

**Regulation 19
Pre-Submission Draft
Shropshire Local Plan
2016 to 2038**

**Habitats Regulations
Assessment**

December 2020

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1. Introduction

- 1.1. It is a legal requirement for Local Authorities to prepare a Habitats Regulations Assessment (HRA) for plans and projects which have the potential to impact on habitats of European importance.
- 1.2. This Habitats Regulations Assessment forms part of the consultation on the Pre-Submission Draft Shropshire Local Plan 2016 - 2038.
- 1.3. A summary of this HRA (the Pre-Submission Draft Shropshire Local Plan 2016 – 2038 Habitats Regulations Assessment Summary) is also available on Shropshire Council’s website.

The Habitats Regulations Assessment process

- 1.4. Habitats Regulations Assessment (HRA) (required under the Conservation of Habitats and Species Regulations 2017 or the ‘Habitats Regulations’) plays an important role in protecting the conservation objectives of the Natura 2000 network of sites. These sites, often referred to as ‘European Sites’, include Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Candidate SACs (cSACs). Following UK government policy, potential SPAs (pSPAs), possible SACs (pSACs) and proposed and listed Wetlands of International Importance (Ramsar Sites) designated under the Ramsar Convention are also treated as though covered by the Habitats Regulations. The term ‘international sites’ includes all the above designations and is used throughout this report.
- 1.5. The purpose of an HRA is to ensure that the proposals of any plan or project, or the cumulative effect of a number of plans or projects, will not adversely affect the integrity of any international site.
- 1.6. European guidance (EU 2001) describes a four-stage process to HRA and is summarised below:

Stage 1: Screening

The process to identify the likely impacts of a policy or proposal upon a Natura 2000 site, either alone or in combination with other plans and projects, and consider whether the impacts are likely to be **significant** or uncertainty exists. Previously, case law suggested straightforward counter-acting measures could be recommended for incorporation into policy wordings and then sites re-screened. However, recent case law (*People Over Wind v Coillte Teoranta C-323/17*) has indicated that this is not acceptable and if specific mitigation measures are required, HRA screening should proceed immediately to Stage 2.

Stage 2: Appropriate assessment

Consideration of impacts on the **integrity** of the Natura 2000 sites, either alone or in combination with other plans and projects, with regard to the site's structure and function and its conservation objectives. Where there are adverse impacts, an assessment of mitigation options is carried out to determine adverse effect on the integrity of the site. If these mitigation options cannot avoid adverse effects then proceed to stage 3.

Stage 3: Assessment of alternative solutions

Examining alternative ways of achieving the objectives of the policy or proposal to establish whether there are solutions that would avoid or have a lesser effect on Natura 2000 sites.

Stage 4: Assessment where no alternative solutions remain and where adverse impacts remain:

This is the assessment where no alternative solution exists and where adverse impacts remain. The process to assess whether the development is necessary for imperative reasons of overriding public interest (IROPI) and, if so, the potential compensatory measures needed to maintain the overall coherence of the site or integrity of the European site network

- 1.7. In this statutory context, a 'likely' significant effect is a possible significant effect and one that cannot be excluded on the basis of objective information. 'Objective' means information based on clear, verifiable fact rather than subjective opinion. A 'significant effect' is any effect that would undermine the conservation objectives for an international site. The 'integrity' of the site is defined in ODPM Circular 06/2005: (Biodiversity and Geological Conservation – Statutory Obligations and their impact within the Planning System) as 'the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or levels of populations of species for which it was classified'.

Background to the Regulation 19: Pre-Submission Draft Shropshire Local Plan 2016 – 2038 and the HRA Screening Reports

- 1.8. The current Development Plan in Shropshire consists of the Core Strategy (2011), the Site Allocations and Management of Development (SAMDev) Plan (2015) and any adopted formal Neighbourhood Plans. These documents provide a positive framework for managing development in the County up to 2026 and are currently considered to be up to date. It is however a requirement for Councils to review their development plans regularly and at least every five years.

- 1.9. Upon adoption the policies of the Shropshire Local Plan 2016-2038 will replace the policies of the Core Strategy and SAMDev Plan, except for those SAMDev site allocations which have yet to be delivered, which will be 'saved' and therefore continue to form part of the Development Plan.
- 1.10. The Council began preparing the Local Plan review in 2017 and has undertaken five consultation stages as part of the Regulation 18 stage of plan preparation:
 1. Issues and Options (January 2017 – March 2017);
 2. Preferred Scale and Distribution of Development (October 2017 – December 2017);
 3. Preferred Sites (November 2018 – February 2019);
 4. Strategic Sites (July 2019 – September 2019); and
 5. Regulation 18: Pre-Submission Draft of the Shropshire Local Plan (August 2020 – September 2020).
- 1.11. These documents, which are available on the Council's website, each dealt with a specific aspect of the plan making process and sought to provide the opportunity for communities and other stakeholders to make comments on emerging proposals. Checks were made at the earliest stages of the review for possible adverse impacts on international sites and interim Habitats Regulations Assessments were published to accompany each consultation document.
- 1.12. The Regulation 19: Pre-Submission version of the Local Plan effectively pulls all these strands together, with the inclusion of a full set of Strategic and Development Management Policies, for the purposes of guiding and managing development effectively. This Habitats Regulations Assessment builds on the interim HRA reports and supports the Regulation 19: Pre-Submission Draft of the Shropshire Local Plan.
- 1.13. The Regulation 19: Pre-Submission Draft Shropshire Local Plan 2016 – 2038 is not directly connected with or necessary to the management of an international site (Habitats Regulations 2017, 63(1)(b) or 105B(1)(b)).

2. Stage 1 Screening

Aims of the screening process and methods used

- 2.1. This Habitats Regulations Assessment seeks to:
- identify which international sites could possibly be affected by the proposals in the Regulation 19: Pre-Submission Draft Shropshire Local Plan 2016 – 2038 (Draft Local Plan or DLP),
 - identify the potential pathways by which the sites may be affected,
 - Identify all elements of the Draft Local Plan which would have no effect on an international site, so that that they can be eliminated from further consideration in respect of this and other plans;
 - identify all aspects of the Draft Local Plan which would not be likely to have a significant effect on an international site (i.e. would have some effect, but minor residual), either alone or in combination with other aspects of the same plan or other plans or projects. At this stage, mitigation measures are not considered;
 - identify those aspects of the Draft Local Plan where it is not possible to rule out the risk of significant effects on an international site, either alone or in combination with other plans or projects, in the absence of mitigation measures. These elements of the Draft Local Plan are considered in a full Appropriate Assessment (Stage 2, section 3).
- 2.2. The Appropriate Assessment, gathers together more detailed information on the affected international sites, likely impacts on their conservation objectives from development proposed by the DLP and mitigation measures designed to avoid or reduce negative effects. The elements of the Draft Local Plan identified with likely significant effects, alone or in combination with other plans or projects are then re-screened to determine if the Draft Local Plan will have adverse effects on the integrity of affected international sites.

Identification of international sites requiring consideration

- 2.3. Following the precautionary principle, the first step in the screening process was to identify all international sites in Shropshire and within 15km of the county boundary. This figure was chosen as a starting point as the largest screening buffer identified in the region for negative effects was 15km (recreational effects on Cannock Chase). Additional sites were added to the screening by considering possible longer distance pathways e.g. river SACs downstream of Shropshire, and through consultation with Natural England and Natural Resources Wales.
- 2.4. [Map 1 in Appendix 1](#) shows Shropshire with a 15km buffer and the spread of international sites screened into the assessment across the area being

considered. Maps of each international site follow in Appendix 1. The sites are listed below and those sites within Shropshire are shown in bold:

Berwyn SPA

Berwyn and South Clwyd Mountain SAC

Brown Moss SAC

Cannock Chase SAC

Downton Gorge SAC

Elenydd SAC

Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC

Fens Pools SAC

Granllyn SAC

Johnstown newt sites SAC

Midland Meres & Mosses Ramsar Site Phase 1

Berrington Pool

Betley Mere

Bomere and Shomere Pools

Brown Moss

Clarepool Moss

Fenemere

Marton Pool (Chirbury)

Quoisley Mere

White Mere

Wybunbury Moss

Midland Meres & Mosses Ramsar Site Phase 2

Aqualate Mere

Black Firs and Cranberry Bog

Brownheath Moss

Chapel Mere

Cole Mere

Cop Mere

Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses

Hanmer Mere

Hencott Pool

Llyn Bedydd

Morton Pool and Pasture

Oakhanger Moss

Oss Mere

Sweat Mere and Crose Mere

Vicarage Moss

Montgomery Canal SAC

Mottey Meadows SAC

Rhos Goch SAC

River Clun SAC

River Dee & Bala Lake SAC

Severn Estuary SPA
Severn Estuary SAC
Severn Estuary Ramsar Site
River Wye SAC
Tanat & Vrynwy Bat Sites SAC
The Stiperstones & the Hollies SAC
West Midlands Mosses SAC
 Clarepool Moss
 Wybunbury Moss

Collation of information on the selected international sites

- 2.5. Details of the international sites, their reasons for designation, conservation objectives and vulnerabilities can be found in [Appendix 2](#) of this report. The SSSI's within the Midland Meres and Mosses Ramsar Sites Phases 1 and 2 which are included in this assessment are also listed in [Appendix 2](#). Conservation Objectives for the individual elements of the two Ramsar Sites are not available and Natural England has advised that Favourable Condition Tables for SSSI units may be used in their place.
- 2.6. Data on the international sites, including qualifying features were taken from the following sources:
- Natural England web site (<https://designatedsites.naturalengland.org.uk/SiteSearch.aspx>) including conservation objectives, conservation objectives supplementary advice, site citations and Site Improvement Plans;
 - Joint Nature Conservation Committee website (www.jncc.gov.uk);
 - Verbal and written evidence from officers in Natural England and the Environment Agency;
 - A wide range of published and un-published reports as indicated in section 5 References;
 - HRA of Phase Two Revision of the West Midlands RSS – Screening note prepared for Government Office for the West Midlands by Treweek Environmental Consultants;
 - Background information on Ramsar designation and specific site descriptions from www.ramsar.wetlands.org/

Identifying possible mechanisms for significant effects (impact pathways)

- 2.7. The Draft Local Plan could affect international sites through the type of development, its location, scale, duration, frequency and timing, or other operations, activities or changes in use proposed by the plan.
- 2.8. The broad mechanisms by which the elements of the Local Plan might affect international sites were considered in previous HRA reports. These broad mechanisms, or impact pathways, may apply during construction or

through long-term after-use of the development and include, but are not limited to those listed in [Table 1 below](#). Impacts may be direct or indirect, temporary or permanent, continuous or intermittent, positive, neutral or negative and reversible or irreversible.

- 2.9. Due to the iterative nature of the HRA process, including early screening of sites put forward for consideration, no sites have been allocated on or adjacent to international sites and so direct habitat loss or fragmentation has been avoided.

Table 1: Potential impact pathways resulting from elements of the Pre-Submission Draft Local Plan

General impact pathway	Specific potential impacts resulting from development	Potential Effects
Air pollution	From increased traffic during construction and occupation.	Mainly nitrogen and acid deposition causing eutrophication and soil acidification leading to habitat change and species loss.
	Increased nitrogen oxides, sulphur dioxide particulate matter and other pollutants from residential but particularly industrial combustion processes.	Direct damage through airborne pollutants and nitrogen and acid deposition, causing eutrophication and soil acidification, leading to habitat change and species loss.
	Increased airborne ammonia from intensive and non-intensive livestock units, manure storage and spreading, anaerobic digesters etc.	Direct damage through airborne ammonia and indirect via nitrogen and acid deposition causing eutrophication and soil acidification, leading to habitat change and species loss.
Hydrological impacts	Changes to groundwater quantity through abstraction.	Habitat loss or change through drying or flooding
	Changes to groundwater quality through infiltration of pollution.	Habitat loss or change through eutrophication or pollution.
	Changes to surface water quantity through abstraction, increased run-off from hard surfaces and flooding.	Habitat loss or change through drying or flooding
	Changes to surface water quality through pollution from new urban run-off and infiltration from non-mains foul water drainage.	Habitat loss or change through eutrophication or pollution.

General impact pathway	Specific potential impacts resulting from development	Potential Effects
	Overloading of wastewater infrastructure through additional dwellings.	Eutrophication of water bodies causing damage to, or loss of, populations of aquatic species and wetland habitats.
	Increased pollution during flooding events.	Eutrophication or toxic effects on water bodies causing damage to, or loss of, populations of aquatic species and wetland habitats.
	Increased silt from development, during and post construction.	Eutrophication and smothering of aquatic species and habitats.
Recreational impacts and other disturbance	Increased trampling and physical damage to international site by additional residents and visitors.	Erosion and mechanical damage to habitats.
	New or increased disturbance by people, dogs and other pets from new housing.	Disturbance preventing foraging, commuting, migrating, resting or breeding of qualifying species.
	Swimming by people and dogs.	Physical damage and disturbance to aquatic species and habitats.
	Increased hunting pressure from domestic animals.	Disturbance of species, damage to or loss of populations of species.
	Increased deposition of dog faeces as a result of new or increased numbers of dwellings or visitor attractions. .	Eutrophication causing habitat change and species loss.
	Increased fishing and leisure boat use.	Physical damage to habitats, and disturbance or smothering of aquatic species.
	Damage from increased bikes and other vehicles.	Disturbance of wildlife and erosion of habitats.
	New or increasing visitor numbers causing interference with grazing and other management designed to maintain the features of the international sites.	Prevention of maintenance or restoration of qualifying habitats and species
	'Induced development' – development in some form required on international sites to counteract demand from visitors.	Damage to, or prevention of maintenance or restoration of qualifying habitats and species

General impact pathway	Specific potential impacts resulting from development	Potential Effects
	Disturbance caused by construction or use of industrial sites e.g. noise caused by development during construction or use/occupation.	Disturbance preventing foraging, commuting, migrating, resting or breeding of qualifying species.
Introduction of invasive species or diseases	Introduction or spreading of invasive species or diseases e.g. through vehicle movements, by boats, people or dogs, or introduction of fish or non-native plants.	Damage to habitats or damage to, or loss of, populations of qualifying species by highly competitive non-native species or disease.
Light pollution	New or increased lighting from development during construction or during occupation or use.	Disturbance or loss of nocturnal species preventing foraging, commuting, migrating, resting or breeding.

2.10. More details of these impact pathways and the international sites that may be affected by them can be found below and in [Appendix 3](#).

2.11. Potential impact pathways identified in [Table 1](#) and [Appendix 3](#) have been combined under five main headings for this updated screening, namely:

- Air pollution,
- Hydrological impacts
- Recreational and other disturbance impacts
- Introduction of invasive species
- Light pollution

Screening of international sites and potential impact pathways from policies, settlements, allocated and saved sites in the DLP

Air pollution

2.12. Exposure to pollution present in our atmosphere is one the UK's biggest public health challenges, shortening lifespans and damaging quality of life for many people. Fine particulate matter (PM 2.5), ammonia (NH₃), nitrogen oxides (NO_x), sulphur dioxide (SO₂) and non-methane volatile organic compounds (NMVOC) are five of the most damaging air pollutants.

2.13. Airborne pollutants such as sulphur dioxide, volatile organic compounds and particulate matter generally result from combustion or specific industrial processes. As well as a concern for human health, these can

cause direct damage to vegetation when in the air, as well as acidification and contamination of soils.

- 2.14. Of key importance in the context of this HRA is nitrogen in the form of nitrogen oxides (NO_x gases) and ammonia (NH₃). Nitrogen oxides are mainly derived from combustion processes including via traffic. Ammonia originates largely from agricultural sources. Together they are referred to as atmospheric nitrogen. Again, these gases may cause direct damage to vegetation when in the air, but they also act as a fertilizer when washed out of the air into soil or water (eutrophication) and raise soil acidity. Many designated habitats, and hence the species they support, rely on low levels of nitrogen in soil and water. Across the UK, NO_x emissions have decreased substantially over recent decades through mitigation measures. However, ammonia emissions have only marginally decreased in recent years and in parts of the UK, such as Shropshire they are increasing again (Defra 'Clean Air Strategy' 2019, 'Nitrogen Futures' section 5).

The Table in Appendix 3 provides more details of specific international sites with sensitivity to air pollution. However, all sites screened into the assessment have some degree of sensitivity due to current high background levels of pollutants.

Diffuse or regional air pollution

- 2.15. Diffuse air pollution is background pollution derived from a wide range of sources and activities that, at the regional scale, has a significant adverse impact on people, habitats and species. New development, in combination, can contribute cumulatively to an overall change in background air quality. Many sources, from shipping and agriculture to industry and traffic, combine to cause background levels of airborne pollution. Also, burning wood and coal in open fires and stoves in residential areas produces a significant amount of fine particulate matter (PM_{2.5}) and sulphur dioxide.
- 2.16. In the case of Shropshire's international sites, all are receiving levels of atmospheric nitrogen which exceed their critical levels or loads, the point at which damage may occur. Clearly any additional pollutants could be important. (See Appendix 3 Impact pathways and international sites.)
- 2.17. At a national level, the UK has adopted legally binding international targets to reduce emissions of fine particulate matter, ammonia, nitrogen oxides, sulphur dioxide, non-methane volatile organic compounds by 2020 and 2030 (National Emissions Ceilings Regulations 2018 (NECR), National Air Pollution Control Programme (NAPCP)). The Government's Clean Air Strategy 2019 (Ref 8, section 5) sets out the comprehensive actions, including proposals for new regulations, required from across all parts of government and society to reach the required air pollution reductions for

each pollution type. The Government's 25 Year Plan sets additional and ambitious targets.

- 2.18. In Shropshire, through the DLP, emissions from development will be reduced as far as possible through general policy wording, particularly **SP3. Climate Change, SP10. Managing Development in the Countryside, DP11. Minimising Carbon Emissions, DP18. Pollution and Public Amenity DP26. Strategic, Renewable and Low Carbon Infrastructure and DP28. Communications and Transport.**
- 2.19. **SP3. Climate Change** requires new development to minimise the need to travel and maximise the ability to make trips by sustainable modes of transport, prioritising active travel in accordance with **DP28**, reducing traffic emissions. **SP3** also promotes low carbon energy sources, the installation of electric vehicle charging infrastructure and fabric energy efficiency, including as part of retrofitting of existing buildings.
- 2.20. **DP11. Minimising Carbon emissions** requires new residential development to contribute to reducing the impact of climate change. It directs all development towards maximising opportunities to increase fabric energy efficiency, reduce carbon emissions and integrate on-site renewable energy technologies. Reduction in energy consumption and use of low-carbon fuels should reduce airborne emissions generally.
- 2.21. **DP28. Communications and Transport.** Seeks to widen travel choices, move towards reduced car dependency and promote more sustainable travel options, such as active travel and passenger transport services. Changes in transport technologies including ultra-low emissions vehicles, domestic charging points and commercial charging places will also be promoted. Access to better communications infrastructure will provide remote access to employment through mobile/agile working. This will help to manage the environmental impacts of travel on climate change and air quality.
- 2.22. **DP26. Strategic, Renewable and Low Carbon Infrastructure.** Promotes new, more sustainable infrastructure for non-wind renewable and low carbon development, including solar farms, hydropower, biomass, energy from waste, biogas and anaerobic digestion. It also covers wind energy development. Whilst this will reduce the use of fossil fuels it is recognised that some installations (e.g. biomass, energy from waste, biogas and anaerobic digestion) also produce airborne pollutants. The policy stresses that if an international site may be affected an HRA at the planning application stage will be required according to **DP12. The Natural Environment.** Any proposal must be assessed for impacts on natural assets and air quality.

- 2.23. **SP10. Managing Development in the Countryside** Planning applications for development in the countryside will be permitted where it can be demonstrated that the development is of a size/scale and type which is consistent with its required agricultural purpose, well designed and located in line with the other requirements of relevant Local Plan policies, where there will be no unacceptable impacts on environmental quality. Protection is provided by the generic requirement, where appropriate, for mitigation measures to remove any adverse effects from development on the integrity of internationally designated sites identified within the Habitats Regulations Assessment of the Local Plan in accordance with Policy **DP12. Natural Environment**.
- 2.24. **DP18. Pollution and Public Amenity** requires development to safeguard environmental quality, minimise pollution; mitigate adverse effects and maximise opportunities for improvements where practicable. Development which is likely to give rise to concerns about air quality, either on its own or cumulatively, will provide an assessment covering the existing air quality and predictions of the future air quality without the development and with the development. Mitigation measures must be suggested and a prediction provided of air quality after development with the mitigation measures. Proposals which would lead to an unacceptable risk from air pollution or prevent sustained compliance with limit values or national objectives for air pollutants will be refused unless they can be practicably amended to avoid that risk.
- 2.25. **DP12. Natural Environment**. Requires a project-level Habitats Regulations Assessment (HRA) for all proposals where the Local Planning Authority identifies a likely significant effect on an internationally designated site. Permission will be refused where such a HRA indicates an adverse effect on the integrity of a designated site which cannot be avoided or fully mitigated.
- 2.26. The combined legally binding national reduction targets, proposed national reduction measures and local measures addressed by the above planning policies, should lead to reduced background air pollution over the life of the Local Plan.

Local sources of air pollution

- 2.27. Although national and local measures will reduce background air pollution over the life of the plan, local impacts due to higher pollution concentrations from development in the vicinity, can be more severe on nearby wildlife sites. The Draft Local Plan does not make allocations specifically for development such as incinerators, anaerobic digesters or intensive livestock units etc. It does allocate land for employment uses, most of which will not generate more air pollution, other than via traffic movements (considered below). However, it is possible that some could

- produce gaseous or particulate pollution, depending on project specific factors (e.g. biomass boilers). The distance that airborne pollutants travel varies considerably depending on the source and pollutant concerned. The zones of influence of a relatively small industrial biomass boiler may be less than 500m, an intensive livestock unit may pollute sites up to 10km and emissions from large scale incinerators may reach over 15km.
- 2.28. The number, location and extent of such development, and hence the international sites potentially affected are not currently known. Should applications be submitted for such development (either on employment sites or elsewhere in the Local Plan Area) and impact pathways be identified, an HRA at the project stage with specific supporting evidence (including detailed pollution modelling as appropriate) and proposed mitigation measures, will be required under DP18. Pollution and Public Amenity and DP12. The Natural Environment. Developer contributions towards mitigation measures identified in evidence-based and costed site management plans (e.g. Habitat Management Plans, Nutrient Management Plans or Site Nitrogen Action Plans) may be required under DP12 and DP25.
- 2.29. Generally, the most significant form of airborne pollution, derived from housing or employment allocations, is the result of increased traffic movements from cars, HGVs and other vehicles. The international designated sites at risk from local air quality impacts are those which feature habitats that are vulnerable to NOx gases, nitrogen deposition and acidification, and are within 200m of a road with increased traffic. It has been assumed that for international sites greater than 200m from a road, there will be no likely significant effects as a result of increased traffic through development as a result of the Local Plan, alone or in-combination with other plans or projects.
- 2.30. This is in accordance with the Design Manual for Roads and Bridges 2007 Vol. 11, Section3, Natural England's consultation response (20th March 2017) and later guidance 'Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations' June 2018.
- 2.31. Shropshire Council commissioned research to investigate whether or not there are likely to be significant effects, alone or in-combination with other plans or projects, from air pollution derived from traffic as a result of development through the DLP, taking into account development proposed in surrounding Local Plans, (Traffic Impact on Air Quality at International Sites for the Habitat Regulations Assessment, Final Report (2020 by WSP referred to in this document as the 'Traffic Report').
- 2.32. As part of Phase 1 of the methodology in the Traffic Report, the following international sites have been screened out for traffic-derived damaging

effects as they lie more than 200m at their nearest point, from an A road or busy B road:

Brown Moss SAC

Downton Gorge SAC

Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC

Midland Meres & Mosses Ramsar Phase 1

Berrington Pool

Betley Mere

Bomere and Shomere Pools

Brown Moss

Fenemere

Marton Pool (Chirbury)

Quoisley Mere

Midland Meres & Mosses Ramsar Phase 2

Aqualate Mere

Brownheath Moss

Chapel Mere

Cole Mere

Cop Mere

Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses

Llyn Bedydd

Oss Mere

Vicarage Moss

Mottey Meadows SAC

The Stiperstones & the Hollies SAC

West Midlands Mosses SAC

2.33. The following sites are **within** 200m from an A road or busy B road and required further consideration:

Berwyn SPA

Berwyn and South Clwyd Mountain SAC

Cannock Chase SAC

Elenydd SAC

Fens Pools SAC

Granllyn SAC

Johnstown newt sites SAC

Midland Meres & Mosses Ramsar Phase 1

Clarepool Moss

White Mere

Wybunbury Moss

Midland Meres & Mosses Ramsar Phase 2

Black Firs and Cranberry Bog

Hanmer Mere

Hencott Pool

Morton Pool and Pasture

Oakhanger Moss

Sweat Mere and Crose Mere

Montgomery Canal SAC

Rhos Goch SAC

River Clun SAC

River Dee & Bala Lake SAC

Severn Estuary Ramsar Site (c. 77km downstream of Shropshire)

Severn Estuary SAC (c. 77km downstream of Shropshire)

Severn Estuary SPA (c. 77km downstream of Shropshire)

River Wye SAC

Tanat & Vrynwy Bat Sites SAC

West Midlands Mosses SAC

Clarepool Moss

Wybunbury Moss

- 2.34. For international sites within 200m of busy roads, if the number of traffic movements do not increase (in this case due to the DLP) by more than 1000 Annual Average Daily Traffic (AADT) movements by cars and 200 HDV AADT, either alone or in combination with other plans or projects, then they can be considered insignificant (DMRB 2007, NE 2018).
- 2.35. In Phase 2 of the investigation, the current traffic flow (AADT) on the road(s) was established, either by searching the Shropshire traffic data base or national data bases.
- 2.36. National road traffic growth forecasts (TEMPRO) were used as a proxy for the combined traffic increase effect of all development in all LPA plans and strategies with some adjustments. This combined growth, including Shropshire's, over the proposed Local Plan period (2016 to 2038) is likely to be c. 25%. A precautionary increase of 800 AADT rather than 1000AADT all traffic and 160AADT rather than 200 for HDVs (Heavy Duty Vehicles) has been used. Hence, sites within 200m of A and busy B roads have been screened out if their current AADT levels are below 3200AADT all traffic or 160 AADT for HDVs. The following sites have screened out on this basis:

Granllyn SAC,

Midland Meres & Mosses Ramsar Phase 2

Morton Pool and Pasture (Ramsar),

Hanmer Mere (Ramsar),

Rhos Goch SAC

River Clun SAC

- 2.37. 14 international sites could not be screened out from having a likely significant effect due to the proximity of busy roads (within 200m of a road

where current AADT levels are above 3200AADT all traffic or 160 AADT for HDVs) and have been investigated further.

