveler *Anas clypeata*, pochard *Aythya ferina*, tufted duck *Aythya fuligula*, grey plover *Pluvialis squatarola*, white-fronted goose *Anser albifrons albifrons*, whimbrel *Numenius phaeopus*.

Ramsar Qualifying Features[33]

5.51 The Severn Estuary is designated as a Ramsar site under the following criteria:

Criterion 1

Due to the immense tidal range (second-largest in world), which affects both the physical environment and biological communities

[32] http://archive.jncc.gov.uk/default.aspx?page=2066 [Accessed on the 25/04/2023]
[33] https://jncc.gov.uk/jncc-assets/RIS/UK11081.pdf [Accessed on the 25/04/2023]

Habitats Directive Annex I features present include sandbanks which are slightly covered by sea water all the time, estuaries, mudflats and sandflats not covered by sweater at low tide and Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

Criterion 3

Due to unusual estuarine communities, reduced diversity and high productivity

Criterion 4

This site is important for the run of migratory fish between sea and river via estuary. Species include salmon *Salmo salar*, sea trout *S. trutta*, sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis*, allis shad *Alosa alosa*, twaite shad *A. fallax*, and eel *Anguilla anguilla*. It is also of particular importance for migratory birds during spring and autumn.

Criterion 5: Assemblages of international importance

Species with peak counts in winter

70,919 waterfowl (5 year peak mean 1998/99-2002/2003).

Criterion 6: Species / populations occurring at levels of international importance

Species with peak counts in winter

- Tundra swan *Cygnus columbianus bewickii*; 229 individuals representing an average of 2.8% of the GB population (5 year peak mean 1998/99-2002/03)
- Greater white-fronted goose *Anser albifrons*; 2,076 individuals representing an average of 35.8% of the GB population (5 year peak mean 1996/97-2000/01)
- Common shelduck *Tadorna tadorna*; 3,223 individuals representing an average of 1% of the NW Europe population (5 year peak mean 1998/99-2002/03)
- Gadwall *Anas strepera strepera*; 241 individuals representing an average of 1.4% of the GB population (5 year peak mean 1998/99-2002/03)
- Dunlin *Calidris alpina alpina*; 25,082 individuals representing an average of 1.8% of the W Siberia and W Europe population (5 year peak mean 1998/99-2002/03)
- Common redshank *tringa totanus tetanus*; 2,616 individuals representing an average of 1% of the population (5 year peak mean 1998/99-2002/03)

Species / populations identified subsequent to designation for possible future consideration under criterion 6

Species regularly supported during the breeding season

- Lesser black-backed gull *Larus fuscus graellsii*; 4,167 apparently occupied nests, representing an average of 2.8% of the breeding population (Seabird 2000 Census)

5.52 Species with peak counts in spring / autumn

- Ringed plover *Charadrius hiaticula*; 740 individuals representing an average of 1% of the Europe and NW Africa population (5 year peak mean 1998/99-2002/03)

5.53 Species with peak counts in winter

- Eurasian teal *Anas crecca*; 4,456 individuals representing an average of 1.1% of the NW Europe population (5 year peak mean 1998/99-2002/03)
- Northern pintail *Anas acuta*; 756 individuals representing an average of 1.2% of the NW Europe population (5 year peak mean 1998/99-2002/03)

Criterion 8

The fish of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. Salmon *Salmo salar*, sea trout *S. trutta*, sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis*, allis shad *Alosa alosa*, twaite shad *A. fallax*, and eel *Anguilla anguilla* use the Severn Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary. The site is important as a feeding and nursery ground for many fish species particularly allis shad *Alosa alosa* and twaite shad *A. fallax* which feed on mysid shrimps in the salt wedge.

Conservation Objectives[34]

5.54 With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change;

5.55 Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- The extent and distribution of the habitats of the qualifying features
- The structure and function of the habitats of the qualifying features
- The supporting processes on which the habitats of the qualifying features rely
- The population of each of the qualifying features, and,
- The distribution of the qualifying features within the site.

Threats and Pressures to Site Integrity[35]

5.56 The following threats and pressures to the site integrity of the Severn Estuary SPA have been identified in Natural England's Site Improvement Plan:

- Public access / disturbance
- Physical modification
- Impacts of development
- Coastal squeeze
- Change in land management
- Changes in species distributions
- Water pollution
- Air pollution: Impact of atmospheric nitrogen deposition
- Marine consents and permits: Minerals and waste
- Fisheries: Recreational marine and estuarine
- Fisheries: Commercial marine and estuarine
- Invasive species
- Marine litter
- Marine pollution incidents

[34] http://publications.naturalengland.org.uk/publication/5601088380076032 [Accessed on the 25/04/2023]
[35] http://publications.naturalengland.org.uk/publication/4590676519944192 [Accessed on the 25/04/2023]

Coed y Cerrig SAC

Introduction

5.57 The Coed y Cerrig SAC is 8.99ha in size and comprises two main habitats, namely broad-leaved deciduous woodland (91.2%), and bogs and marshes (6.6%). The SAC is a good example of alluvial forest in southern Wales. It lies in the bottom of a valley and its canopy is dominated by alder *Alnus glutinosa* and ash *Fraxinus excelsior*, and a rich understorey with guelder-rose *Viburnum opulus* and bird cherry *Prunus padus.* Its ground flora includes large sedges *Carex* spp. and wet woodland species. There are gradations to ash-elm *Fraxinus-Ulmus* and oak *Quercus* spp. on the valley sides. The site includes a large area of species-rich fen meadow and some rush pasture.

5.58 Historically, the wet alder dominated woodland has been managed through a mixture of coppicing and grazing. Coppice management was traditionally undertaken to provide timber for the charcoal and clog making industries but seized before the Second World War. The dry woodland sections were managed for oak and beech timber. The SAC is located approx. 10.8km to the north-east of Torfaen in the adjoining county of Monmouthshire.

Qualifying Features[36]

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

- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)

Conservation Objectives[37]

5.60 The overarching conservation objectives are outlined in the Core Management Plan for the Coed y Cerrig SAC published by Natural Resources Wales.

Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)

- Around a third of the site is covered by wet alder and willow woodland.
- This wet woodland grades into areas of permanent open swamp dominated by lesser pond-sedge or other typical wetland plants, where the hydrological conditions are suitable. Adjacent areas of marshy grassland and spring-fed mire are intimately linked to the wet woodland and swamp.
- The remainder of the site supports mainly dry semi-natural woodland.
- The wet woodland has a variable canopy structure, based on a small-scale patchwork, with alder of different ages and some standing as well as fallen dead wood. Ash does not make up more than 25% of the canopy.
- Young trees/saplings and/or vegetative re-growth of the above species are present.
- The understorey includes locally native shrubs typical of this habitat and the ground flora consists of a variety of typical wetland plants, such as lesser pond-sedge, common marsh-bedstraw, meadowsweet, yellow pimpernel, opposite-leaved golden-saxifrage, marsh-marigold, hemlock water-dropwort, water mint, lady fern and rushes.
- Plants associated with nutrient enrichment, such as stinging nettle and cleavers, are not dominant over large areas and invasive alien plants like Japanese knotweed and Indian balsam are absent.
- This wet woodland grades into areas of permanent open swamp dominated by lesser pond-sedge or other typical wetland plants, where the hydrological conditions are suitable. Adjacent areas of marshy grassland and spring-fed mire are intimately linked to the wet woodland and swamp.

[36] https://sac.jncc.gov.uk/site/UK0012766 [Accessed on the 21/07/2023]

[37] https://naturalresources.wales/media/671319/Coed%20y%20Cerrig%20%20SAC%20%20Management%20Plan%20_English_.pdf. As published by the Countryside Council for Wales (2008). [Accessed on the 21/07/2023]

- There is no significant input of nutrient-rich water from ditches and surrounding land.
- All factors affecting the achievement of these conditions are under control.

Threats / Pressures to Site Integrity[38]

5.61 The following factors affecting the Coed y Cerrig SAC are specified in NRW's Core Management Plan for the site:

- Inadequate woodland management
- Inappropriate grazing levels
- Inappropriate hydrological regime
- Atmospheric pollution
- Recreational pressure

Wye Valley and Forest of Dean Bat Sites SAC

Introduction

5.62 The Wye Valley and Forest of Dean Bat Sites SAC lies within the Forest of Dean and Lower Wye National Character Area, straddling the England-Wales border. It includes 13 individual component sites (9 in England and 4 in Wales), which are all individually notified as SSSIs and that total an area of 144.82ha. The sites include both maternity roosts and hibernation sites in old buildings and mines / caves.

5.63 The wider surrounding landscape of the SAC is heavily wooded and edged by predominantly grazed farmland. This mixed landscape with trees and grazed pastures provides good conditions for both lesser horseshoe bat *Rhinolophus hipposideros* and greater horseshoe bat *Rhinolophus ferrumequinum.* The designated SAC components harbour the highest density of lesser horseshoe bats in the UK, making up about 26% of the national population. The complex of sites harbours approx. 6% of the national greater horseshoe bat population.

5.64 The qualifying bat populations are supported by numerous summer roosts and hibernation sites in the area that are not designated, but form part of the wider ecological network of the SAC. Flightlines, commuting routes and feeding grounds are also critical in maintaining the integrity of the Wye Valley and Forest of Dean Bat Sites SAC. Additionally, there is some evidence of connectivity between the populations in the SAC, the Cotswolds to the east, the Malvern Hills to the north and areas in Wales to the west. All of the SAC lies outside Torfaen, with the closest parcel lying approx. 13.2km to the east in the adjoining county of Monmouthshire.

Qualifying Features[39]

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

- Lesser horseshoe bat *Rhinolophus hipposideros*
- Greater horseshoe bat *Rhinolophus ferrumequinum*

Conservation Objectives[40]

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

[38] https://naturalresources.wales/media/671319/Coed%20y%20Cerrig%20%20SAC%20%20Management%20Plan%20_English_.pdf. [Accessed on the21/07/2023]

[39] https://sac.jncc.gov.uk/site/UK0014794 [Accessed on the 21/07/2023]

[40] http://publications.naturalengland.org.uk/publication/4907653293670400 [Accessed on the 21/07/2023]

5.67 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 the habitats of qualifying species
- The structure and function of the habitats of qualifying species
- The supporting processes on which the habitats of qualifying species rely
- The populations of qualifying species, and
- The distribution of qualifying species within the site.