- 2.38. The three sites in Shropshire, White Mere, Sweat Mere and Crose Mere and Clarepool Moss, have been subject to further study in Phase 3 of the Traffic Report. More detailed modelling using TEMPRO has shown that the increase in AADT for all traffic and HDVs, through the Local Plan alone and in-combination with other plans or projects, will still be less than 1000 AADT all traffic or 200 for HDVs and so there will be no likely significant effect, alone or in-combination due to road emissions at these sites.
- 2.39. A number of international sites have been identified in surrounding local authority areas where the in-combination impacts are potentially detrimental. These have been considered in the table below.

Table 2: Summary of screening of international sites within 200m of busy roads for impacts from increased air pollution.

International Site	Closest distance from road	Distance from Shropshire border	Site sensitivities.	Nearest Shropshire site allocation. Nearest other LPA site allocation and HRA conclusions.	LSE
Berwyn SPA (point d), A5 WALES	72m	6.8km	Supporting habitat for Hen Harrier, Merlin, Peregrine, Red Kite. Habitat - grassland, tall heather, bracken, scrub, woodland.	<p>The B4391, B4393 and A5 were identified within 200m of the SPA and could potentially have higher AADTs (Traffic Report, Ref 29). The traffic counts for B4391 and B4393 were low and not considered further. The A5 at its closest point to the SPA already has an AADT at a level that the combined 25% growth of AADT from all Local Plans including that of Shropshire would exceed 1% (1000 AADT). The AADT all vehicles and AADT HDV were 4986 and 474 respectively (Traffic Report, Ref 29, Table 2.2). However, at its closest stretch, the road is hedge-lined, then field, then the SPA commences after a band of mature woodland. A steep slope, largely bracken covered, rises up before the plateau is reached. A very small area of the SPA is affected (within 200m of road) and raised N levels are unlikely to damage bracken and woodland habitats as bird nesting/foraging habitat. According to the graph in DMRB (Highways Agency, DMRB Vol. 11, section 3, Figure C1 Traffic Contribution to Pollutant Concentration at Different Distances from the Road Centre), the majority of pollution is in the first 50m of the road edge and nearest point of the site is at c.72 m.</p> <p>The HRAs of Powys 2016, Cheshire West and Chester's LP and the Wrexham Unitary Development Plan all conclude no likely significant effect, alone or in combination from airborne pollution on this international site.</p>	No

International Site	Closest distance from road	Distance from Shropshire border	Site sensitivities.	Nearest Shropshire site allocation. Nearest other LPA site allocation and HRA conclusions.	LSE
Berwyn and South Clwyd Mountain SAC, A5 WALES	54m	5.5km	Blanket bogs and European dry heaths. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia). Transition mires and quaking bogs. Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii). Calcareous rocky slopes with chasmophytic vegetation.	The Berwyn SAC covers much of the same area as the SPA but there are boundary differences. The roads within 200m of the SAC with potential to have higher traffic counts were identified as the A5104, A542, B5430 and the A5. The A5 at its closest point to the SAC already has an AADT at a level that the combined 25% growth of AADT from all Local Plans including that of Shropshire would exceed 1% (1000 AADT). The AADT all vehicles and AADT HDV were 4986 and 474 respectively (Traffic Report, Ref 29, Table 2.2). However, at its closest stretch, the road is hedge-lined, followed by field, then the SPA commences after a band of mature woodland. A steep slope, largely bracken covered, rises up before the plateau is reached. None of these habitats are qualifying features under the SAC designation. A very small area of the SAC is affected (within 200m of road). According to the graph in DMRB (Highways Agency, DMRB Vol. 11, section 3, Figure C1 Traffic Contribution to Pollutant Concentration at Different Distances from the Road Centre), the majority of pollution is in the first 50m of the road edge and nearest point of the site is at c.72 m.	No
Black Firs and Cranberry Bog Ramsar ENGLAND	0m	5.4km	Schwingmoor basin mire, bog and fen, dystrophic open water, carr woodland, wet woodland.	0m from A531 (Newcastle-Under-Lyme to Crewe), but the site is much nearer to Nantwich, Crewe and Newcastle and over 5km from Shropshire's county boundary. The nearest Community Hub is Woore at >7km away. The Draft Neighbourhood Plan states a maximum number of dwellings is to be around 30. The nearest site allocation is over 16km away at	No

International Site	Closest distance from road	Distance from Shropshire border	Site sensitivities.	Nearest Shropshire site allocation. Nearest other LPA site allocation and HRA conclusions.	LSE
				Market Drayton. There would be a negligible effect from allocations in Shropshire.	
Cannock Chase SAC A51 plus others ENGLAND	0m to A513, A460	>16km	Wet heaths and EU dry heaths.	Stafford, Cannock, Rugley, Wolverhampton and Birmingham are closer to Cannock Chase than Shropshire. There would be a negligible effect from allocations in Shropshire.	No
Clarepool Moss WMM SAC and Ramsar A495 ENGLAND	78m	In Shropshire	Dystrophic lakes and ponds, acid peat-stained lakes and ponds, Transition mires and quaking bogs	According to the graph in DMRB, the majority of pollution is detected in the first 50m from the road edge and the nearest point of Clarepool Moss is at c.78 m. The 'Traffic Report' has concluded in Phase 3 that the expected growth in traffic, in combination with predicted growth in other local plans at this site from 2019 to 2038 will be 15.6% resulting in a less than 1000 AADT increase beside the site. This increase is considered to be insignificant.	No
Sweat Mere and Crose Mere (Ramsar) A528 ENGLAND	26m (117m of field before woodland edge)	In Shropshire	Wetland habitats - open water, swamp, fen, wet pasture and carr.	The water catchment spans the road and the site boundary is only 26m from road edge, but the woodland edge of the wetland itself starts 117m from the road across a field. According to the graph in DMRB, the majority of the pollution is detected in the first 50m from the road edge and the nearest point is at c.26m or 120 m to the wetland area. The 'Traffic Report' has concluded in Phase 3 that the expected growth in traffic, in combination with other plans at this site from 2019 to 2038 will be 15.6% resulting in a less than 1000 AADT increase beside the site. This increase is considered to be insignificant.	No

International Site	Closest distance from road	Distance from Shropshire border	Site sensitivities.	Nearest Shropshire site allocation. Nearest other LPA site allocation and HRA conclusions.	LSE
Elenydd SAC A470 WALES	0m	31km	Calaminarian grasslands, oligotrophic to mesotrophic standing waters, dry heath, <i>Luronium natans</i> .	There is a large distance between the Shropshire border and the site and even greater distance to the site allocations of the DLP. There would be a negligible effect from allocations in Shropshire.	No
Fens Pools SAC A4101 ENGLAND	0m	9.6km	Great Crested Newt	Site is embedded in the continuous urban area of Dudley, Stourbridge and Birmingham. Negligible impact from Shropshire growth.	No
Hencott Pool				The proposed North West Relief Road is now planned to be just over 200m from Hencott Pool. At planning application stage, the project requires its own HRA to be carried out, based on more detailed investigations. Hencott Pool is considered further in the Stage 2 Appropriate Assessment..	Yes
Johnstown Newt site B5426a, B5426b, A483b, B5605c WALES	0m – 59m	5 – 6.6km	Annex II species - GCN.	In the Wrexham Local Development Plan 2013-2028 (Preferred Strategy) 2016 Habitats Regulations Assessment – there is a recommendation for specific wording in policy SP8 to recognise the potential sensitivity of the Johnstown Newt Sites SAC to development within the key settlement of Rhosllanerchrugog. Policy wording is recommended proposing to 'identify, and agree with NRW, an approach to managing growth which would address conservation concerns in respect of the sensitivity of the Johnstown Newt SAC to development'. The HRA also recommends that the council commits to the production of a dedicated SPG, building on the existing joint Flintshire and Wrexham draft local planning guidance document	No

International Site	Closest distance from road	Distance from Shropshire border	Site sensitivities.	Nearest Shropshire site allocation. Nearest other LPA site allocation and HRA conclusions.	LSE
				<p>which sets out the approach to developments affecting the GCN and sets out mitigation requirements. The HRA does not specifically raise pollution from road traffic as an issue for the SAC. On the A483 there is already over 42000 AADT all traffic (Traffic Report, Ref 29, Table 2,2), the Wrexham Plan (according to the HRA) is likely to allocate c. 300-400 dwellings to Rhossllanerchrugog, and Wrexham (which will take the majority of development) is closer than the nearest market town in Shropshire (Oswestry c. 11km to the south), the increase in traffic from Shropshire will be minimal by comparison and would have no likely significant effect alone. Any in-combination effects would be addressed by mitigation measures proposed by Wrexham (landowners) and Flintshire, in consultation with Natural Resources Wales.</p>	
<p>Montgomery Canal SAC WALES</p>	<p>0m where roads cross, - A458 where meets A483 and A483 north of Welshpool.</p>	<p>0m – in Wales but commences at Shropshire border</p>	<p><i>Luronium natans</i></p>	<p>The A483 follows the canal and crosses it several times. Powys Deposit Plan 2015 HRA states: 'Neighbouring development plans could impact on the water quality of the River Wye SAC and on the Montgomery Canal. The Plans and Projects identified have been considered in-combination with the Powys Local Development Plan and it has been concluded that there will be no likely significant effect in-combination.' Further details are given on page 49 and concludes 'Whilst policies and proposals in the LDP enable development that would have the potential to impact upon the canal's vulnerabilities,</p>	<p>No</p>

International Site	Closest distance from road	Distance from Shropshire border	Site sensitivities.	Nearest Shropshire site allocation. Nearest other LPA site allocation and HRA conclusions.	LSE
				policies TD3, DM1 and DM2 provide sufficient mitigation to ensure that the canal's role as a site for nature conservation is preserved and enhanced. It is therefore considered that an appropriate assessment of the impact of the LDP on the Montgomery Canal SAC is not required at the plan making stage.' Far larger site allocations are proposed for Newtown and Welshpool, closer to the Canal.	
Oakhanger Moss Ramsar 2 M6 ENGLAND	119m	>10km	Mire, swamp, fen, carr and bog.	The site lies over 10km north of northern county boundary, between Crewe and Alsager, beside the M6 and north of the A500. Any additional AADT from Shropshire would be minimal.	No
River Dee and Bala Lake SAC WALES/ENGLAND			Wide range of riverine habitats and species (see Appendix 2)	Any pollution from traffic emissions from roads crossing the river is likely to be rapidly diluted by the flow, and river habitats are less sensitive to airborne pollution of this type.	No
Severn Estuary SPA/SAC/Ramsar		c. 77km downstream	Wide range of habitats and species (see Appendix 2)	Pollution from traffic emissions from roads crossing the river is likely to be rapidly diluted by the flow, and river habitats are less sensitive to airborne pollution of this type. The designated parts of the River are 77km downstream of Shropshire and any contribution would be negligible.	No
River Wye SAC WALES/ENGLAND	Crossed by many roads	c. 7km at nearest point	High quality example of water courses of plain to montane levels with Ranunculion fluitantis and Callitriche-Batrachion vegetation	Shropshire lies outside the catchment of the River Wye and the nearest major road crossing near Hope under Dinmore is c. 23km south of the nearest Shropshire site allocations on the A49 between Leominster and Hereford. Towards Wales the closest major road crossing is at Penybont, near Llandrindod Wells, c 25km from the nearest site	No

International Site	Closest distance from road	Distance from Shropshire border	Site sensitivities.	Nearest Shropshire site allocation. Nearest other LPA site allocation and HRA conclusions.	LSE
			and is also significant for transition mire and quaking bog. The riverine habitat supports important and significant populations of many fish species and Otter <i>Lutra lutra</i> .	allocation. Pollution from traffic emissions from roads crossing the river is likely to be rapidly diluted by the flow. Majority of N pollution is derived from farming activities and sewage treatment works. The Conservation Objectives Supplementary Advice (NE) for the SAC states the primary nutrients that cause eutrophication are phosphorous and nitrogen and both require management, but the focus is on Phosphorus. Emissions from traffic are not mentioned as a source of concern. Contribution from the Shropshire DLP is considered to be negligible.	
Tanat and Vrynwy Bat Sites SAC A4 WALES	44m	13km	Lesser Horseshoe bat roost	No effect as the site is sensitive to human disturbance of the grilled roost (mine) or removal of roadside tree/hedge cover.	No
White Mere (Ramsar) A528 ENGLAND	0m	In Shropshire	Wetland habitats - open water and carr.	The water catchment spans the road and the site boundary is the road edge. The water's edge is 19m from the road. The 'Traffic Report' has concluded in Phase 3 that the expected combined growth in traffic, in combination with other local plans at this site from 2019 to 2038 will be 15.6% resulting in a less than 1000 AADT increase beside the site. This increase is considered to be insignificant.	No
Wybunbury Moss B5071 ENGLAND	55m	6.4km	Basin fen and mire,	Although the nearest site boundary is 55m away from the road, the closest edge of the basin is 169m, of which first 57m are house and back garden followed by fields. The SSSI unit 001 is considered to be in unfavourable recovering condition as a diffuse water pollution plan has been agreed to tackle sources of enrichment to the site.	No

International Site	Closest distance from road	Distance from Shropshire border	Site sensitivities.	Nearest Shropshire site allocation. Nearest other LPA site allocation and HRA conclusions.	LSE
				<p>NOx levels can be expected to fall substantially at a distance greater than 50m from the source and can be expected to fall to background levels at a distance of more than 200m (DMRB Volume 11). Bearing in mind the distance and barriers to dispersal, the diffuse pollution management plan and relatively low existing AADT (3690 all vehicles, 104 HDV in 2017 according to the 'Traffic Report') together with low levels of development proposed in the nearest part of Shropshire (Woore Draft Neighbourhood Plan – 30 dwellings at c. 7km by road) and the road layout, there would be a negligible effect on the site through the DLP. Much more traffic is likely to be generated by growth in Shavington and Crewe.</p>	

- 2.40. Based on the above assessment there will be no likely significant effect on international sites other than Hencott Pool, alone or in combination with other plans or projects as a result of airborne emissions from increased traffic derived from the policies and site allocations in the DLP. Hencott Pool and traffic emissions are considered further in the Stage 2 Appropriate Assessment.
- 2.41. In the HRA of Minerals Allocations a potential impact pathway was identified to Cole Mere and White Mere Ramsar sites from dust emissions from the saved site Wood Lane Quarry, Northern Extension. This issue is carried forward into the Stage 2 Appropriate Assessment.

2.42.

Hydrological impacts

- 2.43. If insufficient water is available for new development in aquifers or water courses, over abstraction could damage international sites by reducing water levels, causing greater fluctuation of water levels or periodic drying of water courses or wetlands. Reduced volumes of water also tend to concentrate pollutants or contaminants.
- 2.44. Insufficient infrastructure to cope with the additional foul-water drainage or treatment of sewage on arrival at a Wastewater Treatment Works (WwTW) would be likely to cause eutrophication of water courses leading to damage to international sites.
- 2.45. Most development will obtain water and dispose of wastewater via public infrastructure and in-combination could affect the River Dee SAC, River Clun SAC and the Severn Estuary SAC/SPA/Ramsar Sites in particular, as well as any other international sites reliant on the regional aquifer or surface water catchments to maintain water levels or water quality.
- 2.46. Much of Shropshire is rural in nature and so a relatively high number of properties cannot connect to public water supplies or sewers. Localised abstraction from surface water catchments/perched groundwater of international sites or increased numbers of package treatment plants/cesspits could damage international sites. Development tends to increase impermeable surfaces, increasing run-off and with it, pollutants such as sediment, oil and salt.
- 2.47. International sites have been screened for effects from allocated housing and employment land, on water quality and quantity, based largely on maps of surface water catchments. The surface water catchments of most of the Midland Meres and Mosses Ramsar sites have been mapped by Natural England. Shropshire Council has sought further information contained within the Environmental Consultancy University of Sheffield (ECUS) reports, which has allowed refinement of the surface water

catchment areas. In addition, Natural England has published Impact Risk Zones (IRZ's) for SSSI's, which take surface water catchments into account. According to Atkins (2012), consideration of water level data suggests that all of the meres and their respective groundwater catchments are perched above the deep regional groundwater system. The meres are therefore more strongly influenced by the functioning and character of the local aquifer systems of recent, post-glacial origin rather than conditions in the regional aquifer. As a result, they are likely to strongly reflect activities in the landscape local to them and may be susceptible to land use changes in their respective catchments. Atkins concluded that in most cases the surface water catchment can be broadly taken as the groundwater catchment.

- 2.48. A Water Cycle Study (WCS) has been commissioned (Shropshire Council Water Cycle Study, Final Report, July 2020, JBA), which assesses the potential issues relating to future development within Shropshire and the impacts on water supply, wastewater collection and treatment and water quality. The Water Cycle Study is required to assess the constraints and requirements that will arise from potential growth on the water infrastructure. The Water Cycle Study has been carried out in co-operation with Severn Trent Water (STW), United Utilities (UU), Welsh Water (WW), the Environment Agency and the neighbouring Local Planning Authorities (LPAs). It provides the necessary evidence against which to screen site allocations from 2026 to 2038, taking into account allocations saved from the previous SAMDev Plan and allocations from neighbouring counties, which utilise the same water resources or water infrastructure. Hence the Water Cycle Study provides evidence for water issues with site allocations alone and in combination with other allocations in the DLP and those of neighbouring LPAs.
- 2.49. The Water Cycle Study and wetland catchment data have been used to screen international sites. The following international sites have been screened out as no water quality or quantity impact pathways from allocated sites have been identified. Shropshire is either outside of the catchment of the river concerned or there is no development proposed by the DLP within the water catchment of wetland sites:

Berwyn SPA
Berwyn and South Clwyd Mountain SAC
Brown Moss SAC
Cannock Chase SAC
Elenydd SAC
Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC
Fens Pools SAC
Granllyn SAC
Johnstown newt sites SAC

Midland Meres & Mosses Ramsar Phase 1

Berrington Pool

Betley Mere

Bomere and Shomere Pools

Brown Moss

Clarepool Moss

Quoisley Mere

Wybunbury Moss

Midland Meres & Mosses Ramsar Phase 2

Aqualate Mere

Black Firs and Cranberry Bog

Brownheath Moss

Chapel Mere

Cop Mere

Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses

Hanmer Mere

Hencott Pool

Llyn Bedydd

Oakhanger Moss

Oss Mere

Sweat Mere and Crose Mere

Vicarage Moss

Mottey Meadows SAC

Rhos Goch SAC

River Wye SAC

Tanat & Vrynwy Bat Sites SAC

The Stiperstones & the Hollies SAC

West Midlands Mosses SAC

Clarepool Moss

Wybunbury Moss

- 2.50. Water quality or quantity impact pathways have been identified for the following sites and these have been considered in Table 3 below:

Downton Gorge SAC

Midland Meres & Mosses Ramsar Phase 1

Fenemere

Marton Pool (Chirbury)

White Mere

Midland Meres & Mosses Ramsar Phase 2

Cole Mere

Morton Pool and Pasture

Montgomery Canal SAC

River Clun SAC

River Dee & Bala Lake SAC

Severn Estuary Ramsar Site (c. 77km downstream of Shropshire)

Severn Estuary SAC (c. 77km downstream of Shropshire)
 Severn Estuary SPA (c. 77km downstream of Shropshire)

2.51. The Midland Meres & Mosses Ramsar Phase 1 and 2 sites below, together with the Montgomery Canal SAC have site allocations within their localised water catchment that could result in small scale, localised abstraction of water or water quality impacts via non-mains disposal of wastewater. The Severn Estuary SAC/SPA/Ramsar sites, River Dee and Bala Lake SAC, River Clun SAC and Downton Gorge SAC could be affected by multiple allocations connecting to public water services.

Table 3: Water impact pathways to international sites

International Site	Land Allocation (numbers of dwellings in bold, w = windfall)	Comment/Suggested Mitigation	LSE
Severn Estuary SPA/SAC/Ramsar (77km downstream of Shropshire)	Majority of development proposed by the DLP.	Local effects from individual allocated sites, hubs and clusters would be negligible due to the distance from the designated areas of the estuary (c. 77km). However, in combination and together with other allocations in plans using the same water infrastructure, an adverse effect may be possible. A number of settlements have been given a red rating in the WCS. It should be remembered that where a development is scored amber or red in a water supply or wastewater infrastructure assessment, it does not mean that development cannot or should not take place in that location, merely that significant infrastructure may be required to accommodate it. Informal meetings have been held with water companies during the drafting of the WCS, but further discussions and the drawing up of a Statement of Common Ground are planned before the Submission Plan is finalised. Until then, uncertainty remains and specific avoidance or mitigation measures may be required. (See Stage 2 Appropriate Assessment, paragraph 3.2.	Yes
Cole Mere Ramsar and White Mere	Saved mineral site at Wood lane Quarry	Potential hydrological and surface water impacts identified in the Minerals HRA	Yes

International Site	Land Allocation (numbers of dwellings in bold, w = windfall)	Comment/Suggested Mitigation	LSE
Ramsar	Northern extension	of the SAMDev Plan. Saved in the DLP and re-visited in the Stage 2 Appropriate Assessment (paragraph 3.164).	
Downton Gorge SAC	Development within the River Clun Catchment.	Lies on the River Teme in Herefordshire, just downstream of the confluence with the River Clun and upstream of Ludlow. It is designated for its ancient semi-natural woodland with steep ravines and dingles occurring inside valleys. The Supplementary Advice on Conserving and Restoring Site Features (2016) and Site Improvement Plan for the SAC do not refer to water quality in the water course, as the qualifying features are terrestrial.	No
Fenemere	Windfall 40 houses, Baschurch. Saved SAMDev allocation BAS035 40 half in catchment (New site allocations are outside surface water catchment.)	The north-eastern area of Baschurch lies within the surface water catchment. Policy DP19 requires development to assess the potential impacts of non-mains drainage on water quality to ensure no detrimental impact on the water environment in accordance with Policies DP12 and DP18 ,. However, as this is a specific and localised issue, it was decided that additional mitigation policy wording should be included in the DLP to cover HRA at the project stage. (See Stage 2 Appropriate Assessment, paragraph 3.104).	Yes
Marton Pool (Chirbury)	Cluster site, northern edge of Marton just clips surface water catchment. No allocated sites or specified windfall numbers.	DP19 requires development to assess the potential impacts of non-mains drainage on water quality to ensure no detrimental impact on the water environment in accordance with Policies DP12 and DP18 . However, as this is a specific and localised issue, it was decided that additional mitigation policy wording should be included in the LP to cover HRA at the project stage. (See Stage 2 Appropriate Assessment, paragraph 3.113).	Yes

International Site	Land Allocation (numbers of dwellings in bold, w = windfall)	Comment/Suggested Mitigation	LSE
Morton Pool and Pasture Ramsar	Cluster site, Bryn Melyn in surface water catchment. No site allocations or windfall numbers.	DP19 requires development to assess the potential impacts of non-mains drainage on water quality to ensure no detrimental impact on the water environment in accordance with Policies DP12 and DP18 . However, as this is a specific and localised issue, it was decided that additional mitigation policy wording should be included in the LP to cover HRA at the project stage. (See Stage 2 Appropriate Assessment, paragraph 3.123).	Yes
Montgomery Canal SAC	Llanymynech LYH007 50 , saved (LLAN009 35 built), LLAN001 32 Pant w. 12	Immediately adjacent to the Montgomery Canal and only 376m from the SAC. DP19 requires development to assess the potential impacts of non-mains drainage on water quality to ensure no detrimental impact on the water environment in accordance with Policies DP12 and DP18 . However, as this is a specific and localised issue, it was decided that additional mitigation policy wording should be included in the LP to cover HRA at the project stage. (See Stage 2 Appropriate Assessment, paragraph 3.45).	Yes
River Clun SAC	Bishops Castle w. 40 , saved BISH013 40 , Land at Bishops Castle Business Park, Bucknell w. 8 , BKL008a 20 , saved BUCK001 70 , Clun w. 8 , CLU005 20 , saved CLUN002 7 , saved LYD007 8 , LYD008 5 , LYD009 2 and LYD011 4 , Abcot Cluster, Aston-on-Clun Cluster. Total dwellings 232	River Clun SAC lies at the lowest length of the River Clun catchment. Any development in the catchment is likely to increase nutrient levels in the river and have an adverse impact without mitigation. Considered further in the Appropriate Assessment, paragraph 3.23.	Yes
River Dee & Bala Lake SAC	Weston Rhyn, WRP001VAR 60 , WRP017 40 . WRN010 25 saved, WRN016 20	Sites draining to the public sewer have been assessed by the Water Cycle Study and policies DP19 to 22 apply. DP 19 requires development to assess	Yes

International Site	Land Allocation (numbers of dwellings in bold, w = windfall)	Comment/Suggested Mitigation	LSE
	saved, St Martins w. 36 , SMH31 60 , SMH038 35 , STM029 80 saved, Selattyn Cluster, Rhoswiol Cluster. Total dwellings: 356	the potential impacts of non-mains drainage on water quality to ensure no detrimental impact on the water environment in accordance with Policies DP12 and DP18 . However, some clusters and individual sites lie in the surface water catchment within 1.8km of the riverbank. It was decided that additional mitigation policy wording should be included in the LP to cover HRA at the project stage. (See Stage 2 Appropriate Assessment, paragraph 3.37).	

2.52. One of the international sites, Downton Gorge SAC, has been screened out as there is no likely significant effect as a result of the DLP on this site alone or in combination with other plans or projects.

2.53. Nine international sites have not been screened out for water impact pathways and are considered in more detail in the Stage 2 – Appropriate Assessment in section 3. The nine sites are:

Midland Meres & Mosses Ramsar Phase 1

Fenemere,

Marton Pool (Chirbury),

Midland Meres & Mosses Ramsar Phase 1

Morton Pool and Pasture,

Montgomery Canal SAC,

River Clun SAC,

River Dee and Bala Lake SAC,

Severn Estuary Ramsar Site (c. 77km downstream of Shropshire),

Severn Estuary SAC (c. 77km downstream of Shropshire),

Severn Estuary SPA (c. 77km downstream of Shropshire).

Recreation and other disturbance pathways

2.54. Shropshire covers c. 320,000 hectares, 98% of which is classified as rural and supports a population of around 323,000 people in around 138,000 households. About 23% of Shropshire forms part of the Shropshire Hills Area of Outstanding Natural Beauty (AONB). Tourism forms a significant proportion of the county's economy with its countryside forming a major draw for visitors. Over the plan period from 2016 to 2038, around 30,800 new dwellings have been proposed, some of which have already been

built. As a result of the planned growth, the demand for accessible green spaces will increase, but this needs to be assessed against the relatively rural backdrop of the county.

- 2.55. Increased recreation pressure on international sites can cause damage to designated features, disturbance of wildlife by people and their pets, eutrophication of land and water, prevention of, or alteration to, site management and introduction of invasive species or diseases. Natural England have advised that any international sites that do not have public access can generally be screened out for recreational effects. Additional checks have been made for sites without public access but with footpaths crossing the site. It is assumed that where private fishing or sailing clubs are operating on sites, that additional housing will not significantly increase these activities. All international sites are also Sites of Special Scientific Interest and as such are protected under the Wildlife and Countryside Act 1981 (as amended) and potentially damaging operations are controlled by Natural England.
- 2.56. During the process of site allocation selection, no sites on or adjacent to international sites were chosen. No elements of the DLP have been identified which could disturb qualifying species through noise or movement of construction vehicles.
- 2.57. The following international sites have been screened out for recreation pathways on the basis that there is no public access, even by public footpath or, in the case of the Severn Estuary SAC/SPA/Ramsar sites, they are so far away there will be no impact from Shropshire growth:

Midland Meres & Mosses Ramsar Phase 1

Clarepool Moss

Fenemere

Marton Pool (Chirbury)

Quoisley Mere

White Mere

Midland Meres & Mosses Ramsar Phase 2

Brownheath Moss

Chapel Mere

Hencott Pool

Llyn Bedydd

Morton Pool and Pasture

Vicarage Moss

Severn Estuary Ramsar Site (c. 77km downstream of Shropshire)

Severn Estuary SAC (c. 77km downstream of Shropshire)

Severn Estuary SPA (c. 77km downstream of Shropshire)

Tanat & Vrynwy Bat Sites SAC

West Midlands Mosses SAC

Clarepool Moss

- 2.58. The remaining sites are mostly privately owned, but have some form of public access, often limited to a public footpath either crossing or following the edge of the site:

Berwyn SPA
Berwyn and South Clwyd Mountain SAC
Brown Moss SAC
Cannock Chase SAC
Downton Gorge SAC
Elenydd SAC
Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC
Granllyn SAC
Johnstown newt sites SAC
Midland Meres & Mosses Ramsar Phase 1
 Berrington Pool
 Betley Mere
 Bomere and Shomere Pools
 Brown Moss
 Wybunbury Moss
Midland Meres & Mosses Ramsar Phase 2
 Aqualate Mere
 Black Firs and Cranberry Bog
 Cole Mere
 Cop Mere
 Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses
 Hanmer Mere
 Oakhanger Moss
 Oss Mere
 Sweat Mere and Crose Mere
Montgomery Canal SAC
Rhos Goch SAC
River Clun SAC
River Dee and Bala Lake SAC
River Wye SAC
The Stiperstones & the Hollies SAC
West Midlands Mosses SAC
 Wybunbury Moss

- 2.59. For many international sites there is little or no readily available information on informal or formal public access to sites. In these cases, Natural England's Accessible Natural Greenspace Guidance (2010) has been used in estimating how far people are likely to travel to natural green spaces. The research which fed into development of this guidance found that larger sites attracted visits from further away and also that a walking distance of approximately 5 minutes from home was defined as a threshold above which daily park visits decreased significantly. The so-called ANGSt, Natural England's Accessible Natural Greenspace

Standard, recommends that everyone should have an accessible natural greenspace:

- of at least 2 hectares in size, no more than 300 metres (5 minutes walk) from home;
- at least one accessible 20-hectare site within two kilometres of home;
- one accessible 100-hectare site within five kilometres of home; and
- one accessible 500-hectare site within ten kilometres of home;

2.60. The background research from which this standard was developed suggested that for sites of the following sizes, people were prepared to travel the following distances to accessible natural greenspace:

- At least 2ha in size, no more than 300m (5-minute walk)
- At least 20 ha in size, no more than 2km
- At least 100ha in size, no more than 5km
- At least 500ha in size, no more than 10km

2.61. The distance from an international site within which 75% of visitors travel can be described as the 'Zone of Influence' for the site. Where this is not known, the above distances have been used to screen international sites and the nearest housing allocations. Privately owned international sites where recreational impacts have not been raised as an issue for the designated features, and footpaths have a low level of use have also been screened out. For the largest sites, a screening distance of 10km has been used, or 15km if mountain bikes are an issue, as this is the distance considered to be the zone of influence of Cannock Chase, based on mountain bike use and evidenced by visitor surveys. The following international sites have been screened out for recreation effects due to their area and distance from Shropshire LP housing allocations:

Cannock Chase SAC

Downton Gorge SAC

Elenydd SAC

Granllyn SAC

Johnstown newt sites SAC

Midland Meres & Mosses Ramsar Phase 1

Betley Mere

Wybunbury Moss

Midland Meres & Mosses Ramsar Phase 2

Aqualate Mere

Black Firs and Cranberry Bog

Cop Mere

Hanmer Mere

Oakhanger Moss

Oss Mere

Sweat Mere and Crose Mere

Rhos Goch SAC

River Clun SAC

River Dee and Bala Lake SAC

River Wye SAC
West Midlands Mosses SAC
 Wybunbury Moss

The following have not been screened out on the above criteria:

Table 4: Recreation impact pathways to international sites

International Site	Residential Land Allocation (numbers of dwellings in bold, w = windfall)	Comment/Suggested Mitigation	LSE?
Berwyn SPA site	2 allocations at 9-10km Western Rhyn – WRP001VAR 60 , WRP017 40 , WRP010 25 saved, WRN016 20 saved. TOTAL 145 dwellings Allocations between 10 and 15km: St Martins w. 36 , SMH031 60 , SMH038 35 , STM029 80 saved, Gobowen w. 16 , GWR009 25 , GOB008 20 , saved, GOB012 90 saved, Whittington w. 15 , PKH002, 011, 013, 029, 031 and 032 240 , PARK001 20 saved, Oswestry w. 105 , OSW004 117 saved, OSW024 900 saved, OSW034, 035, 045 80 saved, OSW042 180 saved, Trefonen w. 50 . TOTAL 2069 dwellings	No Shropshire site allocations are proposed closer than 9km. Only 145 dwellings are proposed by the plan within 10km. The initial 15km screening buffer is based on visitor surveys for Cannock Chase, but the surrounding area of the Chase includes Stafford, Lichfield, Cannock and part of Wolverhampton and north Birmingham. Shropshire allocations are much more rural, adding 2049 dwellings between 10 and 15km away from the Berwyn SPA. Conservation objectives focus on illegal 4x4 and motorbike damage rather than walkers. Mitigation policy wording should be included in the DLP to cover HRA at the project stage. (See Stage 2 Appropriate Assessment, paragraph 3.80).	Yes
Berwyn and South Clwyd Mountain SAC	2 allocations at 9-10km Western Rhyn – WRP001VAR 60 , WRP017 40 , WRP010 25 saved, WRN016 20 saved. TOTAL 145 dwellings Allocations between 10 and 15km: St Martins w. 36 , SMH031 60 , SMH038 35 , STM029 80 saved, Gobowen w. 16 , GWR009 25 , GOB008 20 , saved, GOB012 90	No Shropshire site allocations closer than 9km. Only 145 dwellings are proposed by the plan within 10km. The initial 15km screening buffer is based on visitor surveys for Cannock Chase, but the surrounding area of the Chase includes Stafford, Lichfield, Cannock and part of Wolverhampton and north Birmingham. Shropshire allocations are much more rural, adding 2049 dwellings between 10 and 15km	Yes

International Site	Residential Land Allocation (numbers of dwellings in bold, w = windfall)	Comment/Suggested Mitigation	LSE?
	<p>saved, Whittington w. 15, WHN024 70, WGN001, 004, 005 and 021 80 saved. PKH002, 011, 013, 029, 031 and 032 240, PARK001 20 saved, Oswestry w. 105, OSW004 117 saved, OSW024 900 saved, OSW034, 035, 045 80 saved, OSW042 180 saved, Trefonen w. 50. TOTAL 2219 dwellings</p>	<p>away from the Berwyn and South Clwyd Mountain SAC. Conservation objectives focus on illegal 4x4 and motorbike damage rather than walkers. Wrexham and Powys screened the Berwyn and South Clwyd Mountain SAC in to the HRAs of their Local Plans but screened out adverse effects alone and in combination with other plans and projects. (See Appendix 6) Mitigation policy wording should be included in the DLP to cover HRA at the project stage. (See Stage 2 Appropriate Assessment, paragraph 3.88</p>	
Brown Moss SAC and Ramsar	<p>Whitchurch w. 82, WHT037 AND 044 200, WHT014 70, WHT042 180, WHIT009 500 saved, WHIT021 60 saved, WHIT051 60 saved, Tilstock Cluster, TIL001 saved 25, TIL002 13 saved, ASH002 8 saved, PH004 5 saved. TOTAL 1203 dwellings</p>	<p>Following commissioned visitor surveys, the zone of influence is 3.4km (entirely within the Shropshire border). Mitigation policy wording should be included in the DLP to cover HRA at the project stage. (See Stage 2 Appropriate Assessment, paragraph 3.130).</p>	Yes
Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC and Ramsar	<p>Whitchurch w. 82, WHT037 AND 044 200, WHT014 70, WHT042 180, WHIT009 500 saved, WHIT021 60 saved, WHIT051 60 saved, Tilstock Cluster, TIL001 saved 25, TIL002 13 saved, ASH002 8 saved, PH004 5 saved, Prees w. 29, PRE002/0011/012 30 saved, PRE008 40 saved Res, PPW025 35, Wem w. 89, WEM010 120, WEM025 30, WEM033 60, WEM003 100 saved, WEM012 10 saved, Ellesmere w 170 ELL005, 008, 033 170, ELL003a 250 saved, ELL003b saved</p>	<p>A 10km screening distance was used due to the site's area. It lies in a very rural location, the nearest Shropshire allocation being 3.8km away. However, following consultation with NE for the current SAMDev Plan mitigation wording was included in the relevant settlement policies. The nearest site allocation in Cheshire West and Chester LP area is over 12km away and The Wrexham Unitary Development Plan area includes part of the 10km 'zone of influence' but due to low numbers of allocations and rural area the HRA rules out a LSE alone or in combination.</p>	Yes

International Site	Residential Land Allocation (numbers of dwellings in bold, w = windfall)	Comment/Suggested Mitigation	LSE?
	leisure and tourism, Dudleston Heath w 19 , DUDH006 20 saved. TOTAL 2380 dwellings	Mitigation policy wording should be included in the DLP to cover HRA at the project stage. (See Stage 2 Appropriate Assessment, paragraph 3.71).	
Montgomery Canal SAC	Pant w. 12 , PYC021 25 , Llanymynych, LYH007 50 , LLAN001 32 Saved. TOTAL 135 dwellings	PYC021 is just over 2km away from the beginning of the SAC. Pant benefits from a network of footpaths over Llynclys and Llanymynych Hills, closer than the path along the Montgomery Canal. It is very unlikely 45 houses at this location would have a significant effect alone. LYH007 is c.360m from the SAC. LLAN001 is c.60m from the canal at its nearest point but currently with no access. There is a c. 400m walk to the SAC along roads. (See Stage 2 Appropriate Assessment, paragraph 3.45)	Yes
The Stiperstones & the Hollies SAC	<p>Within 10km: Minsterley w.5, MIN018 20, MIN002/015 17 saved, MIN007 32 saved, PBY018/PBY029 60 saved, PBY019 16 saved, Pontesbury w.2, PON008, 017 and 030 40, Worthen and Brockton w.4, WBR007 and 008 25, WBR010 20, Chirbury w.1, CHR001 7, CHR002 7, CHIR001 30 saved, Bishop's Castle w.40, BISH013 40 saved, TOTAL within 10km: 366</p> <p>Clun w.8, CLU005 20, CLUN002 60 saved, Church Stretton w.121, CSTR019 50 saved, Craven Arms w.47 (half), Bayston Hill w.14, BAY039 100, BAY050 60, Shrewsbury w.252 (half), SHR158, 060, 161 1500,</p>	<p>171 dwellings in Church Stretton are separated by the Long Mynd from Stiperstones SAC.</p> <p>The buffer of 10 – 15km was derived from mountain bike use on Cannock Chase with major settlements within the buffer zone – in the DLP area only half of Shrewsbury lies in the buffer zone of the Stiperstones. Stiperstones is part of a much wider area of Shropshire Hills, much of which are accessible, including the Long Mynd. The evidence suggests increased housing proposed in the DLP is not a significant issue at present, but specific policy wording is required for the life of the plan. (See Stage 2 Appropriate Assessment, paragraph 3.60)</p>	Yes

International Site	Residential Land Allocation (numbers of dwellings in bold, w = windfall)	Comment/Suggested Mitigation	LSE?
	SHR057,177 400 , SHR145 150 , SHREW210/09. 030/R, 094 and 019 550 saved, SHREW212/09 175 saved, Bicton w. 12 , BIT022 15 TOTAL additional within 15km 3534		
Berrington Pool Ramsar	Cross Houses w. 9	Privately owned land with a fishing club. Low numbers of houses (9 windfalls only) are proposed on the edge of the village. On foot it is 1.4km from the village to the Ramsar Site via 2 separate footpaths and roads through the village of Berrington. Screen out.	No
Bomere and Shomere Pools Ramsar	Bayston Hill w 14 , BAY039 100 . BAY050 47 , CON006 5-10 saved, CON005 5-10 saved, SHREW002, 035, 083, and 128/ELR64, 67 and 68 750 saved TOTAL 931 max	Privately owned land with no public access other than a but a footpath which runs north-west to south-east across the site. A 2km ANGst distance has been applied as access is linear, not an area. 2.2km of FP extend from BAY050 and 2.6km from BAY039, including crossing the A49. Screen out. Saved Condover allocations are for a total of 10-20 houses and are 2.2 and 2.4 km from the international site, accessible by only narrow roads with no verge and then public footpath. Screen out. Saved Southern Urban Extension is already partly built and 2.5km from the international site. There are extensive footpath links to centre of Shrewsbury heading north from the allocation along the Rea Brook Local Nature Reserve and circular walk around Bayston Hill Quarry. Screen out.	No
Cole Mere Ramsar	Ellesmere w 170 , ELL005, 008, 033 170 , ELL003a 250 saved, ELL003b saved leisure and tourism,	Following commissioned visitor surveys, the zone of influence is 11.7km. Mitigation policy wording should be included in the LP to cover	Yes

International Site	Residential Land Allocation (numbers of dwellings in bold, w = windfall)	Comment/Suggested Mitigation	LSE?
	Duddleston Heath w 19 , DUDH006 20 saved. Wem w. 89 , WEM010 120 , WEM025 30 , WEM033 60 , WEM003 100 saved, WEM012 10 saved, Tilstock Cluster, TIL001 saved 25 , TIL002 13 saved, Prees w. 29 , PRE002/0011/012 30 saved, PRE008 40 saved Res, PPW025 35 , St Martins w. 36 , SMH031 60 , SMH038 35 , STM029 80 saved, Whittington w. 15 , WHN024 70 , WGN001, 004, 005 and 021 80 saved. West Felton w. 6 , WEF025 60 . Ruyton XI Towns w. 34 , RUY019 65 , Baschurch w. 40 , BNP024 35 , BNP035 20 , BAS035 40 saved, BAS017 30 saved. TOTAL 1916	HRA at the project stage. (See Stage 2 Appropriate Assessment, paragraph 3.146).	

- 2.62. Having looked at the remaining international sites, Berrington Pool Ramsar and Bomere and Shomere Pools Ramsar sites have been screened out as there will be no likely significant effect, alone or in combination as a result of recreation generated by the DLP.
- 2.63. Berwyn SPA sites, Berwyn and South Clwyd Mountain SAC, Brown Moss SAC and Ramsar, Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC and Ramsar, Montgomery Canal SAC, The Stiperstones & the Hollies SAC and Cole Mere Ramsar have not been screened out and are considered further in combination with other plans and projects, in the Appropriate Assessment, section 3.

Introduction of invasive species or disease

- 2.64. Invasive species can smother, out compete and prey on native species, causing changes to habitats, plant and animal communities and in some

case extinction of species. Spread of invasive species through development can occur during construction, for example carrying fragments of plant roots or seeds on the wheels of construction vehicles. During occupation of the completed development, increased public access to international sites increases the risk of introductions such as non-native invasive aquatic plants from aquaria or diseases of amphibians being carried on footwear or fishing tackle.

- 2.65. No sites have been allocated within international sites or immediately adjacent and hence spreading of invasive species or disease during construction is unlikely. It is assumed that preventing introduction or control of invasive species and disease, as a result of public access to international sites, would form part of visitor management measures and these will be discussed further in the Appropriate Assessment for international sites where a likely significant effect from the DLP has been identified (Table 4 above).

Light pollution

- 2.66. No site allocations are close enough to international sites to cause direct effects. Three sites PYC021, LYH007 and the saved LLAN001 are within 10km of the Tanat and Vyrnwy Valley Bat Sites, but are between 8 and 9km away and are relatively small in size (1.89, 1.85 and 2.1 hectares respectively). These sites lie adjacent to corridors of vegetation including the Montgomery Canal and woodland, in an area known to be frequented by Lesser Horseshoe Bats, although, they are not associated with known bat roosts or commuting routes. A likely significant effect cannot be ruled out. Bat surveys are routinely required at planning application stage as part of the Ecological Impact Assessment. However, due to residual uncertainty, policy wording is required to ensure an HRA is undertaken at the planning application stage and this is detailed further in the Stage 2 Appropriate Assessment (paragraph 3.169).

Screening of the elements of the Pre-Submission Draft Shropshire Local Plan 2016 – 2038 (DLP)

- 2.67. Each element of the DLP has been coded (Table 5 below and Appendix 5) according to the type of policy and its potential to have likely significant effects on international sites. Those with no likely significant effects, alone or in combination are screened out of further assessment.

Table 5 Screening categories for elements of the DLP taken from Tyldesley, D., and Chapman, C. (2013) The Habitats Regulations Assessment Handbook (July 2020) (Ref 5, section 5)

A	General statement of policy / general aspiration	Screened out
B	Policy listing general criteria for testing the acceptability / sustainability of proposals	Screened out

C	Proposal referred to but not proposed by the plan.	Screened out
D	General plan-wide environmental protection / site safeguarding / threshold policies	Screened out
E	Policies or proposals which steer change in such a way as to protect European sites from adverse effects.	Screened out
F	Policy that cannot lead to development or other change	Screened out
G	Policy or proposal that could not have any conceivable effect on a site	Screened out
H	Policy or proposal the (actual or theoretical) effects of which cannot undermine the conservation objectives (either alone or in combination with other aspects of this or other plans or projects	Screened out
I	Policy or proposal which may have a likely significant effect on a site alone	Screened in
J	Policy or proposal with an effect on a site but unlikely to be significant alone, so need to check for likely significant effects in combination.	Screened in
K	Policy or proposal unlikely to have a significant effect either alone or in combination	Screened out after the in combination test
L	Policy or proposal which might be likely to have a significant effect in combination	Screened in after the in combination test
M	Bespoke area, site or case specific policies or proposals intended to avoid or reduce harmful effects on an international site	Screened in

- 2.68. For those elements given an A to H code it can be confidently concluded that there is no effect on any international sites and that no further consideration of these elements is required. It can also be concluded that these elements will not have any in-combination effect with any other element of the Draft Local Plan or any other plan or project and can be screened out.
- 2.69. Policies or site allocations given an I code have the potential to have a significant effect on international sites alone, depending on the locations and methods used in implementing them. These are screened in and will be considered further, together with mitigation measures, in the Appropriate Assessment (Stage 2, page 95).
- 2.70. Policies or site allocations coded J may have a minor but insignificant effect on an international site alone, but need to be checked for likely significant effect in combination.