Threats / Pressures to Site Integrity[41]

5.68 The following threats and pressures to the site integrity of the Wye Valley and Forest of Dean Bat Sites SAC have been identified in Natural England's Site Improvement Plan:

- Physical modification
- Public access / disturbance
- Habitat connectivity

Cardiff Beech Woods SAC

Introduction

5.69 The Cardiff Beech Woods SAC is a 114.45ha large site comprising broad-leaved deciduous woodland (99.5%) and some developed tracts (0.5%). It represents an area of semi-natural broadleaved woodland dominated by beech. The SAC is considered one of the best examples of beech forest in the UK, representing this habitat close to its western limit of distribution. Mosaics and transitions to other woodland types are found throughout the SAC, such as acidic beech woodland and oak *Quercus* and ash *Fraxinus excelsior* woods. Characteristic and notable species in the ground flora include ramsons *Allium ursinum*, sanicle *Sanicula europea*, bird's-nest orchid *Neottia nidus-avis* and yellow bird's-nest orchid *Monotropa hypopitis*.

5.70 The SAC also supports significant stretches of *Tilio-Acerion* forests of slopes, screes and ravines, comprising ash *Fraxinus excelsior*, wych elm *Ulmus glabra* and small-leaved lime *Tilia cordata*. Introduced sycamore *Acer pseudoplatanus* is frequently present throughout.

Qualifying Features[42]

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

- *Asperulo-Fagetum* beech forests

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

- *Tilio-Acerion* forests of slopes, screes and ravines (* priority feature)

[41] http://publications.naturalengland.org.uk/publication/6102625057505280 [Accessed on the 21/07/2023]
[42] https://sac.jncc.gov.uk/site/UK0030109 [Accessed on the 25/04/2023]

Conservation Objectives[43]

5.73 The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

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

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

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

Threats / Pressures to Site Integrity[44]

5.75 The following performance indicators for factors affecting the Cardiff Beech Woods SAC are specified in NRW's's Core Management Plan:

- Recreational use
- Atmospheric pollution
- Development pressure
- Commercial forestry
- Mineral extraction

[43] https://naturalresources.wales/media/672066/FINAL%20Cdf%20Beech%20Woods%20SAC%20Man%20Plan.pdf [Accessed on the 25/04/2023]
[44] Ibid.

6. Impact Pathways for Consideration

6.1 This section discusses impact pathways associated with the RLDP that are likely to link to the European sites identified in Chapter 5. A brief summary of impact pathways linking to the respective European sites is provided in Table 3. Where further evidence exists in relation to a specific impact pathway and European site, further commentary is provided in Chapter 7.

Table 3: Potential impact pathways linking the Torfaen RLDP to identified European sites.

European site	Potential Linking Impact Pathways
Usk Bat Sites SAC	• Disturbance from recreational pressure within maternity roosts and hibernation sites, as well as trampling damage / erosion impacts to sensitive qualifying habitats (e.g. calcareous slopes and dry heathland components) • Loss of functionally linked habitat (e.g. foraging areas and commuting routes) due to the development of greenfield sites • Atmospheric pollution impacts from ammonia (NH_3) and NOx, and resulting overall nitrogen (N) deposition to qualifying habitats (including those that SAC species depend on)
Cwm Clydach Woodlands SAC	• Recreational pressure impacts (e.g. trampling damage, erosion, fly-tipping) on qualifying beech woodlands and associated ground flora • Atmospheric pollution impacts from ammonia (NH_3) and NOx, and resulting overall nitrogen (N) deposition to qualifying habitats
River Usk SAC	• Recreational pressure impacts on qualifying habitats and fish species, primarily through recreational fishing and boating (e.g. through removal of reproducing adults and / or disturbance to spawning gravel beds) • Water quality impacts on the qualifying habitats and aquatic species due to discharge of treated sewage effluent (primarily phosphorus) and uncontrolled outflow from Combined Sewer Overflows (CSOs) • Impacts on water quantity, level and flow in the river due to water abstraction for the potable water requirements of households and industry, as well as changes in water flow rates due to runoff from impermeable surfaces • Atmospheric pollution impacts from ammonia (NH_3) and NOx, and resulting overall nitrogen (N) deposition to qualifying habitats
Aberbargoed Grasslands SAC	• Recreational pressure impacts (e.g. trampling damage, erosion, fly-tipping) on the qualifying *Molinia* sward (although this is considered relatively trampling-resistant due to its robust tussock structure) • Loss of functionally linked habitat (e.g. grassland with devil's-bit scabious) for marsh fritillary butterflies • Impacts on water supply to the wet *Molinia* meadows and the associated marsh fritillary butterfly population due to water abstraction for the potable water requirements of households and industry, as well as changes in water flow rates due to runoff from impermeable surfaces • Atmospheric pollution impacts from ammonia (NH_3) and NOx, and resulting overall nitrogen (N) deposition to qualifying habitats and, indirectly, species
Sugar Loaf Woodlands SAC	• Recreational pressure impacts on the old sessile oak woods, particularly as a result of compaction surrounding and physical damage to the root zones of ancient trees • Atmospheric pollution impacts from ammonia (NH_3) and NOx, and resulting overall nitrogen (N) deposition to qualifying habitats
Severn Estuary SAC / SPA / Ramsar	• Recreational pressure impacts within SAC habitats (e.g. intertidal mudflats) and on overwintering SPA / Ramsar birds • Loss of functionally habitats of overwintering SPA / Ramsar birds due to the development of greenfield sites (particularly agricultural land and / or wet grassland) • Water quality impacts due to discharge of treated sewage effluent and from uncontrolled outflow from CSOs • Impacts on water quantity, level and flow in the estuary due to water abstraction for the potable water requirements of households and industry, as well as changes in water flow rates due to runoff from impermeable surfaces • Atmospheric pollution impacts from ammonia (NH_3) and NOx, and resulting overall nitrogen (N) deposition to qualifying habitats and, indirectly, species

	• Noise and visual disturbance due to construction works in close proximity to supporting habitats of SPA / Ramsar birds
Coed y Cerrig SAC	• Recreational pressure impacts (e.g. trampling damage, erosion, fly-tipping) on qualifying alluvial woodland and associated ground flora • Impacts on water supply to the qualifying alluvial forest due to water abstraction for the potable water requirements of households and industry, as well as changes in water flow rates due to runoff from impermeable surfaces • Atmospheric pollution impacts from ammonia (NH_3) and NOx, and resulting overall nitrogen (N) deposition to qualifying habitats
Wye Valley and Forest of Dean Bat Sites SAC	• Disturbance from recreational pressure to maternity roosts and hibernation sites of lesser / greater horseshoe bats • Loss of functionally linked habitat (e.g. foraging areas and commuting routes) due to the development of greenfield sites
Cardiff Beech Woods SAC	• Recreational pressure (illicit vehicle usage and pressure from camping visitors) has the potential to lead to loss of qualifying vegetation, soil compaction and erosion • Atmospheric pollution impacts from ammonia (NH_3) and NOx, and resulting overall nitrogen (N) deposition to qualifying habitats

6.2 It should be noted that all above European sites will be included in the HRA. However, it is likely that the focus will be primarily on European sites within and close to the Torfaen authority boundary, because these are most likely to be impacted due to proximity. Some of the impact pathways and / or European sites are likely to be screened out at an early stage due to there being no 'realistic' linking pathway to the RLDP. For example, atmospheric pollution impacts may be screened out due to no major commuter routes being present within 200m of the designated site boundary or sensitive qualifying habitats within it.

7. Key Evidence

7.1 Where available, existing evidence and stakeholder knowledge will be drawn upon to inform the HRA of the Torfaen RLDP. The following sections discuss existing baseline evidence and its relevance for development in Torfaen County Borough. Since leaving the EU (and thus the EU's network of internationally important Natura 2000 sites) the government has placed greater emphasis on the fact that UK sites of international nature conservation importance are also part of the Bern Convention Emerald Network. All English and Welsh Emerald Network Sites (SPA and SAC sites), have Site Improvement Plans (SIPs) or Core Management Plans produced for them by Natural England / Natural Resources Wales. These documents identify existing threats and pressures to site integrity and have been drawn upon to inform this Scoping Report. Because some SIPs are several years old, more recent Supplementary Advice on Conservation Objectives (SACOs) are also consulted.

Recreational Pressure

7.2 There is concern over the cumulative impacts of recreation on key nature conservation sites in the UK, as most sites have a dual role of fulfilling Conservation Objectives while also providing recreational opportunity. Various research reports have provided compelling links between changes in housing and access levels[45], and impacts on European protected sites[4647]. While this is the case for any habitat, recreational impacts are particularly noteworthy for sites of high conservation importance. Due to different qualifying features and associated sensitivities, European sites differ in their susceptibility to different forms of recreation. Studies across a range of species have shown that the effects from recreation can be complex. HRAs of strategic planning documents tend to focus on the role of housing growth and new residents in altering usage levels in European sites. For example, a mitigation strategy to offset recreational pressure impacts is already adopted for parts of the Severn Estuary SAC / SPA / Ramsar in England. Several Welsh authorities (notably Monmouthshire and Cardiff) are weighing up the implications of this for their own emerging RLDPs.

7.3 A visitor survey carried out by AECOM, started in 2020 and resumed in 2022 following the end of COVID restrictions, demonstrated that residential development coming forward in Torfaen does not fall within the core recreational catchment of 7km identified for the Severn Estuary SPA / Ramsar / SAC. While a total of 5 residents (2.8%) from Torfaen were interviewed in the estuary, the interviewee living closest to the site had travelled 8.8km from home, which is well beyond the 75th percentile of visitors. Applying the widely accepted methodology for delineating recreational catchments, Torfaen residents are not considered to meaningfully contribute to recreational impacts in the SPA / Ramsar / SAC. Therefore, housing that is projected to come forward under the Torfaen RLDP will not require mitigation.

Bird Disturbance

7.4 Human recreation can affect wildlife (including birds, mammals, herptiles and invertebrates) in a multitude of ways. Most avian studies have focused on behavioural responses to disturbance, such as alertness responses, reduced foraging rates[48], minor flights and major flights to sub-optimal foraging habitats[4950]. One of the consequences of behavioural responses, and particularly major ones, is increased energy expenditure[5152]. The timing and type of a behavioural response is likely to be determined by the perceived level of threat as well as the energetic costs involved (e.g. to take major flight). At the extreme end of the spectrum, recreation can also result in mortality either directly or indirectly. For example, free-roaming dogs

[45] Weitowitz D.C., Panter C., Hoskin R. & Liley D. (2019). The effect of urban development on visitor numbers to nearby protected nature conservation sites. *Journal of Urban Ecology* **5**. https://doi.org/10.1093/jue/juz019

[46] Liley D, Clarke R.T., Mallord J.W., Bullock J.M. (2006a). The effect of urban development and human disturbance on the distribution and abundance of nightjars on the Thames Basin and Dorset Heaths. Natural England / Footprint Ecology.