- 2.71. Policies or site allocations coded K are those previously coded J but which, following in-combination screening (without mitigation measures), are found to be unlikely to have a significant effect alone or in combination and are screened out of further consideration.
- 2.72. Policies or site allocations coded L were previously coded J but, following screening in combination (without mitigation measures), are likely to have a significant effect on international sites in combination, or uncertainty remains. These policies and site allocations are screened in and will be considered further, with mitigation measures, in the Appropriate Assessment (Stage 2, section 3).
- 2.73. Policies, parts of policies or other elements of the plan which have been included as specific mitigation measures to avoid or reduce impacts on named international sites have been coded M and will be considered in the Appropriate Assessment only.
- 2.74. Following the ruling in *People Over Wind*, Stage 1 Screening only takes account of those elements which are essential to, or characteristic of, a Local Plan, and which are not specifically aimed at mitigating specified impacts on named international sites. In the absence of the need to protect international sites, these elements would still be included in the Local Plan, which could lawfully and practically be implemented.
- 2.75. Appendix 5 provides details of the screening of elements of the Regulation 19: Pre-Submission Draft Local Plan. The table below provides definitions for the colour coding.

Table 6: Colour coding for screening of the DLP as detailed in Appendix 5.

Element of DLP	Colour code	Definition
Introduction and Strategic Policies		
		Screened out as No Likely Significant Effect alone or in combination.
		Screened in as is a general driver of change, or refers to another policy requiring general mitigation measures, or the policy provides a general location for development, but it is more appropriately considered in other more detailed policies of the DLP
		Screened into Stage 2 Appropriate Assessment as policy will cause likely significant effects alone or in combination or contains specific mitigation/avoidance wording to protect international sites.
Development Policies, Settlement Policies and allocated and saved sites		
		Screened out as No Likely Significant Effect alone or in combination.
		Screened into Stage 2 Appropriate Assessment as uncertainty remains.
		Screened into Stage 2 Appropriate Assessment as there is a likely significant effect, alone or in combination, or the policy contains specific avoidance or mitigation measures.

		Following Appropriate Assessment, no adverse effect on site integrity, alone or in combination.
		Following Appropriate Assessment, uncertainty over effects on site integrity remains and further consideration, including avoidance and mitigation measures, are required before the Submission DLP is published.

Results of the screening of the Vision, Strategic Policies (SPs) and Development Policies (DPs)

- 2.76. The Introduction, Vision and Strategic Policies numbers **SP1, SP3, SP4, SP5, SP6, SP15** and **SP17** have been screened out as having no effect on international sites.
- 2.77. Strategic Policies **SP2 Strategic Approach, SP7 Managing Housing Development, SP8. Managing Development in Community Hubs, SP9. Managing Development in Community Clusters, SP10. Managing Development in the countryside, SP11. Greenbelt and Safeguarded Land, SP12. Shropshire Economic Growth Strategy, SP13. Delivering Sustainable Economic Growth and Enterprise** and **SP16. Strategic Planning for Minerals** are all drivers for change and the general location of growth, but this is covered in more detailed Development and Settlement Policies. Consideration of the likely effects of this growth is discussed under these detailed policies.
- 2.78. Development Policies **DP1, DP2, DP3, DP4, DP5, DP6, DP7, DP8, DP9, DP11, DP14, DP16, DP17, DP18, DP19, DP20, DP21, DP22, DP23, DP24, DP25, DP27, DP29, , DP32** and **DP33** have all screened out as having no effects on international sites.
- 2.79. Policies **SP10. Managing Development in the Countryside, DP26. Strategic, Renewable and Low Carbon Infrastructure** and **DP31. Managing Development and Operation of Mineral Sites** are general statements and do not provide locations of growth, but concern types of growth which could be more likely to affect international sites. Reference is made within these policies to DP12. The Natural Environment and its requirement for a project level HRA should the LPA identify a Likely Significant Effect.
- 2.80. **SP14. Strategic Corridors, DP10. Tourism, Culture and Leisure** and **DP30. Sites for Sand and Gravel Working** are all drivers for change and either give the general location of growth, which is partially covered in more detailed Development and Settlement Policies, or suggest growth which could impact on international sites. These policies could have a likely significant effect on international sites alone. Consideration of the

likely effects of this growth is discussed in the Appropriate Assessment (Stage 2, paragraph 3.175).

- 2.81. **DP12. The Natural Environment** is a general environmental protection policy (category D) but paragraph 1 requires a project level HRA for all proposals where the LPA identifies a likely significant effect on an internationally designated site and mitigation measures to remove the adverse effect. As this is a key policy when considering mitigation measures it is discussed further in the Appropriate Assessment (Stage 2, section 3).
- 2.82. **Development Policy DP13. Development in the River Clun Catchment** is a specific mitigation policy designed to protect the River Clun SAC. **DP15. Open Space Provision** would be put in category B except for paragraph 3 which provides mitigation specifically for recreational impacts on international sites. Both policies have been screened into the Appropriate Assessment and are discussed under the appropriate international sites.

Results of the screening of Settlement, Strategic Settlement and Strategic Site Policies

- 2.83. The following Settlement Policies, Strategic Settlement Policies and allocated and saved sites have been screened out as having no effect or no likely significant effect on international sites, alone or in combination with other plans or projects:

- S1. Albrighton Place Plan Area
S1.2, S1.3, S1.4,
- S2. Bishop's Castle Place Plan Area
S2.4
- S3. Bridgnorth Place Plan Area
S3.2, Alveley, and allocations
S3.3, S3.4
- S4. Broseley Place Plan Area
S4.1, S4.2, S4.3, S4.4 windfall and saved site.
- S5. Church Stretton Place Plan Area
S5.2, S5.3, S5.4
- S6. Cleobury Mortimer Place Plan Area
S6.1, S6.2, S6.3, S6.4, windfall and saved sites
- S7. Craven Arms Place Plan Area
S7.1, S7.2, S7.3 excepting cluster 'Aston on Clun, Hopesay, Broome, Horderley, Beambridge Long Meadow End, Rowton and Round Oak',
S7.4 windfall and saved sites
- S8. Ellesmere Place Plan Area
S8.1 Ellesmere Place Plan Area saved sites ELR075 and ELR074

- S9. Highley Place Plan Area
 - S9.1, S9.2, S9.3, S9.4** windfall and allocated site.
 - S10. Ludlow Place Plan Area
 - S10.2, Burford, S10.3, S10.4** allocated and saved sites
 - S11. Market Drayton Place Plan Area
 - S11.2 except Hinstock, S11.3, S11.4**, allocated and saved sites
 - S12. Minsterley and Pontesbury Place Plan Area
 - S12.2, S12.3**
 - S13. Much Wenlock Place Plan Area
 - S13.1, S13.2, S13.3, S13.4**, windfall, allocated and saved sites
 - S14. Oswestry Place Plan Area
 - S14.1** saved sites and PKH002, 011, 013, 029, 031 and 032 only
 - S14.2** Hubs: Kinnerley, Knockin, and their allocated and saved sites only
 - S14.4** saved sites
 - S15. Shifnal Place Plan Area
 - S15.2, S15.3, S15.4**
 - S16. Shrewsbury Place Plan Area
 - S16.1** saved sites
 - S16.2** Hubs: Bicton, Cross Houses, Dorrington, Nesscliffe and their allocated and all saved sites
 - S16.3.** Clusters: 'Albrighton', 'Grafton and Newbanks', 'Montford Bridge West'
 - S16.4.** including saved sites
 - S17. Wem Place Plan Area
 - S17.1** saved site ELR031 only
 - S17.2,** Hadnall and Shawbury, allocated and saved sites
 - S17.3.** Grinshill only.
 - S17.4**
 - S18. Whitchurch Place Plan Area
 - S18.1** saved sites ELR033, ELR035 only.
 - S18.4**
- 2.84. The following policies and sites have screened into the Stage 2 Appropriate Assessment (paragraph 3.2) solely due to uncertainty over in combination impacts on the Severn Estuary SAC, SPA and Ramsar Sites through wastewater treatment and infrastructure:
- S1. Albrighton Place Plan Area
 - S1.1,** ALB017, ALB021
 - S3. Bridgnorth Place Plan Area
 - S3.1,** BRD030, P58a, STC002,
 - S3.2,** Ditton Priors, DNP009
 - S5. Church Stretton Place Plan Area
 - S5.1,** windfall
 - S10. Ludlow Place Plan Area

- S10.1**, allocated sites
 - S10.2**, Clee Hill, CHK002
 - S11. Market Drayton Place Plan Area
 - S11.1**, allocated sites
 - S11.2**, Hinstock only
 - S14. Oswestry Place Plan Area
 - S14.1** windfall only
 - S14.2** Hubs: Gobowen, GWR009 and Trefonen,
 - S15. Shifnal Place Plan Area
 - S15.1**, windfall and allocated sites
 - S16. Shrewsbury Place Plan Area
 - S16.1** windfall and allocated sites
 - S16.2** Hubs: Bayston Hill, Bomere Heath, Ford, and their allocations.
 - S17. Wem Place Plan Area
 - S17.2**, Clive, and its allocated sites only
 - S19** Clive Barracks
 - S20** Former Ironbridge Power Station
 - S21** RAF Cosford
- 2.85. The remaining policies and sites could have a likely significant effect on one or more international site and have been screened into the Stage 2 Appropriate Assessment. They are discussed under the affected international site heading.

Summary of Stage 1 Screening

International sites

- 2.86. The detailed screening results are provided in Appendix 4 for international sites. Of the 24 international sites which have been identified for consideration in this HRA Screening Report the following have been screened out, as they will not be affected, or there will be no significant effects alone or in combination, as a result of the DLP, without recourse to mitigation measures:

- Cannock Chase SAC
- Downton Gorge SAC
- Elenydd SAC
- Fens Pools SAC
- Granllyn SAC
- Johnstown newt sites SAC

Midland Meres & Mosses Ramsar Phase 1

- Berrington Pool**
- Betley Mere
- Bomere and Shomere Pools**
- Clarepool Moss**

Quoisley Mere
Wybunbury Moss
Midland Meres & Mosses Ramsar Phase 2
Aqualate Mere
Black Firs and Cranberry Bog
Brownheath Moss
Chapel Mere
Cop Mere
Hanmer Mere
Llyn Bedydd
Oakhanger Moss
Oss Mere
Sweat Mere and Crose Mere
Vicarage Moss
Mottey Meadows SAC
Rhos Goch SAC
River Wye SAC
West Midlands Mosses SAC
Clarepool Moss
Wybunbury Moss

Likely significant effects as a result of the DLP have been identified for the following sites and they have been carried forward for further assessment to the Appropriate Assessment Stage.

Berwyn SPA
Berwyn and South Clwyd Mountain SAC
Brown Moss SAC
Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC
Midland Meres & Mosses Ramsar Phase 1
Brown Moss
Fenemere
Marton Pool (Chirbury)
Midland Meres & Mosses Ramsar Phase 2
Cole Mere
Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses
Hencott Pool
Morton Pool and Pasture
White Mere
Montgomery Canal SAC
River Clun SAC
River Dee & Bala Lake SAC
Severn Estuary SPA
Severn Estuary SAC
Severn Estuary Ramsar Site
Tanat & Vrynwy Bat Sites SAC
The Stiperstones & the Hollies SAC

Local Plan Vision, Strategic Policies (SPs), Development Management Policies (DPs), Settlement and Strategic Site Policies (Ss)

- 2.87. Except for **SP14. Strategic Corridors**, all other Strategic Policies have either been screened out or it is more appropriate to consider their impacts in the relevant Development or Settlement policies where more specific information is available.
- 2.88. Twenty-five Development Policies have been screened out in Stage 1. Six Development Policies have been carried forward to the Appropriate Assessment: **DP10. Tourism, Culture and Leisure, DP12. The Natural Environment, DP13. Development in the River Clun Catchment, DP15. Open Space Provision, DP28. Communications and Transport and DP30. Sites for Sand and Gravel Working** as they are judged to have a likely significant effect on international sites alone or in combination, or contain mitigation measures.
- 2.89. Settlement and Strategic Policies screened out in Stage 1 are listed above in section 2.83. The following settlements and specific settlement policies, are carried over into the Appropriate Assessment as they could not be screened out as having no likely significant adverse effect on international sites alone or in combination:

S2 Bishop's Castle Place Plan Area

S2.1, S2.2, S2.3, including allocated and saved sites.

S7 Craven Arms Place Plan Area

S7.3 Aston on Clun, Hopesay, Broome, Horderley, Beambridge, Long Meadow End, Rowton and Round Oak only

S8. Ellesmere Place Plan Area

S8.1, S8.2, S8.3, S8.4, including all windfall, allocated and saved sites except ELR075 and ELR074.

S12. Minsterley and Pontesbury Place Plan Area

S12.1, including allocated and saved sites.

S14. Oswestry Place Plan Area

S14.2, Hubs Llanymynech, Pant, Ruyton XI Towns, St Martins, West Felton, Weston Rhyn and associated allocated and saved sites.

S14.3, Clusters 'Llanyblodwel, Porthywaen, Dolgoch, Llynclys and Bryn Melyn', 'Park Hall, Hindford, Babbinswood and Lower Frankton', 'Rhoswel, Wern and Chirk Bank', 'Selattyn, Upper/Middle/Lower Hengoed and Pant Glas' and associated allocated and saved sites.

S16. Shrewsbury Place Plan Area

S16.1 North West Relief Road and possibly windfall sites depending on location.

S16.2 Hubs: Baschurch, except saved allocation BAS017, Hanwood, Longden and associated allocated and saved sites.

S17. Wem Place Plan Area

S17.1 Wem, including all allocated and saved sites except ELR031.

S17.3 Clusters: Harmer Hill, 'Edstaston, Quina Brook, Northwood, Newton, Tilley and Aston'

S18. Whitchurch Place Plan Area

S18.1. including windfall and all allocated and saved sites except ELR033 and ELR035

S18.2. Hubs: Prees including windfall and all allocated and saved sites

S18.3. Cluster: 'Tilstock, Ash Magna/Ash Parva, Prees Heath, Ightfield and Calverhall.' and all allocated and saved sites.

- 2.90. Impact pathways relating to specific water quality and quantity, recreation, invasive species, dust and light pollution have been identified as a result of these policies, either alone or in combination and these will be addressed by the Appropriate Assessment (Stage 2, section 3). Some of the above policies contain mitigation measures specifically aimed at avoiding impacts on international sites and can only be considered in the Appropriate Assessment.
- 2.91. Policies in section 2.84 above have also been screened into the Appropriate Assessment due to residual uncertainty until formal comments have been received from water companies and the Environment Agency on the Water Management policy wording.

In-combination effects (within this Local Plan and with other plans and projects)

- 2.92. The Habitats Directive requires Local Authorities to assess 'in-combination' effects alongside direct effects. 'In-combination' effects occur when otherwise non-significant proposals combine and cumulatively lead to a significant effect. This interaction can occur from proposals within the DLP or between the DLP and other plans or projects.
- 2.93. Site allocations and saved allocations have been screened individually and in-combination with each other, together with DLP policies.
- 2.94. Some elements of the DLP may have a minor residual effect on an international site, but an insignificant one alone. Where appropriate, these have been screened against other Shropshire plans and the plans of all surrounding local authorities to check for adverse in-combination effects, both at Stage 1 and Stage 2 of the HRA (see Appendix 6, Plans and projects considered in combination). The impact pathways identified as requiring consideration were:
- Road traffic emissions (in-combination effects investigated through the Traffic Report and screened out in Stage 1, see Table2)

- Water quality and quantity (in-combination effects investigated through the Shropshire Water Cycle Study and awaiting formal comments from water companies, see Table 3)
- Recreational impacts on Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC, Montgomery Canal SAC, Cole Mere Ramsar, Berwyn SPA, Berwyn SAC and the Stiperstones and the Hollies SAC (Table 4 and the Brown Moss and Cole Mere Visitor Survey and management plan reports, EPR, reference no. 9 and 10).
- Light pollution and loss of foraging land for bats from the Tanat and Vyrnwy Bat Sites SAC.

3. Stage 2 Appropriate Assessment

3.1. The Appropriate Assessment is a more detailed consideration of elements of the DLP identified as having likely significant effects on international sites (i.e. those not screened out in the Stage 1 process). The international sites' structure, function, condition, sensitivities and conservation objectives are investigated together with proposed avoidance or mitigation measures. Policies DP12, DP13 and DP15, together with a number of settlement policies, refer to specific mitigation measures to avoid harm to international sites. Policy **DP30. Sites for Sand and Gravel Working** is covered in the discussion for Cole Mere and White Mere Ramsar. Three other policies **SP14. Strategic Corridors**, **DP10. Tourism, Culture and Leisure** and **DP28. Communications and Transport** are also discussed in more detail below.

International sites requiring further consideration

Table 7: International sites and DLP policies screened into the Appropriate Assessment with likely significant impacts

International site	Identified impact	Pre-Submission Draft Local Plan Policies (Housing numbers in bold)	Section number
Severn Estuary SAC/SPA/Ramsar Site	Water quality and quantity.	Majority of proposed development	3.2
River Clun SAC	Water quality and quantity	DP12, DP13, S2.1, S2.2, S2.3, S7.3 , Bishops Castle w. 40 , saved BISH013 40 , Land at Bishops Castle Business Park, Bucknell w. 8 , BKL008a 20 , saved BUCK001 70 , Clun w. 8 , CLU005 20 , saved CLUN002 7 , saved LYD007 8 , LYD008 5 , LYD009 2 and LYD011 4 , Abcot Cluster, Aston- on-Clun Cluster. Total dwellings 232	3.23

International site	Identified impact	Pre-Submission Draft Local Plan Policies (Housing numbers in bold)	Section number
River Dee and Bala Lake SAC	Water quality and quantity	S14.2 and S14.3 . Weston Rhyn, WRP001VAR 60 , WRP017 40 . WRN010 25 saved, WRN016 20 saved, St Martins w. 36 , SMH31 60 , SMH038 35 , STM029 80 saved, Selattyn Cluster, Rhoswiol Cluster. Total dwellings: 356	3.37
Montgomery Canal SAC	Water quality and quantity, Recreation	S14.2 . Llanymynech LYH007 50 saved, (LLAN009 35 built), LLAN001 32 Pant w. 12 . Total 94	3.45
The Stiperstones and Hollies SAC	Recreation	S2.1, S2.2, S2.3 and S12.1 . Minsterley w. 5 , MIN018 20 , MIN002/015 17 saved, MIN007 32 saved, PBY018/PBY029 60 saved, PBY019 16 saved, Pontesbury w. 2 , PON008, 017 and 030 40 , Worthen and Brockton w. 4 , WBR007 and 008 25 , WBR010 20 , Chirbury w. 1 , CHR001 7 , CHR002 7 , CHIR001 30 saved, Bishop's Castle w. 40 , BISH013 40 saved, TOTAL within 10km : 366	3.60
Fenn's, Whixall. Bettisfield, Wem and Cadney Mosses SAC and Meres and Mosses Ramsar Phase 2,	Recreation	S18.1, S18.2, S18.3, S17.1, S17.3, S8.1, S8.2 and S8.3 . Whitchurch w. 82 , WHT037 AND 044 200 , WHT014 70 , WHT042 180 , WHIT009 500 saved, WHIT021 60 saved, WHIT051 60 saved, Tilstock Cluster, TIL001 saved 25 , TIL002 13 saved, ASH002 8 saved, PH004 5 saved, Prees w. 29 , PRE002/0011/012 30 saved, PRE008 40 saved Res, PPW025 35 , Wem w. 89 , WEM010 120 , WEM025 30 , WEM033 60 , WEM003 100 saved, WEM012 10 saved, Ellesmere w 170 ELL005, 008, 033 170 , ELL003a 250 saved, ELL003b saved leisure and tourism, Dudleston Heath w 19 , DUDH006 20 saved. TOTAL 2380 dwellings	3.71
Berwyn SPA	Recreation	S14.1, S14.2, S14.3 and S14.4 . Allocations between 9 and 10km from the site. Western Rhyn –	3.80

International site	Identified impact	Pre-Submission Draft Local Plan Policies (Housing numbers in bold)	Section number
		WRP001VAR 60 , WRP017 40 , WRP010 25 saved, WRN016 20 saved. TOTAL 145 dwellings Allocations between 10 and 15km: St Martins w. 36 , SMH031 60 , SMH038 35 , STM029 80 saved, Gobowen w. 16 , GWR009 25 , GOB008 20 , saved, GOB012 90 saved, Whittington w. 15 , PKH002, 011, 013, 029, 031 and 032 240 , PARK001 20 saved, Oswestry w. 105 , OSW004 117 saved, OSW024 900 saved, OSW034, 035, 045 80 saved, OSW042 180 saved, Trefonen w. 50 . TOTAL 2069 dwellings	
Berwyn and South Clwyd Mountain SAC	Recreation	S14.1, S14.2, S14.3 and S14.4. Allocations at 9-10km Western Rhyn – WRP001VAR 60 , WRP017 40 , WRP010 25 saved, WRN016 20 saved. TOTAL 145 dwellings Allocations between 10 and 15km: St Martins w. 36 , SMH031 60 , SMH038 35 , STM029 80 saved, Gobowen w. 16 , GWR009 25 , GOB008 20 , saved, GOB012 90 saved, Whittington w. 15 , WHN024 70 , WGN001, 004, 005 and 021 80 saved. PKH002, 011, 013, 029, 031 and 032 240 , PARK001 20 saved, Oswestry w. 105 , OSW004 117 saved, OSW024 900 saved, OSW034, 035, 045 80 saved, OSW042 180 saved, Trefonen w. 50 . TOTAL 2219 dwellings	3.88
Hencott Pool, M&M Ramsar Phase 1	Air Pollution, Hydrological impacts.	DP.28 Communications and Transport.	3.96
Fenemere M&M Ramsar Phase 1	Water quality and quantity	S16.2. Baschurch Windfall 40 houses,. Saved SAMDev allocation BAS035 40 half in catchment (New site allocations are outside surface water catchment.)	3.104

International site	Identified impact	Pre-Submission Draft Local Plan Policies (Housing numbers in bold)	Section number
Marion Pool (Chirbury) M&M Ramsar Phase 1	Water quality and quantity	S2.3. Cluster site, northern edge of Marion	3.113
Morton Pool and Pasture, M&M Ramsar Phase 2	Water quality and quantity	S14.3. Cluster site, Bryn Melyn.	3.123
Brown Moss SAC and Meres and Mosses Ramsar Phase 1	Recreation	S18.1. Whitchurch w. 82 , WHT037 AND 044 200 , WHT014 70 , WHT042 180 , WHIT009 500 saved, WHIT021 60 saved, WHIT051 60 saved, Tilstock Cluster, TIL001 saved 25 , TIL002 13 saved, ASH002 8 saved, PH004 5 saved. TOTAL 1203 dwellings	3.130
Cole Mere, M&M Ramsar Phase 2	Recreation	Policy S8.1, S8.2, S8.3, S17.1, S17.3, S18.2, S18.3, S16.2, S14.2 and S14.3. Ellesmere w 170 , ELL005, 008, 033 170 , ELL003a 250 saved, ELL003b saved leisure and tourism, Duddleston Heath w 19 , DUDH006 20 saved. Wem w. 89 , WEM010 120 , WEM025 30 , WEM033 60 , WEM003 100 saved, WEM012 10 saved, Tilstock Cluster, TIL001 saved 25 , TIL002 13 saved, Prees w. 29 , PRE002/0011/012 30 saved, PRE008 40 saved Res, PPW025 35 , St Martins w. 36 , SMH031 60 , SMH038 35 , STM029 80 saved, Whittington w. 15 , WHN024 70 , WGN001, 004, 005 and 021 80 saved. West Felton w. 6 , WEF025 60 . Ruyton XI Towns w. 34 , RUY019 65 , Baschurch w. 40 , BNP024 35 , BNP035 20 , BAS035 40 saved, BAS017 30 saved. TOTAL 1916	3.146
White Mere, M&M Ramsar Phase 1 and Cole Mere, M&M Ramsar Phase 2	Water quality and quantity Airborne dust	DP30, S8.4 paragraph 3 and saved Development guidelines – saved SAMDev minerals allocation at Wood Lane Quarry	3.164

International site	Identified impact	Pre-Submission Draft Local Plan Policies (Housing numbers in bold)	Section number
Tanat and Vyrnwy Bat Sites SAC	Light pollution	S14.2 , Llanyrnymynych and Pant PYC021, LYH007 and the saved LLAN001	3.169
		SP14. Strategic Corridors	3.176
		DP10. Tourism Culture and Leisure	3.179

Severn Estuary SAC/SPA/Ramsar Site

- 3.2. The Severn Estuary is located between Wales and England in south-west Britain. It is a large estuary with extensive intertidal mudflats and sand-flats, rocky platforms and islands. Saltmarsh fringes the coast backed by grazing marsh with freshwater ditches and occasional brackish ditches. The subtidal seabed is rock and gravel with subtidal sandbanks. The estuary's classic funnel shape, unique in the UK, is a factor causing the Severn to have one of the highest tidal ranges in the world. A consequence of the large tidal range is an extensive intertidal zone, one of the largest in the UK. The tidal regime results in plant and animal communities typical of the extreme physical conditions of liquid mud and tide-swept sand and rock.
- 3.3. The SAC has been designated for its sub-tidal sandbanks, estuaries, intertidal mudflats and sandflats, atlantic salt meadows and reefs. Its qualifying species are:
- Sea Lamprey (*Petromyzon marinus*)
 - River Lamprey (*Lampetra fluviatilis*)
 - Twaite Shad (*Alosa fallax*)
- 3.4. The SPA is designated for its water bird assemblage of *Cygnus columbianus bewickii* Bewick's swan (Non-breeding), *Tadorna tadorna* Common shelduck (Non-breeding), *Anas strepera* Gadwall (Non-breeding), *Calidris alpina alpina* Dunlin (Non-breeding), *Tringa totanus* Common redshank (Non-breeding) and *Anser albifrons albifrons* Greater white-fronted goose (Non-breeding).
- 3.5. There is a risk of significant changes in estuarine populations (including declines in some SPA bird populations) in parts of the Estuary resulting from climate change and other man-made and natural modifications to on- and offsite environments. Of particular relevance here is the uncertainty over water quality in the Estuary due to diffuse (including agricultural) or direct pollution (e.g. industrial, sewage treatment works, thermal, radioactive). Activities around the Estuary include fertiliser application, potentially dairy and poultry production, road traffic, industry (including power stations), and shipping which are all sources of nitrogen pollution. Nitrogen deposition exceeds site relevant critical loads, with potential

impacts on vegetation structure and diversity. The species-poor intertidal invertebrate community includes high densities of ragworms, lugworms and other invertebrates forming an important food source for passage and wintering waders and fish. Prevention/reduction in decline in water and sediment quality (applying relevant measures to all relevant tributaries in England and Wales) is a key element underpinning the conservation objectives.

- 3.6. As Shropshire is c. 77km upstream of the Severn Estuary international sites, individual settlement policies or allocations are unlikely to cause a significant adverse effect on them alone. However, the Stage 1 screening concluded that there is uncertainty as to whether or not there would be a likely significant effect in combination with other local plans and projects. The Shropshire Water Cycle Study 2020 (WCS) (Ref 15, section 5) provides an in-depth assessment and proposes appropriate mitigation measures to prevent harm to water courses in general, as required by the Water Framework Directive. Site allocations have been screened against the following:
- Sufficient water resources to abstract a water supply for development
 - Wastewater flow capacity at WwTWs
 - Impact on sewerage network
 - Risk of effluent discharge in times of flood
 - Impacts on water quality in water courses.
- 3.7. **Water resources:** Severn Trent Water is responsible for supplying the majority of Shropshire with water, with Hafren Dyfrdwy operating in a small area in the west of the study area. The Water Resources Management Plan (WRMP) shows a supply-demand deficit from 2021-22 at the Strategic Grid Water Resource Zone (WRZ) and from 2025-26 at the North Staffs WRZ if no action is taken, however the WRMP goes on to define a number of actions that will address this. The Kinsall and Whitchurch and Wem WRZs show minor supply-demand deficits later in the plan period. Severn Trent Water have stated that the adopted WRMP has planned for the proposed growth, however sites in Albrighton, Shifnal and the strategic sites at RAF Cosford and Junction 3 of the M54 were rated as amber. In these locations, water may need to be transferred into the catchment to avoid increasing local abstraction.
- 3.8. Water is abstracted from the River Severn by water companies to supply homes. The Environment Agency and Natural Resources Wales licence abstractions and can place special conditions on any new licences granted to safeguard the conservation interest of international sites. The Draft Local Plan policies and allocations do not override these controls on abstractions.

- 3.9. **Wastewater collection infrastructure:** Severn Trent Water (STW), UU and Welsh Water (WW) provide wastewater services to Shropshire. Sewerage Undertakers have a duty under Section 94 of the Water Industry Act 1991 to provide sewerage and treat wastewater arising from new domestic development. Except where strategic upgrades are required to serve very large or multiple developments, infrastructure upgrades are usually only implemented following an application for a connection, adoption, or requisition from a developer. Early developer engagement with STW, UU and WW is therefore essential to ensure that sewerage capacity can be provided without delaying development. Only STW and WW provide wastewater services for the preferred options and strategic sites. Significant infrastructure upgrades would be required to serve growth in Shrewsbury, the Strategic Centre, and Bridgnorth and Ludlow from the Principal Centres as well as a number of Key Centre and Rural Areas settlements.
- 3.10. **Wastewater treatment capacity:** STW and WW provided assessments of the WwTWs serving growth based on hydraulic capacity and headroom in the environmental permit. JBA performed a flow permit assessment in parallel to this. While the proposed growth in Shropshire can be accommodated at a number of WwTW, some treatment works could require upgrades to ensure growth can occur without causing the flow permits to be exceeded. Early engagement with STW and WW would be required at the planning stage to ensure any WwTW upgrades can be phased in line with the proposed development.
- 3.11. **Water quality:** At many of the WwTWs in the study area planned growth would cause either a 10% deterioration in water quality or a deterioration in water framework directive class. In the majority of cases this could be prevented by a tightening of environmental permit and/or upgrades to treatment processes. At eleven WwTWs deterioration could not be prevented by treatment at the technically achievable limit. At other WwTW, although deterioration was not significant, there is a risk that the additional flow from growth could prevent good ecological status being achieved in the future. Further mitigation may need to be taken to enable growth within these catchments, and options for this are best developed by STW who have a detailed understanding of the current performance and the range of options and constraints of their assets.
- 3.12. **Flood risk from additional foul flow:** The impact of increased effluent flows at WwTW from any of the proposed development has been assessed and is not predicted to have a significant impact upon flood risk in any of the receiving watercourses.
- 3.13. **Environmental constraints:** For a number of designated sites there is a possibility of point source pollution (from WwTWs) or diffuse pollution (for

example from surface runoff from development) to impact these sites. The SSSIs, SACs and Ramsar sites within a 20km drainage range of each WwTW serving growth were assessed, as well as WwTW serving growth which drain into the River Clun catchment. There are no surface water flow routes between the preferred options and strategic sites and any Ramsar sites.

Avoidance and mitigation measures

- 3.14. In response to the findings of the Water Cycle Study, in order to ensure sustainable development through the DLP, four water policies have been included: **DP19. Water Resources and Water Quality**, **DP20. Water Efficiency**, **DP21. Flood Risk** and **DP22. Sustainable Drainage Systems**. These policies are an integral and essential part of the Local Plan to allow sustainable development and would still be required if international sites did not need consideration.
- 3.15. Policy **DP19. Water Resources and Water Quality** requires development not to adversely affect the quality, quantity and flow of both ground and surface water and to ensure that there is adequate water infrastructure in place to meet its own needs. Development proposals which would lead to deterioration or compromise the ability of those water bodies covered by the Water Framework Directive to meet good status standards, both during construction and when operational, will not be supported. Proposals are required to demonstrate that they will be served by adequate water infrastructure in terms of water supply, foul drainage, wastewater and sewage treatment, without leading to significant problems for contamination of waterways (rivers or streams), clean water supply, surface water or groundwater. They must also show how development will be phased to allow the relevant water company sufficient time to undertake any necessary capacity improvement works to the existing water supply, wastewater and foul drainage networks and waste-water treatment works prior to construction and occupation of the development. Proposals should help to conserve and enhance existing watercourses and riverside habitats in line with Policy **DP12** wherever possible.
- 3.16. Policy **DP20. Water Efficiency** requires all new development to minimise the use of water to reduce environmental degradation and mitigate the effects of climate change. New housing will be expected to meet the Building Regulations 110 litres per person per day standard for water as recommended by the WCS.
- 3.17. Policy **DP21. Flood Risk** directs development to areas at least risk of flooding and to enhance as far as possible the natural capacity of soils, vegetation, river floodplains, wetland and upland habitats to reduce flood risk.

- 3.18. Policy **DP22. Sustainable Drainage Systems** Requires developments to integrate measures for sustainable water management to reduce flood risk, avoid adverse impacts on water quality and quantity within Shropshire, including groundwater resources, and provide opportunities to enhance biodiversity. All major developments must incorporate Sustainable Drainage Systems (SuDS). Surface water should be managed at source and the provision of SuDS should follow the hierarchy of drainage options as follows:
- a. Into the ground (infiltration)
 - b. To a surface water body
 - c. To a surface water sewer
 - d. To another drainage system with the permission of the relevant owner
 - e. To a combined sewer
- All development proposals should be accompanied by a surface water management plan or statement. Proposals will also be expected to have no adverse effect on the receiving water bodies, both during construction and when operational.
- 3.19. Policy **DP12 The Natural Environment** paragraph 1 requires 'a project-level Habitats Regulations Assessment (HRA) for all proposals where the Local Planning Authority identifies a likely significant effect on an internationally designated site. Permission will be refused where such an HRA indicates an adverse effect on the integrity of a designated site which cannot be avoided or fully mitigated. Where mitigation can remove an adverse effect, including that identified by the HRA for the Plan, measures will be required in accordance with the Plan HRA and supporting documents and/or as set out in the relevant settlement strategies (policies S1 -21); and/or remedial actions identified in the management plan for the internationally designated site as appropriate; and/or policies **DP14, DP15, DP19, DP22** and **DP25**.'

Conclusions for the Severn Estuary SAC, SPA and Ramsar Site

- 3.20. Application of policies **DP19. to 22**.in the DLP will protect water courses and water bodies, and in so doing are likely to prevent adverse effects on site integrity, alone and in combination, on international sites.
- 3.21. The objective of the Shropshire Water Cycle Study is to provide evidence to guide development towards the most sustainable sites. Red / Amber / Green (RAG) assessments have been prepared at the settlement and site scale for the different aspects of the water cycle (Table 14.1 Summary of RAG Assessments by settlement, page 159, Shropshire Water Cycle Study). A number of settlements have been marked red. It should be remembered that where a development is scored amber or red in a water supply or wastewater infrastructure assessment, it does not mean that

development cannot or should not take place in that location, merely that significant infrastructure may be required to accommodate it.

- 3.22. Informal meetings have been held with water companies during the drafting of the Shropshire Water Cycle Study 2020, but further discussions and the drawing up of a Statement of Common Ground are planned over the next few months. Prior to completing this work, and taking a precautionary approach, Settlement Policies, allocated and saved sites have been marked amber in the Screening table in Appendix 5 if they were given a red RAG score in the WCS. Once formal discussions have been completed and, if necessary, any additional avoidance or mitigation measures agreed, this HRA will be updated prior to the Submission Draft Local Plan.

River Clun SAC

- 3.23. Although the river is important for a wide range of more common wildlife such as otters, salmon and trout, the sole feature for which the River Clun SAC is notified is the presence of the extremely rare Freshwater Pearl Mussel (*Margaritifera margaritifera*). The SAC is within Unit 6 of the River Teme SSSI, which was assessed at March 2014 as being in unfavourable declining condition for a number of reasons including high levels of silt and nutrients (particularly ortho-phosphate (P) and nitrogen (N)), which affect the health of the pearl mussel population. Although monitoring data from the Environment Agency for the River Clun shows that there has been an improvement in the ortho-phosphate concentration, it is higher than is required for a recruiting pearl mussel population and in most of the Clun, including within the SAC, it is higher than that required to maintain adult mussels. Any additional P, N and sediment entering the SAC is likely to make its condition worse. It is vital that new development contributes positively alongside wider land management measures, since wastewater from houses and businesses releases P into the catchment (up to 35% of the total, the remaining P coming largely from farming activities). P is discharged to the environment via the mains and sewage treatment works, from cesspits, septic tanks or package treatment plants.
- 3.24. Natural England (NE) and the Environment Agency (EA) published the River Clun SAC Nutrient Management Plan Final Report (NMP) in October 2014. The NMP documents all sources of P, N and sediment in the catchment, identifies what information still needs to be gathered and outlines pollution reduction measures that might be employed in future. In the NMP, targets have been proposed for reducing orthophosphate at the SAC to 0.01 mg/l P, Total Oxidized Nitrogen to 1.5 mg/l and suspended solids to 10mg/l by 2027.

- 3.25. The predicted growth as a result of the SAMDev Plan 2016 – 2026 was made possible by upgrading phosphate stripping processes in the sewage treatment works of the Clun Catchment, in accordance with the NMP. The upgrades have now been achieved. However, following case law (Cooperatie Mobilisation for the Environment UA and Vereniging Leefmilieu v College van gedeputeerde staten van Limburg and College van gedeputeerde staten van Gelderland C-293/17 C394/17 – ‘Dutch Nitrogen Case’) and recent legal interpretation, this can no-longer be relied on. The existing NMP does not provide enough certainty to ensure that favourable conservation status will be achieved at the SAC. Until an updated NMP, with predictable and definite outcomes, is drawn up in partnership with stakeholders, and can be enforced, only limited development can pass an Appropriate Assessment and hence be granted planning permission.
- 3.26. Natural England originally provided guidance to the council on which development could be allowed under the constraints of the Habitats Directive and an interim guidance note was published to help developers understand the types of information required to be submitted with the planning application to enable the Council to carry out its project level HRAs. Following discussions with Natural England after the ‘Dutch Nitrogen Case’ Shropshire Council updated the guidance note which can be found on the Council’s website at: <https://shropshire.gov.uk/media/1874/gn12-development-within-the-river-clun-catchment.pdf> The guidance note will be updated as more information becomes available on mitigation measures and achieving nutrient neutrality.
- 3.27. The DLP proposes 319 dwellings and an employment site within the Clun Catchment, including new site allocations, saved allocations and windfall development, up to 2038. Most of this development is likely to have an adverse effect on site integrity without mitigation measures.

Avoidance and mitigation measures

- 3.28. For any development proposed in the Clun Catchment, objective evidence must be submitted with a planning application showing that the proposed development will not increase loads of P, N and sediment in the River Clun. Wherever possible, the council will seek a betterment or reduction in current P, N and sediment loads. (for more details on the information required see the interim Guidance Note 12). Small developments meeting the criteria in Guidance Note 12 can continue to gain planning permission (for example by connecting to a package treatment plant with appropriate drainage field, at sufficient distance from a watercourse).

- 3.29. Nutrient neutrality is an issue which has recently become more urgent as a result of the 'Dutch Nitrogen Case' and has affected development in other areas of the country, including the Solent Region (Ref no. 20 and in the catchment of the River Wye SAC). Work is currently underway to find solutions including possible 'Nutrient Futures', re-wilding areas of agricultural land (Ref. no. 20 but for nitrogen, section 5) and developing Integrated Constructed Wetlands (Ref.no. 13) to treat domestic wastewater. A particular issue of the River Clun Catchment is the need to re-wild a percentage of the landscape to achieve sufficient nutrient reduction, particularly P, as identified in the NMP 2014. Re-wilding agricultural areas to compensate for increased nutrients due to development may reduce the pool of land available for re-wilding necessary to meet the targets for the river. As restoration of the population of the Freshwater Pearl Mussel is one of the Conservation Objectives of the SAC, measures preventing restoration of the SAC would lead to a failed HRA and planning permission could not be granted.
- 3.30. Shropshire Council is continuing to liaise with Natural England, the Environment Agency and Severn Trent Water as well as other stakeholders to find solutions and to update the Nutrient Management plan together with the underlying evidence base. A revised nutrient management plan or action plan, providing the required certainty that mitigation measures will be implemented, would help to unlock future development. The building industry is also being encouraged to seek innovative solutions for larger developments.
- 3.31. A specific policy **DP13. Development in the River Clun Catchment** has been put forward in the DLP to avoid impacts on the Freshwater Pearl Mussel and the SAC. The policy states:
1. To protect the integrity of the river Clun Special Area of Conservation and to comply with the Habitats Regulations and policy DP13, development within the catchment of the river Clun will only be permitted if it can demonstrate either nutrient neutrality or nutrient betterment.
 2. All measures relied on to deliver either nutrient neutrality or nutrient betterment must demonstrate with sufficient certainty that they:
 - a. Meet the required nutrient reduction or improvement; and
 - b. They can be secured and funded for the lifetime of the development's effects.
- 3.32. Policy **DP12 The Natural Environment** paragraph 1 requires: 'a project-level Habitats Regulations Assessment (HRA) for all proposals where the Local Planning Authority identifies a likely significant effect on an internationally designated site. Permission will be refused where such an HRA indicates an adverse effect on the integrity of a designated site which cannot be avoided or fully mitigated. Where mitigation can remove

an adverse effect, including that identified by the HRA for the Plan, measures will be required in accordance with the Plan HRA and supporting documents and/or as set out in the relevant settlement strategies (policies S1 -21); and/or remedial actions identified in the management plan for the internationally designated site as appropriate; and/or policies **DP14**, **DP15**, **DP19**, **DP22** and **DP25**. Policy **DP13** sets out particular requirements for development in the catchment of the river Clun Special Area of Conservation (SAC).'

- 3.33. In the case of the River Clun SAC, the relevant management plan is the River Clun Nutrient Management Plan 2014 or any future updates or replacements.
- 3.34. Policy **DP19. Water Resources and Water Quality** requires development not to adversely affect the quality, quantity and flow of both ground and surface water and must ensure that there is adequate water infrastructure in place to meet its own needs. Details of foul-water drainage must be provided to avoid any adverse impacts on the existing foul drainage network and proposals must help to conserve and enhance existing watercourses and riverside habitats. Policy **DP20. Water Efficiency** expects new housing to meet the Building Regulations 110 litres per person per day standard which will help to prevent overloading WwTW and pollution events during times of high flow. **DP21. Flood Risk** covers measures to reduce flood risk and enhance as far as possible the natural capacity of soils, vegetation, river floodplains, wetland and upland habitats to help with this. **DP22. Sustainable Drainage Systems** requires development to incorporate SuDS to reduce flood risk, avoid adverse impacts on water quality and quantity and prevent contamination. Proposals will also be expected to have no adverse effect on the receiving water bodies, both during construction and when operational. **DP25. Infrastructure Provision** requires new development to only take place where there is sufficient existing infrastructure capacity available. Where a new development would lead to a shortfall in infrastructure provision, the development will be required to fund necessary improvements through a suitable developer contribution, unless the identified shortfall is being addressed by other means.
- 3.35. In addition to the above Development Policies, mitigation wording has been included in the Settlement Policies signposting issues in the River Clun Catchment. **S2.1** states that 'The Plan HRA identifies that development in Bishop's Castle is likely to have an adverse effect on the River Clun SAC so policy **DP13** applies.' **S2.2** identifies a similar need for development in Bucknell, Clun and Worthen and Brockton, **S2.3** for the clusters Abcot, Beckjay, Clungunford, Hopton Heath, Shelderton and Twitchen (Three Ashes) and Lydbury North and **S7.3** for Aston on Clun,

Hopesay, Broome, Horderley, Beambridge, Long Meadow End, Rowton and Round Oak.

Conclusions for the River Clun SAC

- 3.36. Some development is currently possible in the River Clun Catchment and research into measures to unlock larger sites is underway. Measures undertaken by land managers will also help the situation for development. In the meantime, all proposed development must show that it is nutrient neutral or provides a betterment. Through the Development Policy and Settlement Policy wording and the statutory requirement for a project level HRA for development, there will be no adverse effects on the integrity of the River Clun SAC as a result of the Draft Local Plan.

River Dee and Bala Lake SAC

- 3.37. All aquatic features of the River Dee and Bala Lake SAC require suitable flow conditions to maintain favourable status. The Dee is already affected by falling groundwater levels and this may be affected by increased abstraction levels, threats to water quality from direct and diffuse pollution, eutrophication and siltation. According to the Environment Agency (2009), the poor Water Framework Directive status of sections of the River Dee is due to historic coal and metal mining activities, with point sources and nitrates causing pollution. Significant effects could stem from water supply/quality issues, the pathways are unclear.
- 3.38. Part of the northernmost section of Shropshire falls within the catchment of the River Dee. Residential allocations at Weston Rhyn (c.126 dwellings) and part of site STM0029 at St Martins with SMH038 (140 dwellings) plus the Community Clusters at 'Rhoswiell, Wern and Chirk Bank' and 'Selattyn, Upper/Middle/Lower Hengoed and Pant Glas' fall within the Upper Dee catchment and are around 1-2 km from the river. Whitchurch falls within the Middle Dee catchment but is 12km away from the river itself.
- 3.39. The Shropshire Water Cycle Study (Ref. no. 15, section 5) has provided an assessment of the ability of water resources, wastewater infrastructure and water quality of receiving watercourses to cope with the additional growth proposed through the DLP, both alone and in combination with other plans and projects. For the settlements identified as being within the surface water catchment of the River Dee and Bala Lake SAC (see Table 8 below) either the capacity is available for the plan period or upgrades at the appropriate time are technically possible. Housing numbers for the Clusters are unknown but likely to be low in number and Chirk Bank, Rhoswiell, Selattyn and Street Dinas are connected to the Five Folds Wastewater Treatment works, as well as Western Rhyn.

Table 8: RAG categories for settlements in the Dee catchment, taken from the Shropshire Water Cycle Study 2020.

	Weston Rhyn	St Martins	Whitchurch
Water resources	Adopted WRMP has planned for the increase in demand, or sufficient time to address supply demand issues in the next WRMP.	Adopted WRMP has planned for the increase in demand, or sufficient time to address supply demand issues in the next WRMP.	Adopted WRMP has planned for the increase in demand, or sufficient time to address supply demand issues in the next WRMP.
Wastewater Flow Capacity	Capacity available to serve the proposed growth	Capacity available to serve the proposed growth	Infrastructure and/or treatment work upgrades are required to serve proposed growth, but no significant constraints to the provision of this infrastructure have been identified.
Impact on sewerage infrastructure	Infrastructure and/or treatment work upgrades are required to serve proposed growth, but no significant constraints to the provision of this infrastructure have been identified.	Capacity available to serve the proposed growth	Infrastructure and/or treatment work upgrades are required to serve proposed growth, but no significant constraints to the provision of this infrastructure have been identified.
Effluent discharge and flood risk	Additional flow $\leq 5\%$ of Q30. Low risk that increased discharges will increase fluvial flood risk.	Additional flow $\leq 5\%$ of Q30. Low risk that increased discharges will increase fluvial flood risk.	Additional flow $\leq 5\%$ of Q30. Low risk that increased discharges will increase fluvial flood risk.
Water quality	Sufficient Environmental Capacity. Proposed development has no significant impact on the water body's potential for reaching Good Ecological Status.	Sufficient Environmental Capacity. Proposed development has no significant impact on the water body's potential for reaching Good Ecological Status.	Sufficient Environmental Capacity. Proposed development has no significant impact on the water body's potential for reaching Good Ecological Status.