[47] Liley D., Clarke R.T., Underhill-Day J., Tyldesley D.T. (2006b). Evidence to support the appropriate Assessment of development plans and projects in south-east Dorset. Footprint Ecology / Dorset County Council.

[48] Yasué M. (2005). The effects of human presence, flock size and prey density on shorebird foraging rates. *Journal of Ethology* **23**: 199-204.

[49] Burton N.H., Rehfisch M.M. & Clark N.A. (2002). Impacts of disturbance from construction work on the densities and feeding behavior of waterbirds using the intertidal mudflats of Cardiff Bay, UK. *Environmental Management* **30**: 865-871.

[50] Burton N.H.K., Armitage M.J.S., Musgrove A.J. & Rehfisch M.M. (2002). Impacts of man-made landscape features on numbers of estuarine waterbirds at low tide. *Environmental Management* **30**: 857-864.

[51] Stock M. & Hofeditz F. (1997). Compensatory limits: Energy budgets of brent geese, *Branta b bernicla*, the influence of human disturbance. *Journal Fuer Ornithologie* **138**: 387-411.

[52] Nolet B.A., Bevan R.M., Klaassen M., Langevoord O. & Van der Heijden Y. (2002). Habitat switching by Bewick's swans: Maximization of average long-term energy gain? *Journal of Animal Ecology* **71**: 979-993.

may predate on eggs and incubating adult birds[53]. Recreational impacts on ground-nesting birds are particularly severe, with many studies concluding that urban sites support lower densities of key species, such as stone curlew and nightjar[5455]. Furthermore, recreational access can also result in death through accidental trampling of nests, eggs and chicks[56]. Disturbance may also affect the survival rate of birds by making them more vulnerable to being caught by their natural predators[57].

7.5 However, disturbance can also result in much less obvious (and harder to measure) physiological effects and stress responses, which may in turn affect individual and population-level fitness. While studies on such 'indirect' health impacts are rare, there is empirical evidence that disturbance increase the heart rate[58] and stress hormone levels[5960] in birds. Therefore, available research indicates that disturbance responses are inherently complex and certainly encompass more than just flight behaviour.

7.6 Parameters that are likely to influence the magnitude of behavioural responses include group size[61], directional approach[62] and speed of movement[63]. Disturbance may also be associated with a seasonal element in that disturbance in winter is more impactful because natural food shortages make birds more vulnerable at this time of year. In contrast, this may be counterbalanced by fewer recreational users in the winter months and a lower overall sensitivity of birds outside the breeding season.

7.7 Disturbance is known to arise from a wide range of recreational activities, including walking / hiking, dog walking, horse riding, running, cycling / mountain biking and canoeing[64]. Newly emerging activities (e.g. drone-flying) have also been linked to disturbance issues[65]. However, the disturbance potential differs between different types of recreational activities. For example, in one study dog walking led to a significantly higher reduction in bird diversity and abundance compared to hiking[66]. It is also suggested that key disturbance parameters, such as areas of influence and flush distance, are significantly greater for dog walkers than hikers[67]. Furthermore, differences in on-site route lengths and usage patterns from visitor surveys imply that key spatial and temporal parameters (such as the area of a site potentially impacted and the frequency of disturbance) will also differ between recreational activities. This strongly suggests that the activity types undertaken in European sites ought to be taken into account in HRAs.

Trampling Damage, Soil Compaction and Erosion

7.8 Most terrestrial habitats (especially dune systems and old woodlands) can be affected by trampling and other mechanical damage. Mechanical disturbance dislodges and damages individual plants, leads to erosion and compacts soil. The following studies have assessed the impact of mechanical damage exerted by various types of recreational activities in different habitats:

[53] Pienkowski M.J. (1984). Breeding biology and population dynamics of ringed plovers *Charadrius hiaticula* in Britain and Greenland: Nest predation as a possible factor limiting distribution and time of breeding. *Journal of the Zoological Society of London* **202**: 83-114.
[54] Clarke R.T., Liley D., Sharp J.M. & Green R.E. (2013). Building development and roads: Implications for the distribution of stone curlews across the Brecks. *PLOS ONE*. https://doi:10.1371/journal.pone.0072984.
[55] Liley D. & Clarke R.T. (2003). The impact of urban development and human disturbance on the numbers of nightjar *Caprimulgus europaeus* on heathlands in Dorset, England. Biological Conservation **114**: 219-230.
[56] Liley D. & Sutherland W.J. (2007). Predicting the population consequences of human disturbance for ringed plovers *Charadrius hiaticula*: A game theory approach. *Ibis* **149**: 82-94.
[57] Brambilla M., Rubolini D. & Guidali F. (2004). Rock climbing and raven *Corvus corax* occurrence depress breeding success of cliff-nesting peregrines *Falco peregrinus*. *Ardeola* **51**: 425-430.
[58] Ellenberg U., Mattern T. & Seddon P.J. (2013). Heart rate responses provide an objective evaluation of human disturbance stimuli in breeding birds. *Conservation Physiology* **1**: doi: 10.1093/conphys/cot013.
[59] Thiel D., Jenni-Eiermann S., Palme R. & Jenni L. (2011). Winter tourism increases stress hormone levels in the Capercaillie *Tetrao urogallus*. *Ibis* **153**: 122-133.
[60] Walker B.G., Dee Boersma P. & Wingfield J.C. (2006). Habituation of adult magellanic penguins to human visitation as expressed through behavior and corticosterone secretion. *Conservation Biology* **20**: 146-154.
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- Wilson & Seney[68] examined the degree of track erosion caused by hikers, motorcyclists, horse riders and cyclists in 108 plots along tracks in the Gallatin National Forest, Montana. Although the results proved difficult to interpret, it was concluded that horse riders and hikers disturbed more sediment on wet tracks, and thereby causing more erosion, than motorcyclists and cyclists.
- Cole et al[69][70] conducted experimental off-track trampling tests in 18 closed forest, dwarf scrub and meadow & grassland communities (each trampled between 0 – 500 times) over five mountain regions in the US. Vegetation cover was assessed two weeks and one year after trampling respectively, and an inverse relationship with trampling intensity was discovered (although this relationship was weaker after one year than two weeks indicating some recovery of vegetation). Differences in plant morphology (structure) was found to explain more variation in response than soil and topographic factors. Low-growing, mat-forming grasses regained their cover best after two weeks and were considered most resistant to trampling, while tall forbs (non-woody vascular plants other than grasses, sedges, rushes and ferns) were considered least resistant. The cover of hemicryptophytes (plants with buds at or near the soil surface) and geophytes (plants with buds below the soil surface) was heavily reduced after two weeks but had recovered well after one year. Chamaephytes (plants with buds above the soil surface) were least resilient to trampling.
- Cole[71] conducted a follow-up study (across four vegetation types) in which shoe type (trainers or walking boots) and trampling weight were varied. Although the immediate damage was greater with walking boots, there was no significant difference after one year. Heavier tramplers caused a greater reduction in vegetation height than lighter tramplers, but there was no differential impact on vegetation cover.
- Cole & Spildie[72] experimentally compared the effects of off-track trampling by hikers and horse riders (at two intensities – 25 and 150 passes) in two woodland vegetation types (one with an erect forb understorey and one with a low shrub understorey). While it was shown that higher trampling intensities cause more disturbance, there were marked differences between recreational activities and woodland types. Horse trampling caused the larger reduction in vegetation cover compared to hiking. The forb-dominated woodland suffered greater disturbance but recovered rapidly.
- Martin et al.[73] used unmanned aerial vehicle (UAV) imagery to document the impacts of a mountain bike, cyclocross bike and a hiker on soil compaction and vegetation composition at pass increments of 25, 75, 200 and 400. They showed that bikes with narrower tyres (cyclocross bikes) lead to higher soil compaction than bikes with wider tyres (mountain bikes), and both cycling types had higher impacts than hikers. However, at high pass intensities, the negative impacts were similar for all activities.
- Pascoe[74] found a significant correlation between trampling intensity and the distribution of field gentian *Gentianella campestris* and autumn lady's-tresses *Spiranthes spiralis* in New Forest grasslands (although it was concluded that the species are not under existential threat from trampling if this does not creep into previously lightly or untrampled areas).
- Woodland trees (particularly ancient and veteran individuals) and their associated ground flora are sensitive to recreational trampling because of their large leaves and thin cell walls, adaptations to shady conditions. In the New Forest, trampling has been reported to result in the localised loss of characteristic ground flora[75], particularly surrounding well-trodden paths and 'honeypot' sites. Furthermore, trampling results in soil compaction surrounding root zones, which can reduce the ability of trees to extract water, lead to direct physical damage to roots and impacted associated soil fungi[76].

[68] Wilson J.P. & Seney J.P. (1994). Erosional impact of hikers, horses, motorcycles and off-road bicycles on mountain trails in Montana. *Mountain Research and Development* **14**: 77-88.
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[70] Cole D.N. (1995b). Experimental trampling of vegetation II: Predictors of resistance and resilience. *Journal of Applied Ecology* **32**: 215-224.
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[75] Tubbs C.R. (2001). The New Forest: History, Ecology and Conservation. Lyndhurst, Hampshire: New Forest Ninth Centenary Trust, New Forest Museum.
[76] Lake S., Liley D. & Saunders P. (2020). Recreation use of the New Forest SAC / SPA / Ramsar: Impacts of recreation and potential mitigation approaches. Unpublished report by Footprint Ecology. 96pp.

7.9 Sand dunes are dynamic systems that are shaped by factors such as the supply of sand and prevailing wind direction. 80% of dunes in the UK are currently subject to coastal erosion, diminishing the dune itself and creating bare ground. Natural England's Access and Nature Conservation Reconciliation guidance note states that light levels of trampling can increase plant diversity in dune systems, but medium to high levels of trampling promote bare ground, increase soil compaction, reduce plant diversity and change vegetation height. The type of dune habitat also influences its response to recreational pressure. For example, in fixed decalcified dunes the relationship between levels of access and impact is linear (i.e. it shows a proportionate relationship whereby the amount of damage increases gradually and predictably with the amount of footfall). In other dune types (e.g. embryonic shifting dunes), the relationship is curvilinear, suggesting that a small increase in trampling has a disproportionately strong effect, with a flattening of the impact curve under higher trampling regimes[77].

Nutrient Enrichment

7.1 A major concern for nutrient-poor terrestrial habitats (e.g. ancient woodland, heathland) is nutrient enrichment associated with dog fouling (addressed in various reviews, e.g.[78]). It is estimated that dogs will defecate within 10 minutes of starting a walk and therefore most nutrient enrichment arising from dog faeces will occur within 400m of a site entrance. In contrast, dogs will urinate at frequent intervals during a walk, resulting in a more widespread distribution of urine. For example, in Burnham Beeches National Nature Reserve it is estimated that 30,000 litres of urine and 60 tonnes of dog faeces are deposited annually[79]. While there is limited information on the chemical constituents of dog faeces, nitrogen is one of its main components[80].

7.2 A recent study has published further compelling evidence on the relative impact of N and phosphorus (P) deposition arising from dogs. Using 487 direct-count censuses from four peri-urban forests and nature reserves, the modelling data suggested that canine fertilisation rates amount to 11 kg N and 5 kg P per hectare per year respectively[81]. These amounts are significant when compared to atmospheric nitrogen deposition rates and the offsetting achievable through traditional habitat management techniques (e.g. cutting and removal of hay). The nitrogen deposition by dogs is particularly significant given the nitrogen Critical Load that is established for some European sites. For example, fixed coastal dunes with herbaceous vegetation have a CL range of 8-10 kg N/ha/yr (qualifying feature of the Kenfig SAC) on the Air Pollution Information System (APIS). This implies that the minimum CL of the site (11.1 kg N/ha/yr adjacent to Ogmore Road) is exceeded by N nitrogen deposition from dogs alone, before atmospheric sources are considered. Nutrient availability is the major determinant of plant community composition and the effect of dog defecation in sensitive habitats is comparable to a high-level application of fertiliser, potentially resulting in a shift towards plant communities that are more typical of improved grasslands.

Summary

7.3 Several European sites that are relevant to the Torfaen RLDP are designated for habitats and species that are sensitive to recreational pressure impacts. Population growth within Torfaen County Borough will lead to increased demand for access to outdoor areas and recreational greenspaces, especially European sites.

7.4 Overall, the following European sites within 15km of Torfaen are sensitive to increased recreational footfall and, therefore, could be negatively impacted by residential development delivered under the RLDP:

- Usk Bat Sites SAC (the closest SSSI underpinning this SAC, the Mynydd Llangatwg (Mynydd Llangattock) SSSI, is located approx. 1.4km to the north of Torfaen County Borough in the adjoining authority of Monmouthshire);

[77] Coombes E.G. (2007). The effects of climate change on coastal recreation and biodiversity. School of Environmental Sciences. University of East Anglia, Norwich.
[78] Taylor K., Anderson P., Taylor R.P., Longden K. & Fisher P. (2005). Dogs, access and nature conservation. English Nature Research Report, Peterborough.
[79] Barnard A. (2003). Getting the facts – Dog walking and visitor number surveys at Burnham Beeches and their implications for the management process. *Countryside Recreation* **11**:16-19.
[80] Taylor K., Anderson P., Liley D. & Underhill-Day J.C. (2006). Promoting positive access management to sites of nature conservation value: A guide to good practice. English Nature / Countryside Agency, Peterborough and Cheltenham.
[81] De Frenne P., Cougnon M., Janssens G.P.J. & Vangansbeke P. (2022). Nutrient fertilization by dogs in peri-urban ecosystems. *Ecological Solutions and Evidence* **3**: https://doi.org/10.1002/2688-8319.12128

- Cwm Clydach Woodlands SAC (located approx. 840m to the north of Torfaen in the adjoining authority of Monmouthshire)
- River Usk SAC (at its closest the SAC runs approx. 3.5km to the east of Torfaen County Borough)
- Aberbargoed Grasslands SAC (located approx. 6km to the west of the Torfaen County Borough)
- Sugar Loaf Woodlands SAC (located approx. 6km to the north-east of the Torfaen County Borough)
- Severn Estuary SAC / SPA / Ramsar (located approx. 6.9km to the south of Torfaen);
- Coed y Cerrig SAC (located approx. 10km to the north-east of the Torfaen County Borough)
- Wye Valley and Forest of Dean Bat Sites SAC (located approx. 1.4km to the north of the Torfaen County Borough)
- Cardiff Beech Woods SAC (the closest component part of this SAC to Torfaen lies approx. 13km to the south-west in the nearby authority of Cardiff)

Water Quality

7.5 The quality of the water that feeds European sites is an important determinant of the condition of the habitats and species they support. Poor water quality can have a range of environmental impacts:

- At high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour.
- Eutrophication, the enrichment of water with nutrients, increases plant growth and consequently results in oxygen depletion. Algal blooms, which commonly result from eutrophication, increase turbidity and decrease light penetration. The decomposition of organic wastes that often accompanies eutrophication deoxygenates water further, augmenting its oxygen-depleting effect. The main growth-limiting nutrient in freshwater habitats is phosphorus, and part of the RLDP area falls within the phosphorus sensitive catchment of the River Usk SAC, whereas bioavailable nitrogen determines algal growth in coastal environments. However, nutrient co-limitation may be present in estuaries, which are jointly determined by the interplay of freshwater and sea water.
- Some pesticides, industrial chemicals and components of sewage effluent are suspected to interfere with the functioning of the endocrine system, possibly having negative effects on the reproduction and development of aquatic life.

7.6 The most notable issue in relation to the Torfaen RLDP is the discharge of treated sewage effluent into local watercourses that maybe in hydrological connectivity with sensitive European sites, such as the River Usk SAC and Severn Estuary SAC / SPA / Ramsar. Treated sewage effluent increases growth-limiting nutrient concentrations in freshwater (phosphorus only) and estuarine waters (both phosphorus and nitrogen). In local watercourses feeding into the Severn Estuary phosphorus is the main limiting nutrient, whereas nitrogen will be the primary limiting factor in the estuary itself. Due to the proximity of the authority to the SAC / SPA / Ramsar, there is also a risk that surface runoff from impermeable surfaces containing non-toxic and toxic pollutants could directly reach the estuary.

7.7 The RLDP provides for development in the geographic area covered by Welsh Water, responsible for wastewater treatment in Torfaen. The potential ecological implications of RLDP development are outlined in Table 4.

Table 4: Wastewater Treatment Works (WwTWs) serving residential and employment development in Torfaen that are in potential hydrological continuity with the River Usk SAC and Severn Estuary SAC / SPA / Ramsar.

WwTW Catchment	Residential and employment development quantum allocated in the Torfaen RLDP	Potential HRA implications

WwTWs operated by Welsh Water	A quantum of new residential dwellings and employment space over the RLDP period has not yet been specified	Discharge of treated sewage effluent into local watercourses that are in hydrological continuity with the River Usk SAC and Severn Estuary SAC / SPA / Ramsar

7.8 The residential and employment development allocated in the Torfaen RLDP will lead to an increase in the volume of treated sewage effluent discharged into local waterbodies, some of which may be hydrologically connected with sensitive European sites. Overall, the following European sites within 15km of the Torfaen authority boundary require further consideration in relation to negative water quality impacts:

- River Usk SAC; and
- Severn Estuary SAC / SPA / Ramsar (located approx. 6.9km to the south of Torfaen).

Water Quantity, Level and Flow

7.9 The water level, its flow rates and the mixing conditions are important determinants of the condition of European sites and associated qualifying features. Hydrological processes are critical in influencing habitat characteristics in estuarine waters, including current velocity, water depth, dissolved oxygen levels, salinity and water temperature. In turn these parameters determine the short- and long-term viability of plant and animal species, as well as overall ecosystem composition. Changes to the water flow rate within an estuary can be associated with a multitude of knock-on effects, including substratum loss, smothering and changes in wave exposure. Furthermore, freshwater input is essential in determining abiotic conditions in linear freshwater bodies and terrestrial habitats, where the latter comprise habitats or species with strong hydrological associations (e.g. *Molinia* meadows on calcareous, peaty or clayey-silt laden soils).

7.10 Increases in the quantity and rate of water delivery can result in summer flooding and prolonged / deeper winter flooding. This in turn results in the reduction of feeding and roosting sites for birds. For example, in areas where water is too deep, most waders will be unable to reach their food sources close to the ground.

7.11 Coastal environments rely on hydrological connections with freshwater bodies, such as rivers, streams and lakes. However, while the natural fluctuation of water levels within narrow limits is desirable, excess or too little water supply might cause water levels to be outside of the required range of qualifying birds and fish, or the invertebrate or plant assemblages they depend upon. There are two mechanisms through which urban development might negatively affect the water level in European sites:

7.12 The supply of new housing with potable water may require increased abstraction of water from surface water and groundwater bodies. Depending on the level of water stress in the geographic region, this may impact the aquatic conditions in European sites sharing the same hydrological catchment.

7.13 The proliferation of impermeable surfaces in urban areas increases the volume and speed of surface runoff, particularly during intense rainfall events. Traditional drainage systems often cannot cope with the volume of stormwater and sewer overflows are designed to discharge untreated water directly into watercourses. Often this pluvial flooding results in downstream inundation of watercourses and larger volumes of water reaching designated sites.

7.14 The allocation of residential and employment development in the Torfaen RLDP means that the following European sites within 15km of the authority boundary are at risk regarding changes in water quantity, level and flow:

- River Usk SAC;
- Aberbargoed Grasslands SAC;
- Severn Estuary SAC / SPA / Ramsar (located approx. 6.9km to the south of Torfaen); and
- Coed y Cerrig SAC.

Loss of Functionally Linked Habitat

7.1 While most European sites have been geographically defined to encompass the key features that are necessary for coherence of their structure and function, and the support of their qualifying features, this is not necessarily the case. A diverse array of qualifying species including birds, fish, mammals and invertebrates are not strictly confined to the boundary of designated sites.

7.2 For example, the highly mobile nature of both wader and waterfowl species implies that areas of crucial importance to the integrity of qualifying populations lie outside the physical limits of European sites. Despite not being part of the formal designation, these habitats are integral to the maintenance of the structure and function of the designated site, for example by encompassing important foraging or roosting grounds. Land use plans that may affect functionally linked habitats, such as through the allocation of greenfield sites, require further assessment.