- 3.40. Water is abstracted from the River Dee by water companies to supply homes. The Environment Agency and Natural Resources Wales licence abstractions and can place special conditions on any new licences granted to safeguard the conservation interest of the River Dee and other Natura 2000 sites. The Draft Local Plan policies and allocations do not override these controls on abstractions.
- 3.41. In the situation where development could not be served by mains drainage, pollution could be caused by inappropriate foul-water disposal. Natural England Impact Risk Zones (IRZs, Ref. no. 16) indicate that for the north section of Weston Rhyn and Chirk Bank as well as Rhoswiell, non-mains drainage discharging to ground or watercourses resulting in over 2 cubic metres/day (5 cubic metres/day for Weston Rhyn) may trigger Natural England consultation in relation to the River Dee. Selattyn and Street Dinas are in the River Dee catchment but IRZ's do not trigger consultation with NE. Wern is outside of the River Dee catchment. Developments served by mains drainage are excluded from consultation requirements.

Avoidance and mitigation measures

- 3.42. As explained in section 3.14 above, policies **DP19. Water Resources and Water Quality**, **DP20. Water Efficiency**, **DP21. Flood Risk** and **DP22. Sustainable Drainage Systems** will provide sufficient control of development to protect the water environment.
- 3.43. Normally dwellings would be expected to be connected to the public sewer, but if this is not possible wording has been placed in the relevant settlement policies. **S14.2** states: 'Mitigation measures will be required to remove any adverse effect on water quality and quantity arising from development in Weston Rhyn on the integrity of the River Dee SAC. Mitigation measures for recreational impacts and water quality and quantity are identified in the Plan Habitats Regulation Assessment (HRA) and supporting documents.' And similar wording is provided in **S14.3** for development in Rhoswiell, Wern and Chirk Bank and in Selattyn. Development must provide full details of foul-water drainage such as package treatment plants, percolation tests, drainage fields, integrated constructed wetlands etc. including make, capacity and efficiency of nutrient reduction. Sufficient information must be provided to the LPA to carry out a Habitats Regulations Assessment of the project and to show that there will be no adverse effect on the integrity of the River Dee and Bala Lake SAC.

Conclusions for the River Dee and Bala Lake SAC

- 3.44. Through the Water Development Policies and Settlement Policies wording and the statutory requirement for a project level HRA for development, there will be no adverse effects on the integrity of the River Dee and Bala Lake SAC as a result of the Draft Local Plan.

Montgomery Canal SAC

- 3.45. The SAC section of the Montgomery Canal is only within Wales (Powys). The designated feature is the largest, most extensive population of Floating Water Plantain (*Luronium natans*) in lowland Britain.
- 3.46. Floating Water-Plantain *Luronium natans* is vulnerable to enrichment through agricultural or domestic nutrient inputs and herbicide run-off from the towpath could be a problem. Abstraction from, and discharges to, the canal could result from development. Increasing boat traffic would detrimentally affect the species through mechanical damage and increasing turbidity. Increased recreational pressure including swimming of dogs could also damage areas of *Luronium natans*. Introduction of invasive plant species could smother the *Luronium natans* or introduction of fish species which churn up basal sediments could also damage aquatic plant populations.
- 3.47. The nearest settlements in Shropshire to the SAC are Llanymynech and Pant. The DLP allocates a new site LYH007 for 50 houses and one windfall house. It saves two allocations LLAN001 for 32 dwellings and LYH009, but the latter has already been built and is not considered further. The allocated housing site at Llanymynech LYH007 is c.370m from the Montgomery Canal SAC along the canal but c. 510m for pedestrian access. The canal is water filled adjacent to LYH007 and there are no barriers between this and the Wales section containing floating water plantain. LLAN001 lies immediately east of LYH007, only 67m from the canal edge at its closest point but again pedestrian access to the SAC towpath is c. 510m away. In Pant, 7 windfall dwellings and 25 dwellings at PYC021 are proposed. The canal skirts the eastern side of Pant but is dry until the very southern tip of the settlement. Allocation PYC21 lies at the northern end of Pant and will not affect the canal, which is c. 256m to the east and dry. It is possible that some of the 7 windfall dwellings may be close to the southern part of the canal which is in water and c. 1.2km from the SAC.

Water Quality and Quantity

3.48. The Shropshire Water Cycle Study indicates that water infrastructure capacity is or will be available for the growth proposed in the Llanymynech and Pant areas:

Table 9: RAG categories for settlements within 1km of the Montgomery Canal with hydrological connection to the Montgomery Canal SAC, taken from the Shropshire Water Cycle Study 2020.

	Llanymynech LYH007	Pant PYC021
Water resources	Adopted WRMP has planned for the increase in demand, or sufficient time to address supply demand issues in the next WRMP.	Adopted WRMP has planned for the increase in demand, or sufficient time to address supply demand issues in the next WRMP.
Wastewater Flow Capacity	Capacity available to serve the proposed growth	Capacity available to serve the proposed growth
Impact on sewerage infrastructure	Capacity available to serve the proposed growth	Infrastructure and/or treatment work upgrades are required to serve proposed growth, but no significant constraints to the provision of this infrastructure have been identified.
Effluent discharge and flood risk	Additional flow $\leq 5\%$ of Q30. Low risk that increased discharges will increase fluvial flood risk.	Additional flow $\leq 5\%$ of Q30. Low risk that increased discharges will increase fluvial flood risk.
Water quality	Sufficient Environmental Capacity. Proposed development has no significant impact on the water body's potential for reaching Good Ecological Status.	Sufficient Environmental Capacity. Proposed development has no significant impact on the water body's potential for reaching Good Ecological Status.

Avoidance and mitigation measures for water impact pathways

3.49. As explained in section 3.14 above, policies **DP19. Water Resources and Water Quality**, **DP20. Water Efficiency**, **DP21. Flood Risk** and **DP22. Sustainable Drainage Systems** will provide sufficient control of development to protect the water environment.

3.50. Development in Llanymynech and the southern end of Pant must ensure that contaminated or silt-laden does not enter the canal during

construction. Also, during occupation, surface water or other drainage from development must not pollute the canal. Mitigation measures to be considered for a project-level HRA would include avoiding abstraction from, or discharges to the canal, SUDs features, oil and sediment traps and buffers of natural vegetation to the water's edge.

Recreation impacts and introduction of invasive species or disease

- 3.51. Floating-leaved water plantain is most at risk from increased movements of motorised boats. Boat traffic on the section of canal at Llanymynech is relatively low because it is currently not connected to the rest of the inland waterway network, such as the busy Llangollen Canal to the north. There are plans to restore further sections of the Montgomery Canal within England and to include the towpath on long distance walking routes (Ref.no 3, Montgomery Canal Conservation Management Strategy 2005). Such initiatives would require HRA themselves and have a greater impact on the SAC interest feature than the housing allocations proposed.
- 3.52. The estimated population of Llanymynech and Pant parish in the 2011 Census was 2,100. The 161 persons increase in population proposed through SAMDev (estimated at 67 dwellings multiplied by 2.4 persons per dwelling) would result in a 6.7% increase in the population of the parish. The additional 51 dwellings added via the DLP would raise this to 13.5%.
- 3.53. It is possible that recreation impacts could occur, Pedestrians using the tow path are unlikely to have a significant effect on the species, although swimming of relatively large numbers of dogs could potentially cause damage. A public footpath heads north-east from LYH007 along the canal to Pant and the many onward footpaths over Llyncllys and Llanymynych Hills. Although the distance is not great, there is no direct link to the SAC from the allocation. In view of the modest population increase, the housing allocations are not considered likely to result in a detrimental effect on the plant species from pedestrian traffic of the combined Shropshire allocations.
- 3.54. The Montgomery Canal SAC lies in Powys and stretches from just north-east of Newtown for C. 36km, through the principal settlement of Welshpool to the English border at Llanymynych. The many site allocations or settlements with expected growth within 2.5 and 5km of the SAC are listed in the Powys Local Development Plan HRA 2015 page 51. Within the Powys LDP, policy TD3 – Montgomery Canal and Associated Development states that:
- 'Development proposals that support the restoration of the Montgomery Canal and preserve and enhance the role of the canal as a multifunctional resource, including off-line nature reserves and other appropriate canal-related development, will be supported.'*

Proposals for development that would adversely affect the canal's scientific and conservation designations or prejudice its sensitive restoration will be opposed.'

- 3.55. Section 4.8.13 of the Explanation for this policy requires a Habitats Regulations Assessment of development proposals to be undertaken to ensure there is no adverse effect on the integrity of the SAC. The policy specifically supports the provision of off-line nature reserves, which will preserve and enhance the canal's aquatic ecology. With this policy wording in place, the HRA concluded 'Whilst policies and proposals in the LDP enable development that would have the potential to impact upon the canal's vulnerabilities, policies TD3, DM1 and DM2 provide sufficient mitigation to ensure that the canal's role as a site for nature conservation is preserved and enhanced.'
- 3.56. By comparison to the level of growth in Powys within the zone of influence of the SAC, growth in Shropshire is minimal and will not generate significant adverse effects via recreational impact pathways.

Avoidance and mitigation measures for recreational impacts

- 3.57. As a precautionary measure, Settlement Policy **S14.2** of the DLP states 'Mitigation measures will be required to remove any adverse effect from increased recreational pressure and water quality and quantity arising from development in Llanymynech and Pant on the integrity of the Montgomery Canal SAC in accordance with policies **DP12**, **DP14** and **DP15**'.
- 3.58. **DP12. The Natural Environment** requires an HRA to be completed if a likely significant effect is identified at the project stage. **DP15. Open Space** paragraph 3 states 'For developments where an adverse effect on the integrity of an internationally or nationally designated wildlife site due to recreational impacts has been identified, particular consideration will be given to the need for semi-natural open space provision in excess of 30sqm per person.'

Conclusions for the Montgomery Canal SAC

- 3.59. Through the Development Policies and Settlement Policy wording and the statutory requirement for a project level HRA for development, there will be no adverse effects on the integrity of the Montgomery Canal SAC as a result of the Draft Local Plan, either alone or in combination with other plans or projects. The Montgomery Canal Management Plan (2005) (Ref. no. 3, section 5) should be consulted when carrying out an HRA.

Stiperstones and The Hollies SAC

- 3.60. Of the international sites under consideration within this HRA, the Stiperstones and The Hollies SAC probably has the greatest recreational 'draw' for Shropshire residents and visitors from further away. The qualifying features for the SAC are 'European dry heaths' and 'Old sessile oak woods with Ilex and Blechnum in the British Isles'.
- 3.61. Natural England do not mention recreational impacts in the condition assessment for the site (website accessed 9.7.2020). Most SSSI units being classed as Unfavourable- Recovering or Favourable, only 3 of the 68 units were classed as Unfavourable – declining.
- 3.62. Neither the 'European Site Conservation Objectives: Supplementary Advice on conserving and restoring site features – The Stiperstones and The Hollies Special Area of Conservation (SAC) Site Code: UK0012810, Natural England, 7 March 2019, nor the 'Site Improvement Plan: The Stiperstones and The Hollies (SIP243) January 2015 – 2025, mentions visitor pressure as an issue for protection of the site or its qualifying features.
- 3.63. The current site management plan (Stiperstones Management Plan 2018-2022) states that:
At present there are an estimated 30,000 – 35,000 visitors to the reserve each year. Most of these visitors come as walkers but there is also regular use for horse riding, mountain biking and fell running as well as some orienteering and novice rock climbing. Amongst a number of organised sporting events the most significant are the annual MTB bike marathon (July), Long Mynd Hike (October) and Dawdle or Dash (Boxing Day), all of which attract hundreds of participants.
- 3.64. Recreational events such as orienteering, mountain biking and rock climbing are by permit only. The Management Plan does not highlight particular problems from visitors. The majority of the reserve has been declared as Access Land under the Countryside and Rights of Way Act 2000 and further land was dedicated by Natural England in 2016, irrevocably as Open Access land. This extended access rights into most of the reserve including some but not all areas of grassland and woodland. The 'Vision' for the site includes the following in relation to public access:
Though well-visited, The Stiperstones NNR is a wild, quiet, unspoilt place, and there are significant areas which, though open to the public, are little visited, and which are not penetrated by advertised trails. It remains inspiring and restorative to its visitors, and local people and visitors continue to take advantage of the wild harvest of whinberries and cowberries.

The wider landscape has a network of well-maintained rights of way providing low-key access and easing visitor pressure on the reserve itself. Most people access the area by the shuttle bus or bicycle, the former continues to expand and benefit the local community.

- 3.65. A general need to manage visitors is referred to in the plan, but the desired state of access is described as 'open' rather than 'managed', 'restricted' or 'excluded'. During the Covid-19 pandemic, use of the Stiperstones NNR has increased markedly (pers. comm. from Simon Cooter, Senior Reserve Manager, NE) showing the site's value for public health and recreation.
- 3.66. The size of residential allocations (Table 4) and their distance from the site have been considered. For the Stage 1 screening a 15km screening distance was used as a precautionary measure, based on the zone of influence for mountain biking on Cannock Chase, underpinned by recorded data. However, there are marked differences between the two international sites. Cannock Chase lies surrounded by urban areas including Wolverhampton, Cannock, northern Birmingham and Lichfield to the south and Stafford to the north. The nearest truly urban area to the Stiperstones and The Hollies SAC is Shrewsbury at over 10km to the northeast. Otherwise, the site is embedded in the rural hills near the Welsh border. The area provides alternative and extensive recreational sites such as the Long Mynd and Wenlock Edge. Church Stretton (Settlement Policy S5), for example, is adjacent to the Long Mynd and the distance from the SAC means that residents would be unlikely to use The Stiperstones and The Hollies SAC for regular recreation, such as dog walking. Within 10km of the SAC, only 439 dwellings are proposed by the DLP up to 2038.
- 3.67. From the small sample of visitors to the Stiperstones in the most recent Shropshire Hills and Ludlow Visitor Survey 2013, it was apparent that over 90% of visitors had travelled from outside the local postcode areas, demonstrating this site's wide appeal. No further visitor survey information is currently available and the type of in-depth visitor surveys necessary to define a 'zone of influence' for these sites has not been carried out.
- 3.68. The 10km buffer for the Stiperstones overlaps the border with Powys but only by a small amount and very little growth is catered for within the buffer. The Powys Local Development Plan HRA screened out effects due the vulnerabilities of the site being recorded as land management related and the distance to the SAC was deemed too far.

Avoidance and mitigation measures

- 3.69. It is concluded that existing plans and mechanisms are likely to be sufficient to mitigate for the increase in visitor numbers at the Stiperstones and Hollies SAC that could result from the DLP. However, as a precautionary measure, mitigation has been built into the policy wording. Mitigation measures would include providing additional on-site open space for dog-walking for larger site allocations and linking open space on the development site to the existing public footpath or green infrastructure network to form publicised circular walks locally. In addition, developer contributions may be required towards visitor management measures if an evidence-based site management plan requires this to protect the qualifying features of the SAC. These measures are required through **DP12. The Natural Environment** paragraph 1, **DP15. Open Space** paragraph 3, **DP14. Green Infrastructure**, **DP25. Infrastructure Provision** and Settlement policies. Settlement policy **S2.1. Development Strategy: Bishop's Castle Key Centre** states that 'Mitigation measures will be also required to remove any adverse effect from increased recreational pressure arising from development in Bishop's Castle on the integrity of the Stiperstones and Hollies SAC in accordance with policies **DP12**, **DP14** and **DP15**. Mitigation measures for recreational impacts are identified in the Plan Habitat Regulations Assessment (HRA) and supporting documents'. Similar wording has been included in **S2.2** for Chirbury and Worthen and Brockton, **S2.3** for Brompton, Marton, Middleton, Pentreheyling, Priest Western, Stockton and Rorrington, Lydbury North and Wentnor and Norbury and **S12.1 Development Strategy: Minsterley and Pontesbury Community Hubs**.

Conclusions for The Stiperstones and The Hollies SAC

- 3.70. Through the Development Policies and Settlement Policies wording and the statutory requirement for a project level HRA for development, there will be no adverse effects on the integrity of The Stiperstones and The Hollies SAC as a result of the Draft Local Plan.

Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses SAC and Ramsar.

- 3.71. The SAC has been designated for its active raised bog with degraded raised bog still capable of natural regeneration. The Midland Meres and Mosses Ramsar site (Phase 2) has been designated for a wide range of wetland features but at Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses SAC and Ramsar raised bog, carr and associated species are key. The designated sites are also within a National Nature Reserve.

- 3.72. Mountain biking has not been raised as an issue at Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses SAC, but due to the size of the site (c.950ha), an informal 10km 'zone of influence' has been applied in screening allocations and settlements (see Table 4). The SAC is split between England and Wales. Part of Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses are open to public access and accessible via a number of car parks. Trails have been developed but access off the trails is currently by permit through Natural England, which has a National Nature Reserve office nearby. The ditches throughout the site and the Llangollen Canal restrict access also. Natural England National Nature Reserve staff are concerned by current impacts of dogs on birds, such as curlew, one of the SSSI designated features (but not for the international designations) and the potential for visitor numbers to increase as a result of nearby housing development. However, the 2010 - 2017 condition assessments and the Site Improvement Plan published in December 2014 do not list recreational impacts as resulting in a decline, rather inadequate scrub control, water level management and grazing.
- 3.73. In April 2017 the NNR's Dogs Access Policy was revised. There has been no change to where dogs can be taken compared to the 2014 general visitor access changes i.e. access is permitted along the 4 waymarked Trails, Public Right of Ways and the disused railway line. However, dogs are now required to be kept on a lead all year round on the parts of the Trails within the NNR. Previously this was required for the 5 months from 1 March to 31 July.
- 3.74. As a large (948ha) site, a 10km buffer has been used in assessing likely significant recreational effects from housing developments. A number of settlements in the Ellesmere, Shrewsbury, Wem and Whitchurch Place Plans are within 10km of Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC (see Table 4) amounting to c. 2224 new and saved dwellings up to 2038. The nearest site allocation is 3.8km away. Although currently visitor management at the site appears to be sufficient to prevent damage to designated features from recreation activities, this may not be the case later in the plan period.

Avoidance and mitigation measures

- 3.75. As was the case for the SAMDev Plan, policy wording will be required as a mitigation measure to remove the potentially adverse effects of development on Fenn's, Whixall Bettisfield, Wem and Cadney Mosses SAC/Ramsar. Mitigation measures may include provision of sufficient alternative semi-natural public open space on the development site to encourage dog-walking closer to home and promoting circular walks through the development and linking to public or permissive footpaths or

green infrastructure. In addition, developer contributions may be required towards visitor management measures if an evidence-based site management plan requires this to protect the qualifying features of the SAC and Ramsar.

- 3.76. **Policy S18.1. Development Strategy: Whitchurch Principal Centre** states: 'Mitigation measures will be required to remove any adverse effect from increased recreational pressure arising from development in Whitchurch on the integrity of the Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses SAC/Ramsar site and Brown Moss SAC/Ramsar site in accordance with policies **DP12**, **DP14** and **DP15**. Mitigation measures for recreational impacts are identified in the Plan Habitat Regulations Assessment (HRA) and supporting documents.' Similar wording is repeated for **S18.2**, **S18.3**, **S17.1 Development Strategy: Wem Key Centre**, **S17.3**, **S8.1. Development Strategy Ellesmere Key Centre**, **S8.2** and **S8.3**.
- 3.77. These measures are integrated in the DLP through **DP12. The Natural Environment paragraph 1**, 'Requiring a project-level Habitats Regulations Assessment (HRA) for all proposals where the Local Planning Authority identifies a likely significant effect on an internationally designated site. Permission will be refused where such an HRA indicates an adverse effect on the integrity of a designated site which cannot be avoided or fully mitigated. Where mitigation can remove an adverse effect, including that identified by the HRA for the Plan, measures will be required in accordance with the Plan HRA and supporting documents and/or as set out in the relevant settlement strategies (policies S1 -21); and/or remedial actions identified in the management plan for the internationally designated site as appropriate; and/or policies **DP14**, **DP15**, **DP19**, **DP22** and **DP25**.' In the explanation for **DP12**, paragraph 4.128 states 'Project-level mitigation measures may include; phasing development to allow time for infrastructure improvements to be put in place; increasing the amount of semi-natural open space to provide alternative informal recreation opportunities in line with policy **DP15** or developer contributions towards remedial actions identified in the management or action plan for the internationally designated site or in the Place Plan for the area.'
- 3.78. **DP15. Open Space** paragraph 3 'For developments where an adverse effect on the integrity of an internationally or nationally designated wildlife site due to recreational impacts has been identified, particular consideration will be given to the need for semi-natural open space provision in excess of 30sqm per person.', **DP14. Green Infrastructure**. Describes the quality and quantity of Green Infrastructure required through development. Developer contributions are covered by **DP25. Infrastructure Provision**

Conclusions for the Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses SAC and Ramsar Sites.

- 3.79. Through the Development Policies and Settlement Policies wording and the statutory requirement for a project level HRA for development, there will be no adverse effects on the integrity of the Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses SAC and Ramsar as a result of the Draft Local Plan.

Berwyn SPA

- 3.80. Berwyn is an extensive area of acidic North Wales upland, reaching an altitude of 827 m, straddling the Glyndwr, Montgomery and Meirionnydd districts of Clwyd, Powys and Gwynedd respectively. It comprises blanket mire and heather-dominated heath, with some acidic grassland and Bracken *Pteridium aquilinum* dominated areas. It is one of the largest and most important upland massifs of this type in Wales. It supports large and diverse assemblages of breeding upland birds and has been specifically designated for Hen Harrier *Circus cyaneus*, Merlin *Falco columbarius*, Peregrine *Falco peregrinus* and Red Kite *Milvus milvus*. These birds of prey are vulnerable to persecution, habitat destruction, accidental nest destruction, inappropriate grazing and lack of nest sites.
- 3.81. No Shropshire site allocations are proposed closer than 9km. Only 145 dwellings are proposed by the plan within 10km. Between 10 and 15km away from the Berwyn SPA, 2049 dwellings have been allocated in Shropshire and visitors from these could act in combination with those from Powys, Wrexham and potentially further afield. The conservation objectives for the site focus on illegal 4x4 and motorbike damage rather than walkers.
- 3.82. Following the Regulation 18 Draft Pre-Submission Local Plan consultation, concerns were raised by Natural Resources Wales over recreational impacts due to a number of 'honey-pot' visitor sites and the observed increase in visitors during the current Covid 19 pandemic. The situation is currently under review with NRW. Further visitor survey information is being sought but there may not be suitable information to define a 'zone of influence'. The following avoidance and mitigation measures and policy wording changes are proposed and any measures will be finalised before the Submission Plan is submitted.

Avoidance and mitigation measures

- 3.83. As a precautionary measure mitigation can be built into the policy wording to remove the potentially adverse effects of development on the Berwyn SPA. Mitigation measures may include provision of sufficient alternative semi-natural public open space on the development site to encourage

dog-walking closer to home and promoting circular walks through the development and linking to public or permissive footpaths or green infrastructure. In addition, developer contributions may be required towards visitor management measures if an evidence-based site management plan requires this to protect the qualifying features of the SPA.

- 3.84. **Policy S14.1 Development Strategy: Oswestry Principal Centre:** it is recommended that wording similar to the following should be added 'Mitigation measures will be required to remove any adverse effect from increased recreational pressure arising from development in Oswestry on the integrity of Berwyn SPA site in accordance with policies **DP12**, **DP14** and **DP15**. Mitigation measures for recreational impacts are identified in the Plan Habitat Regulations Assessment (HRA) and supporting documents.' Similar wording can be repeated for **S14.2**, **S14.2** and **S14.3**.
- 3.85. These measures would be integrated in the DLP through **DP12. The Natural Environment paragraph 1**, 'Requiring a project-level Habitats Regulations Assessment (HRA) for all proposals where the Local Planning Authority identifies a likely significant effect on an internationally designated site. Permission will be refused where such an HRA indicates an adverse effect on the integrity of a designated site which cannot be avoided or fully mitigated. Where mitigation can remove an adverse effect, including that identified by the HRA for the Plan, measures will be required in accordance with the Plan HRA and supporting documents and/or as set out in the relevant settlement strategies (policies S1 -21); and/or remedial actions identified in the management plan for the internationally designated site as appropriate; and/or policies **DP14**, **DP15**, **DP19**, **DP22** and **DP25**.' In the explanation for **DP12**, paragraph 4.128 states 'Project-level mitigation measures may include phasing development to allow time for infrastructure improvements to be put in place; increasing the amount of semi-natural open space to provide alternative informal recreation opportunities in line with policy **DP15** or developer contributions towards remedial actions identified in the management or action plan for the internationally designated site or in the Place Plan for the area.'
- 3.86. **DP15. Open Space** paragraph 3 'For developments where an adverse effect on the integrity of an internationally or nationally designated wildlife site due to recreational impacts has been identified, particular consideration will be given to the need for semi-natural open space provision in excess of 30sqm per person.', **DP14. Green Infrastructure.** Describes the quality and quantity of Green Infrastructure required through development. Developer contributions are covered by **DP25. Infrastructure Provision**

Conclusions for the Berwyn SPA

- 3.87. Through the recommended Development Policies and Settlement Policies wording and the statutory requirement for a project level HRA for development, there will be no adverse effects on the integrity of the Berwyn SPA as a result of the Draft Local Plan.

Berwyn and South Clwyd Mountain SAC

- 3.88. Berwyn is an extensive area of acidic North Wales upland, reaching an altitude of 827 m, straddling the Glyndwr, Montgomery and Meirionnydd districts of Clwyd, Powys and Gwynedd respectively. It comprises blanket mire and heather-dominated heath, with some acidic grassland and Bracken *Pteridium aquilinum* dominated areas. It is one of the largest and most important upland massifs of this type in Wales. The primary reasons for its designation are the habitats 'European dry heath' and 'Blanket Bogs'. Annex 1 habitats that were qualifying features are 'Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*)', 'Transition mires and quaking bogs', 'Calcareous and calcshist screes of the montane to alpine levels (*Thlaspietea rotundifolii*)' and 'Calcareous rocky slopes with chasmophytic vegetation.' These habitats are vulnerable to inappropriate management/grazing, erosion, tourist pressure and eutrophication.
- 3.89. No Shropshire site allocations are proposed closer than 9km. Only 145 dwellings are proposed by the plan within 10km. Between 10 and 15km away from the Berwyn and South Clwyd Mountain SAC, 2219 dwellings have been allocated in Shropshire and visitors from these could act in combination with those from Powys, Wrexham and potentially further afield. The conservation objectives for the site focus on illegal 4x4 and motorbike damage rather than walkers.
- 3.90. Following the Regulation 18 Draft Pre-Submission Local Plan consultation, concerns were raised by Natural Resources Wales over recreational impacts due to a number of 'honey-pot' visitor sites and the observed increase in visitors during the current Covid 19 pandemic. The situation is currently under review with NRW. Further visitor survey information is being sought but there may not be suitable information to define a 'zone of influence'. The following avoidance and mitigation measures and policy wording changes are proposed, and any measures will be finalised before the Submission Plan is submitted.

Avoidance and mitigation measures

- 3.91. As a precautionary measure mitigation can be built into the policy wording to remove the potentially adverse effects of development on the Berwyn and South Clwyd Mountain SAC. Mitigation measures may include provision of sufficient alternative semi-natural public open space on the

development site to encourage dog-walking closer to home and promoting circular walks through the development and linking to public or permissive footpaths or green infrastructure. In addition, developer contributions may be required towards visitor management measures if an evidence-based site management plan, identifying a 'zone of influence' requires this to protect the qualifying features of the SAC and Ramsar.

- 3.92. **Policy S14.1 Development Strategy: Oswestry Principal Centre:** it is recommended that wording similar to the following should be added 'Mitigation measures will be required to remove any adverse effect from increased recreational pressure arising from development in Oswestry on the integrity of Berwyn and South Clwyd Mountain SAC site in accordance with policies **DP12**, **DP14** and **DP15**. Mitigation measures for recreational impacts are identified in the Plan Habitat Regulations Assessment (HRA) and supporting documents.' Similar wording can be repeated for **S14.2**, **S14.2** and **S14.3**.
- 3.93. These measures would be integrated in the DLP through **DP12. The Natural Environment paragraph 1**, 'Requiring a project-level Habitats Regulations Assessment (HRA) for all proposals where the Local Planning Authority identifies a likely significant effect on an internationally designated site. Permission will be refused where such an HRA indicates an adverse effect on the integrity of a designated site which cannot be avoided or fully mitigated. Where mitigation can remove an adverse effect, including that identified by the HRA for the Plan, measures will be required in accordance with the Plan HRA and supporting documents and/or as set out in the relevant settlement strategies (policies S1 -21); and/or remedial actions identified in the management plan for the internationally designated site as appropriate; and/or policies **DP14**, **DP15**, **DP19**, **DP22** and **DP25**.' In the explanation for **DP12**, paragraph 4.128 states 'Project-level mitigation measures may include phasing development to allow time for infrastructure improvements to be put in place; increasing the amount of semi-natural open space to provide alternative informal recreation opportunities in line with policy **DP15** or developer contributions towards remedial actions identified in the management or action plan for the internationally designated site or in the Place Plan for the area.'
- 3.94. **DP15. Open Space** paragraph 3 'For developments where an adverse effect on the integrity of an internationally or nationally designated wildlife site due to recreational impacts has been identified, particular consideration will be given to the need for semi-natural open space provision in excess of 30sqm per person.', **DP14. Green Infrastructure.** Describes the quality and quantity of Green Infrastructure required through development. Developer contributions are covered by **DP25. Infrastructure Provision**

Conclusions for the Berwyn and South Clwyd Mountain SAC

- 3.95. Through the recommended Development Policies and Settlement Policies wording and the statutory requirement for a project level HRA for development, there will be no adverse effects on the integrity of the Berwyn and South Clwyd Mountain SAC as a result of the Draft Local Plan.

Hencott Pool, Midlands Meres and Mosses Ramsar Phase 2

- 3.96. Most of Hencott Pool (11.5ha) is swamp carr on very wet peat dominated by alder *Alnus glutinosa* and common sallow *Salix cinerea* with frequent crack willow *Salix fragilis*. Although there are considerable areas of bare peat beneath the trees, there is a rich flora of fen plants. The site is notable for the size of its population of elongated sedge *Carex elongata*. Other uncommon species include purple smallreed *Calamagrostis canescens*, cyperus sedge *Carex pseudocyperus*, cowbane *Cicuta virosa*, great spearwort *Ranunculus lingua* and fine-leaved water dropwort *Oenanthe aquatica*. There are locally extensive moss carpets of *Calliergon cordifolium*, *C. cuspidatum* and *Sphagnum squarrosum*.
- 3.97. Current site vulnerabilities include eutrophication mainly from surrounding agricultural run-off, lowering of the water table from surrounding activities, invasive species, in particular Canadian geese that graze, trample and enrich the vegetation. There is no public access to this privately owned site, but a footpath passes close to the eastern border. A new road (North West Relief Road, NWRR) is proposed to pass close to Hencott Pool. The NWRR is in the advanced stages of design and discussions have been held with the Shropshire Local Planning Authority.
- 3.98. **DP28. Communications and Transport** aims to improve communications and transport networks and support the infrastructure and services to widen travel and transport choices and to improve connectivity and accessibility whilst moving towards reduced car dependency and managing the impacts of transport movements on communities and our environment. **DP 28 Paragraph 3** states that 'These objectives will be achieved by delivering a sustainable pattern of growth and development, investment in the necessary communications and transport infrastructure and services, facilitating remote access to services and employment and making available, more accessible, safe, reliable, low carbon transport modes and active travel choices through: e) Investment in and promotion of strategic and local highways including the Shrewsbury North West Relief Road...'
- 3.99. In the Explanation to the policy, it states at **4.257** 'Shropshire will support improvements to the Strategic and Local Highway Networks particularly to

support the growth of our local economy. The sub-regional role of Shrewsbury is to be enhanced by the delivery of the North West Relief Road to extend the A53 around the north and west of Shrewsbury. Policy **S16.1 paragraph 7** states: The delivery of the North West Relief Road (NWRR) is supported in principle, and as such the proposed line of the road is identified on the Policies Map. Development opportunities between the proposed NWRR and the Development Boundary will be guided by Policy **SP10**. In this area it is recognised that windfall employment proposals on appropriate sites adjoining the development boundary will be supported in principle where they meet the requirements of Policies **SP13** and **SP14** and where suitable vehicular access can be provided. Further information is provided in **S16.1 Paragraph 10** and its Explanation, paragraph 5.225.

- 3.100. In summary, whilst the NWRR is not allocated by the Draft Local Plan, it is supported by it and opportunities for windfall development between the current development boundary and the new NWRR are described. The planning application for the NWRR is due to be submitted in 2021 and the project requires its own HRA to be carried out, based on more detailed investigations. General policy wording in SAMDev Plan policy MD12: Natural Environment currently applies.

Avoidance and mitigation measures

- 3.101. A 'shadow' HRA for the NWRR will be submitted with the planning application for consideration by the LPA. It is understood that the road is now planned to be over 200m from Hencott Pool and so significant effects on the Pool from traffic emissions are unlikely (see paragraph 2.34 above). However, detailed modelling of traffic emissions will be required for the HRA which will also consider any other potential adverse impacts such as changes to hydrology and the potential for increased public access. Any windfall development between the NWRR and the development boundary will be subject to the same DLP policies as the NWRR itself.
- 3.102. **Policy S16.1 Development Strategy: Shrewsbury Strategic Centre and Explanation** text.: Any development with potential impact pathways to Hencott Pool must consider the impacts and provide a 'shadow HRA' with the planning application. Although the Pool is outside the proposed NWRR there could be air quality impacts from employment windfall sites or other impacts depending on the specific project, from sites between the development boundary and the NWRR. It is recommended that wording drawing attention to Hencott Pool and the need for an HRA covering possible air pollution, water, recreation or any other identified impact pathway is added to this policy and explanation. The wording should refer to policies **DP12. The Natural Environment, DP18. Pollution and Public Amenity, DP19. Water Resources and Water Quality, DP21. Flood**

Risk, DP22. Sustainable Drainage Systems and DP25. Infrastructure Provision.

3.103. Conclusions for the Hencott Pool, Midlands Meres and Mosses Ramsar Phase 2

Through adding the recommended policy wording and the statutory requirement for a project level HRA for development, there will be no adverse effects on the integrity of the Hencott Pool, Midlands Meres and Mosses Ramsar Phase 2 as a result of the Draft Local Plan.

Fenemere, Midland Meres and Mosses Phase 1 Ramsar Site

3.104. Fenemere is one of 16 SSSIs together forming the Midland Meres and Mosses Ramsar Site Phase 1. The Site comprises the full range of habitats from open water to raised bog. Fenemere itself supports open water, swamp, fen, wet pasture and carr. Diffuse agricultural pollution is the most significant water quality risk to Fenemere. As for other North Shropshire meres, the ground water catchment can be broadly taken to be the same as for surface water. According to Atkins 2012, the most significant process influencing the water balance of Fenemere is stream inflows from its catchment. Stream inflows accounted for close to half the annual inflows to Fenemere. Groundwater contributions were small in comparison, although a significant proportion of the streamflow generated is likely to be shallow groundwater derived based on the underlying geology.

3.105. The Environment Agency (EA) have commented informally (email 7.2.14) that “Future applications for licenses to abstract groundwater from the sand and gravel aquifer within 3km of Fenemere must show that there will be no impact on water levels within the SSSI. No new abstraction licenses should be granted that allow abstraction of surface water from within the surface water catchment to Fenemere”. The allocation of housing sites does not override the requirement to carry out HRA for abstraction licences if these were to be required.

3.106. The EA also stated that ‘development at Baschurch is unlikely to have an effect on the water quality of Fenemere since surface water drains away from the site via War Brook which is a tributary of the River Perry.’ Examining maps (ECUS 2001) of the surface water flows in detail confirmed that Baschurch does not have a link to the surface water drainage into Fenemere. However, information varies as to whether or not the catchment ends at the railway line to the north east of Baschurch or extends beyond it taking in the northern tip of the settlement. Natural England’s Impact Risk Zones for Fenemere SSSI would indicate the latter, requiring a consultation for any residential development discharging water or waste of more than 5 cubic metres per day to ground or surface water

(e.g. to a stream), in this area of Baschurch. Any residential development connecting to the public sewer are excepted.

- 3.107. In the DLP, the new site allocations are outside the IRZ for impacts on Fenemere, but the saved allocation BAS035 is half inside and half outside. In addition, a windfall allowance of 33 houses has been given for Baschurch. Larger developments are very likely to be served by mains drainage, but details of windfall sites are unknown.

Avoidance and mitigation measures

- 3.108. As a precautionary measure, mitigation measures in the form of policy wording have been included for the settlement of Baschurch, requiring details of drainage to be submitted to inform an HRA at the project level when specific details will be available. Any package treatment plant, cesspit or other means of foul water treatment and associated drainage fields must be fit for purpose and have sufficient capacity to cope with maximum occupancy rates of the development.
- 3.109. **S16.2.** states 'Mitigation measures will be required to remove any adverse effect from increased recreational pressure arising from development in Baschurch on the Cole Mere Ramsar site in accordance with policies **DP12**, **DP14** and **DP15** and for water quality and quantity on the Fenemere Ramsar site. Mitigation measures for recreational and water quality and quantity impacts are identified in the Plan Habitat Regulations Assessment (HRA) and supporting documents.'
- 3.110. **DP12. The Natural Environment** paragraph 1 states: 'Requiring a project-level Habitats Regulations Assessment (HRA) for all proposals where the Local Planning Authority identifies a likely significant effect on an internationally designated site. Permission will be refused where such an HRA indicates an adverse effect on the integrity of a designated site which cannot be avoided or fully mitigated. Where mitigation can remove an adverse effect, including that identified by the HRA for the Plan, measures will be required in accordance with the Plan HRA and supporting documents and/or as set out in the relevant settlement strategies (policies **S1 -21**); and/or remedial actions identified in the management plan for the internationally designated site as appropriate; and/or policies **DP14**, **DP15**, **DP19**, **DP22** and **DP25**.'
- 3.111. **DP20. Water Resources and Water Quality** and **DP23. Sustainable Drainage** systems protect the water environment (together with **DP20** and **DP21**. see section 3.14 under Severn Estuary SAC/SPA and Ramsar). **DP19**. Paragraph 5 requires all development to 'Assess the potential impacts of non-mains drainage on water quality to ensure no detrimental

impact on the water environment in accordance with **Policies DP12, DP13, DP14, DP17, DP18, DP23 and DP24.**'

Conclusions for the Fenemere, Midland Meres and Mosses Phase 1 Ramsar Site

- 3.112. Through the Development Policies and Settlement Policies wording of the DLP and the statutory requirement for a project level HRA for development, there will be no adverse effects on the integrity of Fenemere, Midland Meres and Mosses Phase 1 Ramsar Site as a result of the Draft Local Plan.

Marton Pool (Chirbury), Midland Meres and Mosses Ramsar Site Phase 1

- 3.113. Marton Pool is another of the 16 SSSIs together forming the Midland Meres and Mosses Ramsar Site Phase 1. The Ramsar Site comprises the full range of habitats from open water to raised bog. Marton Pool itself supports open water, swamp and carr. Like many of the meres, water quality and water levels are probably the most important factors in the favourable condition of Marton Pool, Chirbury. Surface water through the Lowerfield Brook is likely to form the principal water supply. The introduction of fish for angling and recreational boating are also issues affecting the mere. Detailed information can be found in the ECUS 2001 report. The area of open water has contracted by about 15% over the last 100 years or so, causing fen vegetation to dry out. The height above the water of the old boat house shows that water levels have fallen at least in summer. It is currently used as an amenity by the adjacent holiday home park and is surrounded by commercial farmland.
- 3.114. The cluster of Brompton, Marton, Middleton, Pentreheyling, Priest Weston, Stockton and Rorrington has no new or saved site allocations or windfall figures in the DLP. Of these, only the northern half of Marton village is within the surface water catchment of Marton Pool SSSI and Ramsar site. The village of Marton is around 180m from the Ramsar site boundary and the Lowerfield Brook does not flow through Marton Village.
- 3.115. There is a holiday home park set on the shores of Marton Pool only accessible to owners therefore recreational pressure will not increase as a result of small-scale housing development in the village or cluster.
- 3.116. The Natural England Impact Risk Zone (IRZ) for the Marton Pool SSSI, covering the north east part of Marton, requires consultation with NE for any residential developments with a total net gain in residential units or a development resulting in any discharge of water or liquid waste that is discharged to ground or to surface water such as a beck or stream.

Discharges to mains sewer are excluded. In the south western half of the village any increase in net residential units or non-mains sewer wastewater of over 2 cubic metres/day would trigger NE consultation, which equates to 6 dwellings.

- 3.117. The village of Marton is linked to Chirbury Sewage Treatment Works so it can generally be assumed that new development can be connected.

Avoidance and mitigation measures

- 3.118. If connection to the mains sewer is not possible, an HRA at the project stage will be required to ensure there will be no adverse effects on the integrity of Marton Pool, Chirbury Ramsar site through nutrient enrichment or contamination of the water catchment and pool. Mitigation measures will include requiring details of drainage to be submitted prior to a planning decision to inform an HRA at the project level when specific details will be available. Any package treatment plant, cesspit or other means of foul water treatment and associated drainage fields must be fit for purpose and have sufficient capacity to cope with maximum occupancy rates of the development.
- 3.119. Policy wording in **S2.3. Community Clusters: Bishop's Castle Place Plan Area** states 'Mitigation measures will also be needed in Brompton, Marton, Middleton, Pentreheyling, Priest Western, Stockton and Rorrington to remove adverse effects on water quantity and quality on Marton Pool Ramsar site. Mitigation measures for recreational and water quality and quantity impacts are identified in the Plan Habitat Regulations Assessment (HRA) and supporting documents.'
- 3.120. **DP13. The Natural Environment** paragraph 1 states: 'Requiring a project-level Habitats Regulations Assessment (HRA) for all proposals where the Local Planning Authority identifies a likely significant effect on an internationally designated site. Permission will be refused where such an HRA indicates an adverse effect on the integrity of a designated site which cannot be avoided or fully mitigated. Where mitigation can remove an adverse effect, including that identified by the HRA for the Plan, measures will be required in accordance with the Plan HRA and supporting documents and/or as set out in the relevant settlement strategies (policies **S1 -21**); and/or remedial actions identified in the management plan for the internationally designated site as appropriate; and/or policies **DP14, DP15, DP19, DP22** and **DP25**.'
- 3.121. **DP19. Water Resources and Water Quality** and **DP22. Sustainable Drainage** systems protect the water environment (together with **DP20** and **DP21**., see section 3.14 under Severn Estuary SAC/SPA and Ramsar site). **DP19**. Paragraph 5 requires all development to 'Assess the potential

impacts of non-mains drainage on water quality to ensure no detrimental impact on the water environment in accordance with Policies **DP12, DP13, DP14, DP17, DP18, DP23 and DP24.**'

Conclusions for the Marton Pool (Chirbury), Midland Meres and Mosses Phase 1 Ramsar Site

- 3.122. Through the Development Policy and Settlement Policy wording of the DLP and the statutory requirement for a project level HRA for development, there will be no adverse effects on the integrity of Marton Pool (Chirbury), Midland Meres and Mosses Phase 1 Ramsar Site as a result of the Draft Local Plan.

Morton Pool and Pasture, Midland Meres and Mosses Phase 2

- 3.123. Morton Pool and Pasture is one of the 19 SSSIs together forming the Midland Meres and Mosses Ramsar Site Phase 2. The Ramsar Site comprises the full range of habitats from open water to raised bog. Morton Pool and Pasture itself supports open water, swamp, wet pasture and carr. Currently it is classed as being in favourable condition.
- 3.124. Bryn Melyn, part of the 'Llanyblodwel, Porthywaen, Dolgoch, Llynclys and Bryn Melyn' cluster in the Oswestry Place Plan Area, lies completely inside the water catchment for Morton Pool and Pasture. The Natural England Impact Risk Zone (IRZ) for the Morton Pool SSSI, requires consultation with NE for any residential developments with a total net gain in residential units, or for a development resulting in any discharge greater than 5m³/day of water or liquid waste that is discharged to ground or to surface water such as a beck or stream. Discharges to mains sewer are excluded. As with the majority of wetland sites, increased nutrients or contamination and changes in water levels, are likely to have adverse effects on the habitats and species.

Avoidance and mitigation measures

- 3.125. In Bryn Melyn or the surrounding area in the catchment, if connecting to a public sewer is not possible, an HRA at the project stage will be required to ensure there will be no adverse effects on the integrity of Morton Pool and Pasture Ramsar Site. Mitigation measures will include requiring details of drainage to be submitted prior to a planning decision to inform an HRA at the project level when specific details will be available. Any package treatment plant, cesspit or other means of foul water treatment and associated drainage fields must be fit for purpose and have sufficient capacity to cope with maximum occupancy rates of the development.

- 3.126. Policy wording in **S14.3. Community Clusters: Oswestry Place Plan Area** states 'Mitigation measures will be required to remove any adverse effect on water quality and quantity arising from development in Llanyblodwel, Porthywaen, Dolgoch, Llynclys and Bryn Melyn on the integrity of Morton Pool Ramsar site. Mitigation measures for recreational and water quality and quantity impacts are identified in the Plan Habitat Regulations Assessment (HRA) and supporting documents.'
- 3.127. **DP12. The Natural Environment** paragraph 1 states: 'Requiring a project-level Habitats Regulations Assessment (HRA) for all proposals where the Local Planning Authority identifies a likely significant effect on an internationally designated site. Permission will be refused where such an HRA indicates an adverse effect on the integrity of a designated site which cannot be avoided or fully mitigated. Where mitigation can remove an adverse effect, including that identified by the HRA for the Plan, measures will be required in accordance with the Plan HRA and supporting documents and/or as set out in the relevant settlement strategies (policies **S1 -21**); and/or remedial actions identified in the management plan for the internationally designated site as appropriate; and/or policies **DP14, DP15, DP19, DP22** and **DP25**.'
- 3.128. **DP19. Water Resources and Water Quality** and **DP22. Sustainable Drainage** systems protect the water environment (together with **DP20** and **DP21**. see section 3.14 under Severn Estuary SAC/SPA and Ramsar site). **DP19**. Paragraph 5 requires all development to 'Assess the potential impacts of non-mains drainage on water quality to ensure no detrimental impact on the water environment in accordance with Policies **DP12, DP13, DP14, DP17, DP18, DP23** and **DP24**.'

Conclusions for the Morton Pool and Pasture, Midland Meres and Mosses Phase 2 Ramsar Site

- 3.129. Through the Development Policy and Settlement Policy wording of the DLP and the statutory requirement for a project level HRA for development, there will be no adverse effects on the integrity of Morton Pool and Pasture, Midland Meres and Mosses Phase 2 Ramsar Site as a result of the Draft Local Plan.

Brown Moss SAC and Midland Meres and Mosses Ramsar Phase 1

- 3.130. Brown Moss consists of a series of pools set in heathland and woodland and is designated as a SAC specifically for its population of Floating Water Plantain *Luronium natans*. The latest record of Floating Water-plantain at this site dates from 2006. Annual surveys take place for the species and it is known to appear after absences if management is favourable. Brown

Moss is also part of the Midlands Meres and Mosses Ramsar Phase 1. SSSIs within the Ramsar Site were chosen for their range of natural or near-natural wetland habitats and associated rare plant and invertebrate assemblages. Of these wetland habitats, Brown Moss supports open water, swamp, fen and basin mire.