7.3 There is now an abundance of authoritative examples of HRA cases on plans potentially affecting bird populations, where Natural England recognised the importance of functionally linked habitat[82]. For example, bird surveys in relation to a previous HRA established that approximately 25% of the golden plover population in the Somerset Levels and Moors SPA routinely occur on functionally linked habitat parcels, and this required the inclusion of mitigation measures in the relevant plan policy wording. Another important research study on the Mersey Estuary SPA / Ramsar, determined that adjacent functionally linked habitat parcels had a peak survey count of 108% of the 5-year mean peak population of golden plover. This finding led to considerable amendments in the planning proposal to ensure that the site integrity was not adversely affected.

7.4 Generally, the identification of an area as functionally linked habitat is not always a straightforward process. The importance of non-designated land parcels may not be apparent and thus might require the analysis of existing data sources (e.g. Bird Atlases or data from record centres) to be firmly established. In some instances, data may not be available at all, requiring targeted breeding or non-breeding bird surveys.

7.5 Natural England has published guidance on SSSI Impact Risk Zones (IRZs)[83] associated with different types of development on various functional groups of birds (see Table 5). These IRZs provide a high-level screening tool for assessing the risk of planning applications to affect important habitats outside designated site boundaries. The guidance highlights that functionally linked habitats could extend up to the maximum foraging distances from roosts, although it also notes that the proportion of designated birds will decrease with distance from relevant European sites. The IRZ guidance note does not define the required abundance threshold needed to meet the criterion of functional habitat linkage. However, Natural Resources Wales and Natural England generally agree that usage of a land parcel of 1% of the qualifying SPA / Ramsar population is needed for that parcel to be defined as 'functionally linked' to the European site.

Table 5 Natural England Impact Risk Zones (IRZs) for different functional groups of birds.

Bird Assemblage	IRZs
Wintering birds (except wintering waders and grazing wildfowl; wigeon and geese)	Up to 500m
Dabbling ducks such as teal, mallard and gadwall	Home ranges could extend beyond site boundaries at coastal sites, but less likely to do so at inland water bodies.
Wintering waders (except golden plover and lapwing), brent goose & wigeon	Maximum foraging distance is 500m
Wintering lapwing and golden plover	Maximum foraging distance is 15-20km. Golden plover can forage up to 15km from a roost site within a protected site. Lapwing can also forage similar distances. Both species use lowland farmland in winter and it is difficult to distinguish between designated populations and those present within the wider environment.

[82] Chapman C & Tyldesley D. 2016. Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects – A review of authoritative decisions. *Natural England Commissioned Reports* **207**. 73pp

[83] Knight M. (March 2019). Impact Risk Zones Guidance Summary – Sites of Special Scientific Interest Notified for Birds. Version 1.1. 8pp.

	Developments affecting functionally linked land more than 10km from the site are unlikely to impact significantly on designated populations.
Wintering white-fronted goose, greylag goose, Bewick's swan, whooper swan, pink-footed goose & wintering bean goose	Maximum foraging distance is 10km although studies have shown that pink-footed geese will fly 20km from their roosting site to feed[84]. A bespoke functional land IRZ has replaced the individual Birds 6/7 IRZs for sites supporting the following goose and swan species: pink-footed geese, barnacle goose, Bewick's swan, white-fronted goose and whooper swan. The IRZ is based on GIS distribution records of feeding pink-footed geese from a study undertaken for Natural England by the Wildfowl & Wetlands Trust and the results of work undertaken by the British Trust for Ornithology to identify functionally connected habitat used by barnacle goose, Bewick's swan, white-fronted goose and whooper swan based on WeBS site and BirdTrack data and focuses on only the areas of land that we know are being used as functional habitat by designated populations

7.6 Overall, the available baseline information suggests that the following European sites within 15km of Torfaen County Borough are sensitive to the potential loss of functionally linked habitat due to the presence of mobile waterfowl, waders and butterflies:

- Usk Bat Sites SAC;
- Aberbargoed Grasslands SAC;
- Severn Estuary SAC / SPA / Ramsar (located approx. 6.9km to the south of Torfaen); and
- Wye Valley and Forest of Dean Bat Sites SAC.

Atmospheric Pollution (NH_3, NOx and N Deposition)

7.7 The main pollutants of concern for European sites are oxides of nitrogen (NOx), ammonia (NH_3) and sulphur dioxide (SO_2), and are summarised in Table 6. NH_3 can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges[85]. NOx can also be toxic at very high concentrations (far above the annual average Critical Level). However, NOx and NH_3 exert their main impacts on ecosystems via determining the total nitrogen (N) deposition to soils, potentially leading to deleterious knock-on effects. An increase in N deposition from the atmosphere is widely known to enhance soil fertility and potentially leading to eutrophication. This often has adverse effects on community composition and the quality of semi-natural, nitrogen-limited terrestrial and aquatic habitats[86][87].

Table 6: Main sources and effects of air pollutants on habitats and species[88].

Pollutant	Source	Effects on habitats and species
Sulphur Dioxide (SO_2)	The main sources of SO_2 are electricity generation, and industrial and domestic fuel combustion. However, total SO_2 emissions in the UK have decreased substantially since the 1980's. Another origin of sulphur dioxide is the shipping industry and high atmospheric concentrations of SO_2 have been documented in busy ports. In future years shipping is likely to become one of the most important contributors to SO_2 emissions in the UK.	Wet and dry deposition of SO_2 acidifies soils and freshwater, and may alter the composition of plant and animal communities. The magnitude of effects depends on levels of deposition, the buffering capacity of soils and the sensitivity of impacted species. However, SO_2 background levels have fallen considerably since the 1970's and are now not regarded a threat to plant communities. For example, decreases in Sulphur dioxide concentrations have been linked to returning lichen species and improved tree health in London.

[84] https://monitoring.wwt.org.uk/wp-content/uploads/2018/12/Mapping-feeding-Pinkfeet-in-England-Final-report-vFinal.Jan15-2.pdf [accessed 14/04/2021]
[85] http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm.
[86] Wolseley P. A.; James P. W.; Theobald M. R.; Sutton M. A. (2006). Detecting changes in epiphytic lichen communities at sites affected by atmospheric ammonia from agricultural sources. *Lichenologist* **38**: 161-176.
[87] Dijk N. (2011). Dry deposition of ammonia gas drives species change faster than wet deposition of ammonium ions: Evidence from a long-term field manipulation. *Global Change Biology* **17**: 3589-3607.
[88] Information summarised from the Air Pollution Information System (http://www.apis.ac.uk/).

Pollutant	Source	Effects on habitats and species
Acid deposition	Leads to acidification of soils and freshwater via atmospheric deposition of SO_2, NOx, ammonia and hydrochloric acid. Acid deposition from rain has declined by 85% in the last 20 years, which most of this contributed by lower sulphate levels.	Gaseous precursors (e.g. SO_2) can cause direct damage to sensitive vegetation, such as lichen, upon deposition. Can affect habitats and species through both wet (acid rain) and dry deposition. The effects of acidification include lowering of soil pH, leaf chlorosis, reduced decomposition rates, and compromised reproduction in birds / plants. Not all sites are equally susceptible to acidification. This varies depending on soil type, bed rock geology, weathering rate and buffering capacity. For example, sites with an underlying geology of granite, gneiss and quartz rich rocks tend to be more susceptible.
Ammonia (NH_3)	Ammonia is a reactive, soluble alkaline gas that is released following decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but ammonia concentrations are directly related to the distribution of livestock. It is also emitted from some vehicles. Ammonia reacts with acid pollutants such as the products of SO_2 and NO_X emissions to produce fine ammonium (NH_4+) - containing aerosol. Due to its significantly longer lifetime, NH_4+ may be transferred much longer distances (and can therefore be a significant trans-boundary issue). While ammonia deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type.	The negative effect of NH_4+ may occur via direct toxicity, when uptake exceeds detoxification capacity and via N accumulation. Its main adverse effect is eutrophication, leading to species assemblages that are dominated by fast-growing and tall species. For example, a shift in dominance from heath species (lichens, mosses) to grasses is often seen. As emissions mostly occur at ground level in the rural environment and NH_3 is rapidly deposited, some of the most acute problems of NH_3 deposition are for small relict nature reserves located in intensive agricultural landscapes.
Nitrogen oxides (NO_x)	Nitrogen oxides are mostly produced in combustion processes. Half of NO_X emissions in the UK derive from motor vehicles, one quarter from power stations and the rest from other industrial and domestic combustion processes. In contrast to the steep decline in Sulphur dioxide emissions, nitrogen oxides are falling slowly due to control strategies being offset by increasing numbers of vehicles.	Direct toxicity effects of gaseous nitrates are likely to be important in areas close to the source (e.g. roadside verges). A critical level of NOx for all vegetation types has been set to 30 ug/m3. Deposition of nitrogen compounds (nitrates (NO_3), nitrogen dioxide (NO_2) and nitric acid (HNO_3)) contributes to the total nitrogen deposition and may lead to both soil and freshwater acidification. In addition, NO_x contributes to the eutrophication of soils and water, altering the species composition of plant communities at the expense of sensitive species.
Nitrogen deposition	The pollutants that contribute to the total nitrogen deposition derive mainly from oxidized (e.g. NO_X) or reduced (e.g. NH_3) nitrogen emissions (described separately above). While oxidized nitrogen mainly originates from major conurbations or highways, reduced nitrogen mostly derives from farming practices. The N pollutants together are a large contributor to acidification (see above).	All plants require nitrogen compounds to grow, but too much overall N is regarded as the major driver of biodiversity change globally. Species-rich plant communities with high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication. This is because many semi-natural plants cannot assimilate the surplus N as well as many graminoid (grass) species. N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.
Ozone (O_3)	A secondary pollutant generated by photochemical reactions involving NOx, volatile organic compounds (VOCs) and sunlight. These precursors are mainly released by the combustion of fossil fuels (as discussed above). Increasing anthropogenic emissions of ozone precursors in the UK have led to an increased number of days when ozone levels rise above 40ppb ('episodes' or 'smog'). Reducing ozone pollution is believed to require action at	Concentrations of O_3 above 40 ppb can be toxic to both humans and wildlife, and can affect buildings. High O_3 concentrations are widely documented to cause damage to vegetation, including visible leaf damage, reduction in floral biomass, reduction in crop yield (e.g. cereal grains, tomato, potato), reduction in the number of flowers, decrease in forest production and altered species composition in semi-natural plant communities.

Pollutant	Source	Effects on habitats and species
	international level to reduce levels of the precursors that form ozone.	

7.8 SO_2 emissions overwhelmingly derive from power stations and industrial processes that require the combustion of coal and oil, as well as shipping (particularly on a local scale)[89]. NH_3 emissions primarily originate from agricultural practices[90], with some chemical processes and vehicles (notably petrol cars) also making notable contributions. NOx emissions are dominated by the output of vehicle exhausts (more than half of all emissions). For example, a 'typical' housing development will contribute by far the largest portion of its overall NOx footprint (92%) through associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison[91]. The emerging RLDP, which will increase the population and employment opportunities in Torfaen, is expected to increase emissions of NOx and NH_3, and thus total N deposition through an increase in vehicular traffic.

7.9 The World Health Organisation has established thresholds for the different atmospheric pollutants. For example, the critical NOx concentration (Critical Level) for the protection of vegetation of 30µgm^{-3}, the NH_3 threshold for vascular plants is 3µgm^{-3} and the threshold for SO_2 is 20µgm^{-3}. In addition, ecological studies have determined Critical Loads (CLs)[92] for atmospheric nitrogen deposition (that is, NOx combined with NH_3).

7.10 According to the Department of Transport's Transport Analysis Guidance, beyond 200m from the roadside, the contribution of vehicle emissions to local pollution levels is insignificant (Figure 3 and see reference [93]). Therefore, this is the distance that will be used in this HRA to identify major commuter routes along European sites, which are likely to experience greater traffic volumes due to development brought forward under the RLDP.

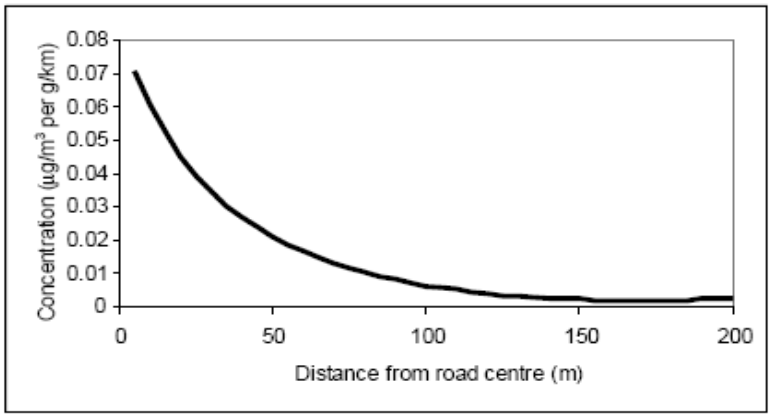


Figure 3: Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT[94]).

7.11 The following European sites within 15km of the Torfaen authority boundary are sensitive to atmospheric pollution arising from urban growth, primarily due to a significant increase in the number of two-way vehicle trips through or within 200m of these sites:

- Usk Bat Sites SAC;
- Cwm Clydach Woodlands SAC;
- River Usk SAC;

[89] http://www.apis.ac.uk/overview/pollutants/overview_SO2.htm.
[90] Pain B.F., Weerden T.J., Chambers B.J., Phillips V.R.; Jarvis, S.C. (1998). A new inventory for ammonia emissions from U.K. agriculture. *Atmospheric Environment* **32**: 309-313.
[91] Proportions calculated based upon data presented in Dore CJ et al. (2005). UK Emissions of Air Pollutants 1970 – 2003. UK National Atmospheric Emissions Inventory. http://www.airquality.co.uk/archive/index.php
[92] The Critical Load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur
[93] Available at: http://www.dft.gov.uk/webtag/documents/expert/unit3.3.3.php#013 [Accessed on the 02/05/2023].
[94] http://www.dft.gov.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf; accessed 13/07/2018

- Aberbargoed Grasslands SAC;
- Sugar Loaf Woodlands SAC;
- Severn Estuary SAC / SPA / Ramsar (located approx. 6.9km to the south of Torfaen)
- Coed y Cerrig SAC; and
- Cardiff Beech Woods SAC (the closest component part of this SAC to Torfaen lies approx. 13km to the south-west in the nearby authority of Cardiff).

Noise and Visual Disturbance (During Construction)

7.12 Development can result in noise or visual disturbance to qualifying species in European sites, particularly during the construction phase of planning proposals. This may result in temporary behavioural changes in qualifying birds (e.g. interruption or cessation foraging, minor and major flight responses). Three of the most important factors determining the magnitude of disturbance from development schemes on ecological receptors appear to be individual species sensitivity, proximity of the disturbance source and timing / duration of the disturbance.

7.13 An increasing amount of research on noise and visual disturbance to waders and waterfowl from construction (and other activities) is now available. Both noise and visual stimuli may elicit disturbance responses, potentially affecting the fitness and survival of qualifying birds. Noise is a complex disturbance parameter requiring the consideration of multiple factors, including its non-linear scale, nonadditive effect and source-receptor distance. A high level of noise disturbance constitutes a sudden noise event of over 60dB or prolonged noise of over 72dB. Bird responses to high noise levels include cessation of feeding or major flight, both of which might affect the survival of birds, particularly if other stressors are also present (e.g. cold weather, food scarcity).

7.14 Generally, research has shown that above noise levels of 84dB waterfowl show a flight response, while at levels below 55dB there is no effect on their behaviour[95]. Therefore, these two thresholds are considered useful as defining two extremes. The same authors have advised that regular noise levels should remain below 70dB at bird receptors, which will habituate to noise levels below this level[96]. Generally, noise is attenuated by 6dB with every doubling of distance from the source. Impact piling, the noisiest construction activity of approx. 110dB at 0.67m from source, will thus reduce to 67-68dB by 100m away from the source. This implies that the loudest construction noise should have fallen to below disturbing levels by 100m, and certainly by 200m, away from the source even without mitigation. Note that this is a rule of thumb and does not obviate the need for application-level noise modelling.

7.15 An alternative approach to using absolute noise disturbance thresholds (i.e. the 70dB metric) has emerged in recent years. Most birds habituate to disturbance stimuli due to repeated exposure to these in their natural habitats. As such, absolute noise thresholds are not necessarily the most meaningful way to assess the potential for disturbance. For example, noise levels above the 69dB established threshold may cause little to no disturbance in areas with existing loud soundscapes, depending on the pre-development baseline. Absolute noise thresholds may overestimate the threat that construction noise poses in some localities and place undue burdens on developers. As a more robust alternative, the absolute change in noise level between the baseline and construction activities may be used to assess this impact pathway. This requires the collection of baseline noise measurements at identified receptor locations and contrasting these with the outputs of noise models informed by construction parameters (e.g. location, type and duration of construction methods).

7.16 Visual stimuli are considered to have a higher disturbance potential than noise stimuli as, in most instances, visual stimuli will elicit a disturbance response at much greater distances than noise[97]. For example, a flight response is triggered in most species when they are approached to within 150m across a mudflat. Visual disturbance can be exacerbated by workers operating equipment outside machinery, undertaking sudden movements and using large machinery. Several species are particularly sensitive to visual disturbance[58], including curlew (taking flight at 275m), redshank (at 250m), shelduck (at 199m) and bar-tailed godwit (at

[95] Cutts N & Allan J. (1999). Avifaunal Disturbance Assessment. Flood Defence Works: Saltend. Report to Environment Agency.
[96] Cutts N., Phelps A. & Burdon D. (2009). Construction and waterfowl: Defining Sensitivity, Response, Impacts and Guidance. Report to Humber INCA, Institute of Estuarine and Coastal Studies, University of Hull.
[97] Research undertaken by the Institute of Estuarine & Costal Studies, University of Hull. 2013. Available at: http://bailey.persona-pi.com/Public-Inquiries/M4%20-%20Revised/11.3.67.pdf [Accessed on the 24/04/2023].

163m). Overall, specific regard should be given to assemblage composition when identifying threshold levels for both visual and noise disturbance.

7.17 The following European site within 15km of the Torfaen authority boundary is sensitive to noise and visual disturbance arising in the construction period of development sites allocated in the RLDP:

- Severn Estuary SPA / Ramsar (located approx.. 6.9km to the south of Torfaen).

8. Existing Mitigation Strategies, Statutory Requirements and Future Opportunities

Severn Estuary SAC / SPA / Ramsar

Recreational Pressure

8.1 Its location between the heavily developed south of Wales and various conurbations in western England, means that the Severn Estuary SAC / SPA / Ramsar is under increasing pressure from residential development. The number of recreational outings in the post-pandemic period has increased significantly and sites with special / rare draws are likely to have to absorb a large proportion of this burden. The Severn Estuary SAC / SPA / Ramsar straddles the boundaries of many Local Planning Authorities (LPAs) and the issue of recreational pressure has moved upwards on the agenda of these LPAs. This has led to recreational research being undertaken over the last few years, including a visitor survey in Stroud District, at Lydney Harbour (both on the English side of the SAC / SPA / Ramsar) and for Monmouthshire and Torfaen Councils in Wales.

8.2 Ecological Planning and Research (EPR) undertook a visitor survey in the part of the estuary within Stroud District in winter 2015/16. The data showed that housing and tourism development within the district would likely lead to a modest increase in recreation, particularly around Sharpness, Purton Splatt Bridge and Fretherne Bridge. A 7.7km core catchment surrounding the estuary was identified. Since then, a visitor survey has been undertaken on the Welsh side of the estuary in support of the emerging RLDPs for Monmouthshire and Torfaen. Using postcode data of interviewees visiting from home, a core catchment of 6.5km was established for the Severn Estuary SAC / SPA / Ramsar. This is broadly similar to the core catchment established for Stroud District (7.7km) and by the West of England authorities (7.4km). Based on the range of catchment sizes reported for the estuary, it was recommended by AECOM to utilise a precautionary, standardised catchment of 7km in emerging strategic mitigation approaches and AAs. Torfaen lies approximately 6.9km to the north of the Severn Estuary therefore a small portion of the authority will lie within the site's core catchment, regardless of which catchment size will be eventually agreed upon.

8.3 Furthermore, EPR's recreation report set out that funding for strategic impact avoidance measures from developments in Stroud District within the core catchment was required to avoid adverse effects on site integrity. In 2016/17, Natural England undertook a phased study of key roost sites for qualifying bird species across the estuary with particular focus on Gloucestershire. The study identified 30 primary roost sites within the SPA, regularly supporting more than 1% of the qualifying population of one or more species. One of the primary aims of this data was to inform targeted protection measures (e.g. diversion / screening of footpaths, signage, wardening, etc.) in areas were they would be most effective. The available evidence culminated in a mitigation strategy being adopted by Stroud District Council[98] in December 2017 with the following key aims:

- Supporting sustainable growth while protecting the integrity of European sites; and
- Reducing existing recreation impacts on birds to meet duties relating to the maintenance and restoration of European sites.

8.4 It is expected that the Torfaen RLDP will allocate additional dwellings within the Plan period, which is likely to increase the recreational demand on outdoor spaces within and adjacent to the authority. However, for this Scoping Report, as these numbers are not yet decided, it is noted they will be considered in the HRA of the RLDP Preferred Strategy in Spring 2024, when the dwelling figures will be known. Due to its high recreational value, the Severn Estuary SPA / Ramsar is likely to be a potential destination for existing and future residents of Torfaen. The RLDP may identify growth areas around Cwmbran, which is significant because Cwmbran is also the area of Torfaen that is closest to the SPA / Ramsar; approx. 7km at its nearest

[98] Stroud District Council. (December 2017). Strategy for Avoidance of Likely Significant Adverse Effects on the Severn Estuary SAC, SPA and Ramsar Site. 49pp. Available at: https://www.stroud.gov.uk/media/557874/item-8-appendix-a.pdf [Accessed on the 02/05/2023].

point. Based on the results of existing visitor surveys in other parts of the estuary, Cwmbran therefore lies within the distance that visitors are expected to drive to the site. In the first instance it needs to be established whether there are suitable access points along the stretch of the estuary closest to Torfaen that would enable new residents to access onto the shores of the SPA / Ramsar and to potentially disturb the SPA's / Ramsar's qualifying bird species. Due to the distance between Torfaen and the SPA / Ramsar (a minimum of 7km), car parks or informal parking locations are the only access points that are considered relevant to the emerging Torfaen RLDP. The remainder of this section will discuss these access points, which have been identified using google maps, satellite imagery and public right of ways in the ViewRanger application .

8.5 The stretch of the Severn Estuary SPA / Ramsar in the authority of Newport is likely to be accessed by taken the A4042 southward of Torfaen, accessing the M4 and then continuing south to the east or west of the River Usk until reaching the estuary. While the SPA / Ramsar is easily accessible on foot through the Wales Coast Path, there are only two formal car parks that could be used by Torfaen residents. Review of satellite imagery shows that there is a large formal car park at the RSPB Newport Wetlands with 100+ parking spaces. From the car park it is approx. 800m walking distance to the Severn Estuary SPA / Ramsar and the Wales Coast Path then runs west towards the Severn Power Station and the confluence with the River Usk SAC, or east towards Goldcliff. It is likely that many visitors parking here will visit the RSPB reserve, which will contain the recreational pressure within this professionally managed site. However, it is equally possible that many visitors will park here and then access the wider SPA / Ramsar surrounding the RSPB reserve. Another potential parking location for SPA / Ramsar visitors is west of Newport at a car park adjacent to the Shipwreck Café and The Lighthouse Inn off Beach Road with 50+ parking spaces. While some visitors might come here exclusively to use the café / inn, the car park offers direct access onto the Wales Coast Path and the foreshore of the Severn Estuary SPA / Ramsar. From here the coastal path runs west towards Peterstone Wentlooge and east towards Newport. In addition to these two parking locations, it cannot be excluded that visitors will park informally on local roadside verges. For example, at the Newport Seawall there are informal parking opportunities near the Seawall Tearooms from where the SPA / Ramsar is within a very short walking distance. However, compared to the two larger car parks, these informal locations are considered less likely to be visited by residents from further away.

8.6 To provide evidence for the general current usage of this stretch of the SPA / Ramsar, and to help assess whether the identified car parks might be used as a starting point for such recreational routes, existing route contributions in ViewRanger were also assessed. Several published routes indicate that both stretches of the SPA / Ramsar (to the west and east of Newport) are used for recreation. Moreover, some of these routes use the identified car parks as start and end points.

8.7 To obtain visitor data for the Severn Estuary SPA / Ramsar (and also the SAC), AECOM commissioned Strategic Research and Insight (SRI) to undertake a survey (comprising visitor counts and interviews) at four key access locations along the estuary[99]. The survey followed a similar methodology to surveys carried out by Footprint Ecology in other European sites, which have provided the evidence base for numerous Habitats Regulations Assessments.

8.8 Of the 188 interviewees, 80 (44.4%) visitors derive from Monmouthshire, the authority within which the surveyed stretch of the Severn Estuary SPA / Ramsar / SAC lies . The second biggest contribution is made by Newport, where 40 (22.2%) of the interviewees live. Together, Monmouthshire and Cardiff account for 66.6% of the recreational burden in the estuary. Notable origins of visitors were also Cardiff (12 interviewees, 6.7%), Caerphilly (10 interviewees, 5.6%) and Torfaen (5 interviewees, 2.8%). It is noted that, while visitors from Torfaen were recorded within the SPA / Ramsar / SAC, these fall outside the defined core recreational catchment of the site, based on the distance that 75% of visitors travel to their destination.

8.9 The data from the visitor survey indicates that residential development coming forward in Torfaen does not fall within the core recreational catchment of 7km identified for the Severn Estuary SPA / Ramsar / SAC. While a total of 5 residents (2.8%) from Torfaen were interviewed in the estuary, the interviewee living closest to the site had travelled 8.8km from home, which is well beyond the 75th percentile of visitors. Applying the widely accepted methodology for delineating recreational catchments, Torfaen residents are not considered to meaningfully contribute to recreational impacts in the SPA / Ramsar / SAC. Therefore, housing that is projected to come forward under the Torfaen RLDP is unlikely to require mitigation and this will be discussed further in the HRA of the Local Plan.

[99] AECOM (2020) Severn Estuary SPA/ Ramsar/ SAC Visitor Survey

River Usk SAC

Water Quality

8.10 The River Usk SAC is designated for habitats and aquatic species that depend on adequate water quality. Nutrient concentrations are a key determinant for riverine ecosystem health through maintaining optimal conditions for habitats and associated species. Phosphorus is naturally present in all freshwater bodies at low concentrations. However, excessively elevated phosphorus concentrations lead to nutrient enrichment and concomitant algal growth (also known as eutrophication). In turn this may lead to severe ecological knock-on effects, such as changes in water chemistry, plant community composition and death of aquatic life.

8.11 The protection of water quality and the integrity of SAC waterbodies is secured under Water Framework Directive (WFD) targets for all designated waterbodies, including their non-designated tributaries. WFD targets are utilised to define permits for the volume of treated sewage and concentration of contaminants discharged from Wastewater Treatment Works (WwTWs). Typically, it is expected that any development delivered within the headroom of these permits would not result in material ecological impacts and, therefore, adverse effects on the integrity of designated SAC rivers.

8.12 In January 2021, Natural Resources Wales undertook a Compliance Assessment of all Welsh river SACs against revised phosphorus targets[100]. Phosphorus concentrations were extracted from the NRW water quality database for a three-year period between January 2017 and December 2019. Of the 107 waterbodies that were assessed, 61% failed the tightened targets (most of which are located in mid and south Wales). Of the 17 waterbodies contributing to the catchment of the River Usk SAC, 88% are failing their target phosphorus concentrations. New developments with the potential to increase in-river phosphorus concentrations (e.g. housing or agricultural enterprises) must, therefore, be given specific regard in HRAs. Importantly, the current NRW advice specifies that development proposals that would contribute net additional phosphorus to catchments that are failing WFD phosphorus targets, must provide for measures that deliver nutrient neutrality[101].

8.13 To tackle water pollution issues, NRW have also revised phosphorus permit limits for WwTWs that are in hydrological connectivity with riverine SACs. If residential growth were allocated in the catchment of sensitive SACs, TCBC will need to contact the sewerage undertaker to confirm that sufficient capacity is available at the relevant WwTWs under the revised permits. A formal response letter should confirm that sufficient capacity (or headroom) is available at relevant WwTWs to treat the additional wastewater generated and that the necessary treatment capacity will be delivered within the next Asset Management Plan (AMP) period. Where remaining within the environmental permit limits is not guaranteed, additional evidence is needed to support a conclusion of no adverse effects on site integrity. Development allocations to which this applies will need to be supported by nutrient budget calculations that demonstrate phosphorus neutrality or, where this cannot be shown, bespoke measures to achieve neutrality (e.g. Sustainable Drainage Systems; SuDS).

8.14 The Torfaen RLDP is likely to allocate the largest portion of residential growth in the conurbations of Pontypool, Cwmbran and Blaenavon. While none of these settlements themselves lie within the River Usk catchment[102], it is possible that at least some of the WwTWs serving the three conurbations will discharge to watercourses in hydrological connectivity with the SAC. The water quality impact pathway will need to be given specific regard in the HRAs supporting the Preferred Strategy and Deposit Plan RLDP. However, this early stage in RLDP development offers the opportunity for concentrating residential growth in geographic areas (i.e. the western and southern parts of TCB) that have no water quality implications for the River Usk SAC, subject to other targets and duties of the RLDP (see following section).

[100] Hatton-Ellis T. & Jones T. (January 2021). Compliance Assessment of Welsh River SACs against phosphorus targets. Natural Resources Wales Evidence Reports, Report number 489. 97pp. Available at: https://cdn1.cyfoethnaturiol.cymru/media/693025/compliance-assessment-of-welsh-sacs-against-phosphorus-targets-final-v10.pdf?mode=pad&rnd=132557227301870000 [Accessed on the 19/07/2023]

[101] Available at: https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/our-role-in-planning-and-development/advice-to-planning-authorities-for-planning-applications-affecting-phosphorus-sensitive-river-special-areas-of-conservation/?lang=en [Accessed on the 19/07/2023]

[102] As seen on the Data Map Viewer for Wales: https://datamap.gov.wales/maps/new?layer=inspire-nrw:ComplianceAssessmentOfWelshRiverSacsAgainstPhosphorusTargets#/ [Accessed on the 19/07/2023]

Opportunities for the RLDP

8.15 There are several ways in which the Torfaen RLDP can build on the evidence presented in this report, such as by using it to inform the spatial distribution of development or by integrating mitigation solutions with biodiversity and multifunctional greenspace enhancements.

As part of the RLDP development process it will be necessary to consider where delivering residential growth may cause disturbance / trampling issues in the future. This cannot be completed at the Scoping Stage, but will be required as specific site allocations and growth amounts come forward later in the planning process. Reducing the potential mitigation need associated with the RLDP would facilitate its deliverability.

9. Other Plans and Projects

9.1 Other plans and projects (i.e. the in-combination scope) that will be considered when undertaking the Habitats Regulations Assessment include[103]:

- Local Plan documents for adjoining Local Planning Authorities:
  - Newport Local Development Plan 2011-2026 (adopted 2015)[104]. It is noted that at the time of writing this Scoping Report, Newport City Council are in the process of preparing the new Newport RLDP.
  - Caerphilly Local Development Plan up to 2021 (adopted 2010)[105].
  - Blaenau Gwent Local Development Plan up to 2021 (adopted 2012)[106]. It is noted that at the time of writing this Scoping Report, Blaenau Gwent City Borough Council are in the process of preparing the new Blaenu Gwent RLDP. The Preferred Strategy was published in 2020[107].
  - Monmouthshire Local Development Plan 2011-2021 (adopted 2014)[108]' It is noted that at the time of writing this Scoping Report, Monmouthshire County Council are in the process of preparing the new Monmouthshire RLDP. The Preferred Strategy was published in 2022[109].
  - Cardiff Local Development Plan 2006-2026 (adopted 2016)[110]. It is noted that at the time of writing this Scoping Report, Cardiff Council are in the process of preparing the new Cardiff RLDP.
  - Bannau Brycheiniog (Brecon Beacons) National Park Local Development Plan 2007-2022 (adopted 2013)[111]
- Transport Plan documents that would include schemes in Torfaen:
  - Llwybr Newydd: the Wales transport strategy 2021 (https://www.gov.wales/llwybr-newydd-wales-transport-strategy-2021)
  - Welsh Government Roads Review, February 2023 (https://www.gov.wales/roads-review)
  - National transport delivery plan 2022 to 2027 (https://www.gov.wales/national-transport-delivery-plan-2022-2027)
  - South East Wales Valleys Local Transport Plan 2015-2030[112]
- Water Resources Management Plans (WRMPs) covering the Torfaen:
  - Dwr Cymru Welsh Water - WRMP 2024[113]
- Significant individual planning applications within and immediately adjoining the Torfaen authority boundary[114]

9.2 It should be noted that rather than undertaking HRA of each of the individual projects and plans listed above, the RLDP HRA will draw upon existing HRAs to determine a potential for in-combination impacts. It is to be noted that these are only relevant where the Torfaen RLDP would be screened out alone, due to an individually immaterial contribution to an impact pathway.

[103] Full detail of the documents to be drawn upon will be updated when the HRA itself is undertaken. This is because documents may change over time as consultation stages progress.
[104] Available at: https://www.newport.gov.uk/documents/Planning-Documents/LDP-2011-2026/LDP-Adopted-Plan-January-2015.pdf [Accessed on the 21/07/2023]
[105] Available at: https://www.caerphilly.gov.uk/caerphillydocs/ldp/written-statement.aspx [Accessed on the 21/07/2023]
[106] Available at: https://www.blaenau-gwent.gov.uk/media/afeljh2u/written_statement__without_appendices_.pdf [Accessed 21/07/2023]
[107] Available at: https://www.blaenau-gwent.gov.uk/media/wj3mvtvx/full_doc_preferred_strategy_english.pdf [Accessed 05/09/2023]
[108] Available at: https://www.monmouthshire.gov.uk/app/uploads/2015/07/LDP-Adoption-Statement.pdf [Accessed on the 21/07/2023]
[109] Available at: https://www.monmouthshire.gov.uk/app/uploads/2022/12/MCC-RLDP-Preferred-Strategy.pdf [Accessed on 05/09/2023]
[110] Final-Adopted-Local-Development-Plan-English.pdf (cardiffldp.co.uk) [Accessed on the 05/09/2023]
[111] https://www.beacons-npa.gov.uk/wp-content/uploads/Brecon-Written-Statement.pdf [Accessed on the 05/09/2023]
[112] Available at: https://www.torfaen.gov.uk/en/Related-Documents/Roads-Highways-and-Pavements/Local-Transport-Plan/South-East-Wales-Valleys-Local-Transport-Plan.pdf [Accessed on the 21/07/2023]
[113] Available at: https://www.dwrcymru.com/en/our-services/water/water-resources/draft-water-resources-management-plan-2024 [Accessed on the 19/05/2023]
[114] As available on the Torfaen County Borough Council planning application search engine. Available at: https://www.torfaen.gov.uk/en/PlanningAndDevelopment/Planning-Applications/Planning-Permission.aspx[Accessed on the 21/07/2023]

10. Next Steps

10.1 It is the aim of this Scoping Report to present an initial appraisal of RLDP development and background on various impact pathways of relevance to the Torfaen RLDP. It also identifies existing evidence sources that can be drawn upon in the subsequent LSEs screening and AA stages.

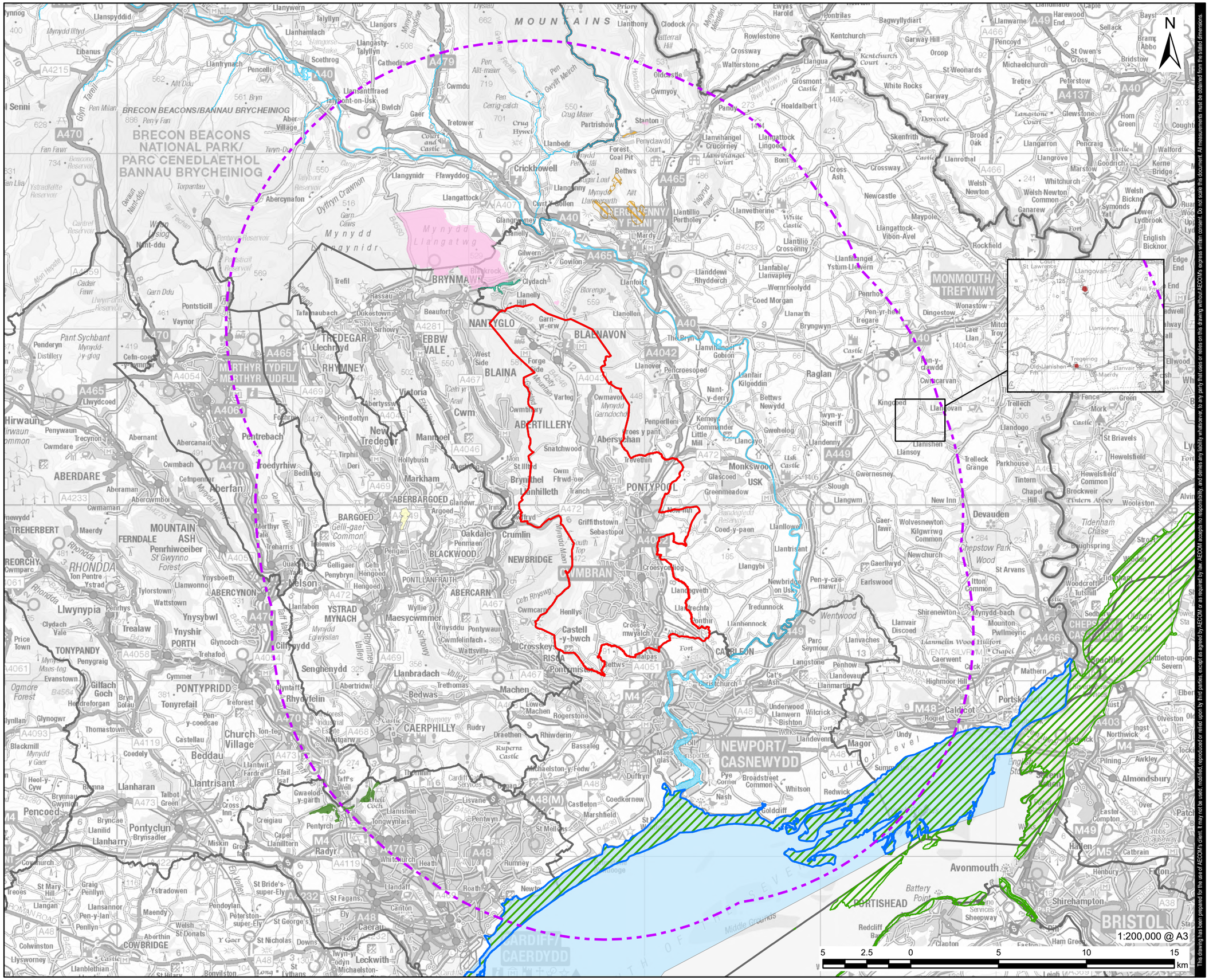
10.2 Following on from this Scoping Report, we were interested in Natural Resources Wales (NRW) comments on the proposed approach and other information presented, and of any further scoping details that require inclusion or mention in the subsequent appropriate assessment. NRW comment is particularly important regarding the following:

- As part of shaping the RLDP, it will be necessary during plan development to evaluate whether the in-combination increase in the population of south Wales will lead to recreational pressure issues at European sites beyond those already identified. For example, will a population increase near the Cwm Clydach Woodlands SAC or Usk Bat Sites SAC lead to a potential threat to the integrity of these sites? This cannot be done at this initial stage, but will be completed later in the HRA process as specific site allocations and growth amounts are coming forward. Input from NRW may also be sought in relation to the least impactful distribution of development in the RLDP process.
- Previous visitor surveys in other stretches of the Severn Estuary SAC / SPA / Ramsar have established a core recreational catchment of approx. 7km for the site. NRW will be consulted to evaluate whether this is considered to be an adequate catchment zone for Torfaen or a bespoke visitor survey is required in support of the emerging RLDP.
- Dwr Cymru Welsh Water will be contacted regarding potential impacts of treated sewage effluent on the water quality in the Severn Estuary SAC / SPA / Ramsar. This will be important to identify the WwTWs serving Torfaen (and associated headroom availability), their discharge locations and potential hydrological connectivity with the estuary.

Appendix A Figures

Figure A1 European sites within 15km of the Torfaen authority boundary.

Revision: 0 Drawn: EB Checked: DF Approved: LR Date: 2023-09-06



AECOM

PROJECT

HRA of the Torfaen Replacement Local Development Plan - Preferred Strategy

CLIENT

Torfaen County Borough Council

CONSULTANT

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LEGEND

- Torfaen Authority Boundary
- Study Area Buffer - 15km
- Severn Estuary Ramsar
- Severn Estuary Special Protection Area (SPA)

Special Areas of Conservation (SAC):

- Aberbargoed Grasslands
- Cardiff Beech Woods
- Coed y Cerrig
- Cwm Clydach Woodlands
- River Usk
- Severn Estuary
- Sugar Loaf Woodlands
- Usk Bat Sites
- Wye Valley and Forest of Dean Bat Sites
- District Boundary

NOTES

ISSUE PURPOSE

DRAFT

PROJECT NUMBER

60609986

FIGURE TITLE

European Sites within 15km of the Boundary of Torfaen

FIGURE NUMBER

Figure A1

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