- 3.131. Recreation impacts are not mentioned as a pressure or threat in the Site Improvement Plan for Brown Moss (Natural England 2014). However, Natural England expressed concern over recreation impacts as part of the consultation with NE over the SAMDev Plan in 2014. The HRA of the SAMDev Plan could not rule out the possibility of recreational visits damaging the designated features of Brown Moss due to insufficient evidence. Policy wording was incorporated into the plan to mitigate any adverse effects on the advice of Natural England.
- 3.132. Brown Moss is owned by Shropshire Council, is a Countryside Heritage Site, Common Land and has been declared Open Access Land. Hence there is full public access to the site. There is a network of unsurfaced paths and tracks and boardwalks around pool 6. The Shropshire Council Brown Moss Management Plan 2014 - 18 states that the site is popular for quiet recreation such as walking, bird watching, dog walking and feeding the wildfowl. It is often visited by botanists, and students studying a range of wetland related subjects. It is often used by people parking in the car parks and on the roadside in the evening. Occasionally horse riders have been spotted and local youths have been known to ride motorbikes around the site.
- 3.133. *Luronium natans* and other wetland habitats and plants could be sensitive to increased visitor pressure through a number of means:
- direct disturbance (swimming of dogs, trampling by people),
 - eutrophication of water and surrounding habitats, particularly around pool 6,
 - increased risk of non-native and/or invasive plant introductions,
 - visitors creating makeshift bridges in wetter woodland areas with logs, affecting the flow of water to the pools and
 - visitors preventing appropriate management of the site designed to restore the designated features (e.g. grazing).
- 3.134. An informal visitor survey and observational study was carried out by the Council in summer 2014 to gain an impression of visitor numbers and activities at Brown Moss and Cole Mere. Brown Moss was found to attract visitors mostly from the immediate area; 92% of those interviewed lived within 5km of the site. In order to facilitate future visitor impact monitoring, a baseline survey was also commissioned by the council ('Brown Moss and Colemere Visitor Impact Baseline Survey', (2015), G. Castle).

- 3.135. The 2015 Baseline Survey (Ref 4, section 5) found that significant areas (c.50%) of the shore around the largest pool (pool 6) 'were regularly disturbed by dogs entering the water'. The invasive non-native plant *Crassula helmsii* has appeared in the 'drop down zone' of the mere in recent years and is a risk to the Floating Water-plantain and other aquatic plants. Recreation pressure can also have indirect effects. At Brown Moss there have been instances of conflict between dogs and cattle which resulted in livestock being removed earlier than planned in late 2017, thus affecting the habitat management regime for the site. There has also been local opposition to tree felling carried out as part of necessary management works
- 3.136. Brown Moss lies c. 2km south of Whitchurch, a Principal Centre for development in the DLP. Whitchurch and its surrounding area are likely to see an increase in housing allocations of around 1700 dwellings (31%). For the current Local Plan Review, more detailed research was commissioned and can be found in the 'Brown Moss Countryside Heritage Site, Shropshire: Visitor Survey Report and Management Plan' (June 2018) by EPR Ltd. (Ref. No. 9, section 5.)
- 3.137. Face to face visitor questionnaire surveys using a standard methodology were carried out at Brown Moss in August and September 2017. The results suggest that baseline recreational pressure is relatively low, at around 3 people per hour (averaged over the year) and 16,060 people per year. Dog walking was the most commonly cited reason for visiting (75.4%), and the majority of dog walkers said their dog(s) were let off the lead (70.2%). Just over a quarter of dog-owning groups (25.5%) said their dogs strayed off the main paths, but only four (8.5%) said their dogs went into the water. The study proposes an indicative catchment area of 3.4km (75% of visits) from Brown Moss, within which developments involving a net increase in housing may contribute to an increase in recreation pressure at the site. The number of proposed dwellings to 2038 are c. 1200 within this catchment or 'zone of influence'.
- 3.138. The report concludes that although any increase in visitor pressure is likely to be small, the sensitivity of the site means that the possibility of significant adverse effects in combination with other pressures on the site's structure, function and integrity cannot be ruled out. A likely significant effect from the proposals in the DLP cannot be ruled out and impact avoidance measures are required.

Avoidance and mitigation measures

3.139. The following mitigation measures have been identified:

On or close to the development site

- a. Provision of sufficient semi-natural open space (designed to attract dog-walkers) to neutralise/reduce the likelihood of increased visitor pressure on Brown Moss.
- b. Promote and link to other existing open spaces and green infrastructure with a dog walking function in the 3.4km zone and/or footpath networks/circular walks.

On the international site

- c. Implementation of a costed Visitor management Plan funded by developer contributions from development within the 3.4km 'zone of influence'.
- d. Monitoring to determine the need for off-site mitigation measures.

Off site

- e. Modification of existing open space in the area to provide the kind of space that would attract more people, including dog walkers, using the information gained through the visitor surveys of Brown Moss and Accessible Natural Greenspace mapping.
- f. Provide a Country Park within a suitable distance for frequent access.

3.140. It is likely that on-site measures alone will be sufficient to avoid adverse effects upon the features for which Brown Moss was designated as a SAC and Ramsar site, however the situation will be monitored and off-site measures considered if necessary. Alternative green space around Brown Moss could take the form of newly created sites (perhaps in conjunction with larger development allocations), improvements to existing sites to enhance their capacity, or improvements to the footpath network. Any existing sites should not be of nature conservation importance or otherwise vulnerable to the effects of recreation.

3.141. **Policy S18.1. Development Strategy: Whitchurch Principal Centre** states: 'Mitigation measures will be required to remove any adverse effect from increased recreational pressure arising from development in Whitchurch on the integrity of the... Brown Moss SAC/Ramsar site in accordance with policies **DP12**, **DP14** and **DP15**. Mitigation measures for recreational impacts are identified in the Plan Habitat Regulations Assessment (HRA) and supporting documents.' Similar wording is repeated for development in **S18.3. Community Clusters: Whitchurch Place Plan Area** for Tilstock, Ash Magna/Ash Parva, Prees Heath, Ightfield and Calverhall.

3.142. These measures are integrated in the DLP through **DP12. The Natural Environment paragraph 1**, 'Requiring a project-level Habitats

Regulations Assessment (HRA) for all proposals where the Local Planning Authority identifies a likely significant effect on an internationally designated site. Permission will be refused where such an HRA indicates an adverse effect on the integrity of a designated site which cannot be avoided or fully mitigated. Where mitigation can remove an adverse effect, including that identified by the HRA for the Plan, measures will be required in accordance with the Plan HRA and supporting documents and/or as set out in the relevant settlement strategies (policies S1 -21); and/or remedial actions identified in the management plan for the internationally designated site as appropriate; and/or policies **DP14, DP15, DP19, DP22 and DP25.** In the explanation for **DP12**, paragraph 4.128 states 'Project-level mitigation measures may include; phasing development to allow time for infrastructure improvements to be put in place; increasing the amount of semi-natural open space to provide alternative informal recreation opportunities in line with policy **DP15** or developer contributions towards remedial actions identified in the management or action plan for the internationally designated site or in the Place Plan for the area.'

- 3.143. **DP15. Open Space** paragraph 3 'For developments where an adverse effect on the integrity of an internationally or nationally designated wildlife site due to recreational impacts has been identified, particular consideration will be given to the need for semi-natural open space provision in excess of 30sqm per person.', **DP14. Green Infrastructure.** Describes the quality and quantity of Green Infrastructure required through development.
- 3.144. Developer contributions are covered by **DP25. Infrastructure Provision.** They will be sought on a per person basis (or estimated at 2.4 people per dwelling), to implement the 'Brown Moss Countryside Heritage Site, Shropshire: Visitor Survey Report and Management Plan' (June 2018) by EPR Ltd. (Ref No. 9, section 5.), which is currently in final draft form but will be finalised before the publication of the Submission Draft Local Plan.

Conclusions for the Brown Moss SAC and Midland Meres and Mosses Phase 1 Ramsar Site

- 3.145. Through the Development Policy and Settlement Policy wording of the DLP and the statutory requirement for a project level HRA for development, there will be no adverse effects on the integrity of **Brown Moss SAC and Midland Meres and Mosses Phase 1 Ramsar Site** as a result of the Draft Local Plan.

Cole Mere, Midland Meres and Mosses Ramsar Phase 2

- 3.146. Cole Mere is part of the Midlands Meres and Mosses Ramsar Phase 2. The SSSIs within the Ramsar Site were chosen for their range of natural or near-natural wetland habitats and associated rare plant and invertebrate assemblages. Designated habitats at Cole Mere (taken from the Favourable Condition Table) are the open water of the mere, the emergent fringe vegetation, the M23 and M24 marshy grassland and the W5 wet woodland. All are vulnerable to recreational pressure, however those at greatest risk are likely to be the emergent fringing vegetation to the mere and the marshy grassland in the well-used meadow area known as Yell Field. The SSSI Citation states that there is a comparatively rich flora of aquatic macrophytes, including small pondweed *Potamogeton berchtoldii*, fan-leaved water crowfoot *Ranunculus circinatus* and autumnal water-starwort *Callitriche hermaphrodita*. Lesser yellow water-lily *Nuphar pumila* occurs here at what is probably its only English locality.
- 3.147. Natural England expressed concern over recreation impacts as part of the consultation with NE over the SAMDev Plan in 2014. The HRA of the SAMDev Plan could not rule out the possibility of recreational visits damaging the designated features of Cole Mere due to insufficient evidence. Policy wording was incorporated into the plan to mitigate any adverse effects on the advice of Natural England.
- 3.148. Cole Mere is owned by Shropshire Council, is a Countryside Heritage Site, Local Nature Reserve and has been declared Open Access Land. Hence there is full public access to the site. The main feature of the site is a circular walk around the mere itself, which is surfaced throughout (including a stretch of boardwalk). A free car park with space for 40 cars is available, plus a few more parking spaces elsewhere. Private sailing and fishing take place and there are numerous fishing pegs around the mere. Dog waste bins are located at the main entrance from the car park field to the circular walk, and at a secondary entrance near Little Mill Field. Signs in the car park and at kissing gates request that dogs are kept on the lead during the bird nesting season from 1 March to 31 July inclusive. Cole Mere is linked to the Shropshire Union Canal towpath at Yell Bridge by a stoned track and steps. The towpath is part of the Shropshire Way and can be followed to Ellesmere, around 3km to the north-west.
- 3.149. The aquatic plants including Lesser Yellow Water-lily and wetland habitats could be sensitive to increased visitor pressure through a number of means:
- direct disturbance (swimming of dogs, trampling by people and unauthorised swimming),
 - disturbance adjacent to fishing pegs
 - eutrophication of water and surrounding habitats, particularly in Yell Field

- damage by boating activities
- increased risk of non-native and/or invasive plant introductions,
- unauthorised plant collecting
- excessive baiting (angling) and
- indirect effects such as opposition to scrub/tree clearance or introduction of grazing animals.

3.150. The available literature does not suggest that recreation at the site is affecting water quality. Large increases in water sports, for example, would require consent from Natural England and therefore are not considered to be a threat as they can be controlled. There are no housing or employment allocation settlements within the surface water catchment of Cole Mere, with the closest allocation 3.4km away at Ellesmere.

3.151. An informal visitor survey and observational study was carried out by the Council in summer 2014 to gain an impression of visitor numbers and activities at Cole Mere. It found that visitors travelled an average distance of 4.8km to Cole Mere, with the majority (68%) drawn from within 5km of Cole Mere. In order to facilitate future visitor impact monitoring, a baseline survey was also commissioned by the council ('Brown Moss and Colemere Visitor Impact Baseline Survey', (2015), G. Castle).

3.152. The 2015 Baseline Survey (Ref 4, section 5) found that around 15% of the margins of the mere are regularly disturbed by dogs swimming in the water, mainly in Yell Field and Little Mill Field with occasional access points in Boathouse Wood and Yell Wood. The survey also estimated that c. 1m width of shoreline was disturbed at fishing pegs at 37 locations (approximately 1-2% of shore). The rush pasture and meadows in Yell Field and Little Mill Field require grazing or mowing to reduce nutrient levels and prevent the dominance of coarse, competitive grasses, rushes and forbs and eventual succession to scrub. Visitors may react against grazing and conflict between dogs and cattle could adversely affect the future habitat management regime for the site. There has also been local opposition to tree felling carried out as part of necessary management works

3.153. Cole Mere lies immediately north of the village of Cole Mere, about 3km to the south-east of Ellesmere and 7.5 km from Wem, towns which are likely to see an increase in housing allocations of around 1782 new dwellings, an increase of around 12%. For the current Local Plan Review, more detailed research was commissioned and can be found in the 'Cole Mere Countryside Heritage Site, Shropshire: Visitor Survey Report and Management Plan' (June 2018) by EPR Ltd. (Ref No. 10, section 5.)

3.154. Face to face visitor questionnaire surveys using a standard methodology were carried out at Cole Mere in August and September 2017. The results

suggest that baseline recreational pressure is relatively low, at around 8.5 people per hour (averaged over the year) and 37,000 people per year. The majority of visitors complete the circular walk around the lake. Dog walking was the most commonly cited reason for visiting (47.1%), although walking and exercise were also popular. The majority of dog walkers said their dog(s) were let off the lead (86.2%) and almost half of dog owners said their dogs went into the water. The study proposes an indicative catchment area of 11.7km (75% of visits) from Cole Mere, within which developments involving a net increase in housing may contribute to an increase in recreation pressure at the site. The number of proposed dwellings to 2038 are c. 1774 within this catchment or 'zone of influence'.

- 3.155. The report concludes that in light of the high baseline visitation levels at Cole Mere, any increase in recreational pressure arising from new housing within the 11.7km catchment is likely to give rise to significant adverse effects upon the structure, function and integrity of the site, acting in combination with other factors. A significant effect from the proposals in the DLP cannot be ruled out and impact avoidance measures are required.

Avoidance and mitigation measures

- 3.156. The following mitigation measures have been identified:

On or close to the development site

- g. Provision of sufficient semi-natural open space (designed to attract dog-walkers) as part of the development to neutralise/reduce the likelihood of increased visitor pressure on Cole Mere.
- h. Promote and link to other existing open spaces with a dog walking function in the 11.7km zone and/or footpath networks/circular walks.

On the international site

- i. Implementation of the costed Visitor Management Plan funded by developer contributions from development within the 11.7km 'zone of influence'.
- j. Monitoring to determine the need for off-site mitigation measures.

Off site

- k. Modification of existing open space in the area to provide the kind of space that would attract more people, including dog walkers, using the information gained through the visitor surveys of Cole Mere and Accessible Natural Greenspace mapping.
- l. Provide a Country Park within a suitable distance for frequent access.

- 3.157. Impact avoidance measures in the form of on-site visitor management measures and off-site alternative greenspace are proposed. The situation will be monitored and off-site measures considered if necessary. The

report states that the results of the visitor survey work indicate that the provision and promotion of carefully designed alternative green spaces near Cole Mere has the potential to reduce visitor pressure at the site. The surveys have shown that Cole Mere attracts visitors from a large catchment who mostly visit occasionally (23.5%, compared to 13.7% who visit daily) and also use a wide range other sites, suggesting that they are not attached to Cole Mere.

- 3.158. Alternative green space around Cole Mere could take the form of newly created sites (perhaps in conjunction with larger development allocations), improvements to existing sites to enhance their capacity, or improvements to the footpath network. Any existing sites should not be of nature conservation importance or otherwise vulnerable to the effects of recreation.
- 3.159. **Policy S8.1. Development Strategy: Ellesmere Key Centre** states: 'Mitigation measures will be required to remove any adverse effect from increased recreational pressure arising from development in Ellesmere on the integrity of the Cole Mere Ramsar site... in accordance with policies DP13, DP15 and DP16. Mitigation measures for recreational impacts are identified in the Plan Habitat Regulations Assessment (HRA) and supporting documents.' Similar wording is repeated for development in **S8.2. Community Hubs: Ellesmere Place Plan Area** for Dudleston Heath, **S8.3. Community Clusters: Ellesmere Place Plan Area** for Cockshutt, Welsh Frankton and Tetchill, **S17.1 Development Strategy: Wem Key Centre**, **S17.3. Community Clusters: Wem Place Plan Area** for 'Edstaston, Quina Brook, Northwood, Newton, Tilley and Aston' and 'Harmer Hill', **S18.2. Community Hubs: Whitchurch Place Plan Area** for Prees, **S18.3. Community Clusters: Whitchurch Place Plan Area** for 'Tilstock, Ash Magna/Ash Parva, Prees Heath, Ightfield and Calverhall', **S16.2. Community Hubs: Shrewsbury Place Plan Area** for Baschurch, **S14.2. Community Hubs: Oswestry Place Plan Area** for Ruyton XI Towns, St Martins, West Felton and Whittington and **S14.3. Community Clusters: Oswestry Place Plan Area** for Park Hall, Hindford, Babbinswood and Lower Frankton.
- 3.160. These measures are integrated in the DLP through **DP12. The Natural Environment paragraph 1**, 'Requiring a project-level Habitats Regulations Assessment (HRA) for all proposals where the Local Planning Authority identifies a likely significant effect on an internationally designated site. Permission will be refused where such an HRA indicates an adverse effect on the integrity of a designated site which cannot be avoided or fully mitigated. Where mitigation can remove an adverse effect, including that identified by the HRA for the Plan, measures will be required in accordance with the Plan HRA and supporting documents and/or as set out in the relevant settlement strategies (policies S1 -21); and/or remedial

actions identified in the management plan for the internationally designated site as appropriate; and/or policies **DP14**, **DP15**, **DP19**, **DP22** and **DP25**.' In the explanation for **DP12**, paragraph 4.128 states 'Project-level mitigation measures may include; phasing development to allow time for infrastructure improvements to be put in place; increasing the amount of semi-natural open space to provide alternative informal recreation opportunities in line with policy **DP15** or developer contributions towards remedial actions identified in the management or action plan for the internationally designated site or in the Place Plan for the area.'

- 3.161. **DP15. Open Space** paragraph 3 'For developments where an adverse effect on the integrity of an internationally or nationally designated wildlife site due to recreational impacts has been identified, particular consideration will be given to the need for semi-natural open space provision in excess of 30sqm per person.', **DP14. Green Infrastructure**. Describes the quality and quantity of Green Infrastructure required through development.
- 3.162. Developer contributions are covered by **DP25. Infrastructure Provision**. They will be sought on a per person basis (or estimated at 2.4 people per dwelling), to implement the 'Cole Mere Countryside Heritage Site, Shropshire: Visitor Survey Report and Management Plan' (June 2018) by EPR Ltd. (Ref No 10, section 5.), which is currently in final draft form but will be finalised before the publication of the Submission Draft Local Plan.

Conclusions for the Cole Mere, Midland Meres and Mosses Phase 2 Ramsar Site

- 3.163. Through the Development Policy and Settlement Policy wording of the DLP and the statutory requirement for a project level HRA for development, there will be no adverse effects on the integrity of Cole Mere, Midland Meres and Mosses Phase 1 Ramsar Site through recreation impacts as a result of the Draft Local Plan.

Cole Mere and White Mere, Midland Meres and Mosses Ramsar Site Phase 2 and minerals allocations

- 3.164. No new mineral allocations are proposed in the DLP, but the mineral allocations in the SAMDev Plan have been saved via **DP30. Sites for Sand and Gravel Working**. Appendix 7 contains the HRA of the Minerals Allocations for the SAMDev Plan. Out of the three mineral allocations considered in the Shropshire Council Habitats Regulations Assessment of Mineral Allocations for the plan period 2012 – 2026 Report (March 2014), it was concluded that two, Gonsal Extension and Morville Extension, will have no likely significant effect on any international site.

- 3.165. For the remaining mineral allocation impact pathways were identified by which sand and gravel extraction might have the potential to affect international sites. Project specific, detailed mitigation measures and further hydrological investigations were required and discussed in the above document. Policies were put in place in the SAMDev Plan to ensure that permission would not be granted unless details of mitigation measures to remove any adverse effect on international sites were submitted.
- 3.166. At the planning application stage, the Wood Lane North extension (Ellesmere) was required to be subject to a full Appropriate Assessment under the Habitats Regulations Assessment process set out within the Conservation of Species and Habitats Regulations 2017 and to formal consultation with Natural England.

Avoidance and mitigation measures

- 3.167. Following a detailed Habitat Regulations Assessment for application number 14/04589/MAW, planning permission has since been granted for excavation to a level just above the water table only. Mitigation measures were required to protect Cole Mere and the adjacent, hydrologically connected peat body of the White Moss Valley, through surface and groundwater quality and quantity pathways. Protection from airborne dust was also necessary. Mitigation measures were required to protect White Mere from airborne dust and sediment washing into the mere from the adjacent road. If excavation to a deeper extent is intended, then a new planning application must be submitted with additional information addressing the above issues, particularly hydrology, to enable the local planning authority to carry out a new Habitats Regulations Assessment.

Conclusions for the Cole Mere and White Moss, Midland Meres and Mosses Phase 2 Ramsar Sites in relation to minerals allocations

- 3.168. The SAMDev Plan Minerals HRA and the **Development Guidelines** for the saved Wood Lane Quarry, Northern Extension in SAMDev Plan Policy **MD5: Sites for Sand and Gravel Working, Schedule MD5a**; Phase 1 Site Allocations remain relevant to 2038. Through the Development Policy and Settlement Policy wording of the DLP and the statutory requirement for a project level HRA for development, there will be no adverse effects on the integrity of Cole Mere or White Mere, Midland Meres and Mosses Phase 2 Ramsar Sites as a result of the Draft Local Plan.

Tanat and Vyrnwy Bat Sites SAC

- 3.169. No site allocations are close enough to international sites to cause direct effects. Three sites PYC021, LYH007 and the saved LLAN001 are within

10km of the Tanat and Vyrnwy Valley Bat Sites, but are between 8 and 9km away and are relatively small in size (1.89, 1.85 and 2.1 hectares respectively). These sites lie adjacent to corridors of vegetation including the Montgomery Canal and woodland, in an area known to be frequented by Lesser Horseshoe Bats. However, they are not associated with known bat roosts or commuting routes.

Avoidance and mitigation measures

- 3.170. Bat surveys are routinely required at planning application stage as part of the Ecological Impact Assessment. However, due to residual uncertainty, policy wording is required to ensure an HRA is undertaken at the planning application stage. Bat surveys should be detailed and follow best practice, covering the full active seasons for bats over spring, summer and autumn. In the unlikely event that Lesser Horseshoe bats are using the boundaries of these sites as significant commuting or foraging routes, mitigation measures such as designing into the layout dark flight routes for bats and providing detailed lighting plans showing contours for lux levels must be provided to inform the HRA of the project.
- 3.171. Settlement Policy **S14.2. Community Hubs: Oswestry Place Plan Area** currently states:
‘Mitigation measures will be required to remove any adverse effect from increased recreational pressure and water quality and quantity arising from development in Llanymynech and Pant on the integrity of the Montgomery Canal SAC in accordance with policies **DP12**, **DP14** and **DP15**... Mitigation measures for recreational impacts and water quality and quantity are identified in the Plan Habitats Regulation Assessment (HRA) and supporting documents.’
- 3.172. It is recommended that the wording of this policy is altered to include a reference to light pollution (potential disturbance of bats) as well as water quality and quantity and recreation. The policy wording should be updated prior to the Submission Draft Local Plan is published for consultation.
- 3.173. **DP12. The Natural Environment paragraph 1**, ‘Requiring a project-level Habitats Regulations Assessment (HRA) for all proposals where the Local Planning Authority identifies a likely significant effect on an internationally designated site. Permission will be refused where such an HRA indicates an adverse effect on the integrity of a designated site which cannot be avoided or fully mitigated. Where mitigation can remove an adverse effect, including that identified by the HRA for the Plan, measures will be required in accordance with the Plan HRA and supporting documents and/or as set out in the relevant settlement strategies (policies S1 -21); and/or remedial actions identified in the management plan for the internationally

designated site as appropriate; and/or policies **DP14, DP15, DP19, DP22** and **DP25.**'

Conclusions for the Tanat and Vyrnwy Bat Sites SAC

- 3.174. Through the Development Policy and proposed modification to the Settlement Policy wording of the DLP and the statutory requirement for a project level HRA for development, there will be no adverse effects on the integrity of the Tanat and Vyrnwy Bat Sites SAC through damage or disturbance to Lesser Horseshoe foraging or commuting routes as a result of the Draft Local Plan.

Additional Development Policies screened into the appropriate assessment

- 3.175. Of the policies considered in this Appropriate Assessment, policies **DP12, DP13** and **DP15** contain mitigation measures. Policies **DP28** and **DP30** have been considered under the relevant international site. The remaining policies **SP14** and **DP10** give general rather than specific locations for development and are addressed in the following paragraphs.
- 3.176. **DPSP14. Strategic Corridors:** This policy seeks to focus major development, particularly economic/employment development, along the principal rail network and strategic and principal road networks in Shropshire. Hence sites are not specifically allocated by the policy, but a general location is provided.
- 3.177. 'Strategic Corridors' are broadly defined in the Explanation text at 4.91. Depending on the location and level of emissions or other impact pathways of the development, the following international sites are those most likely to be affected (within a 5km buffer of the network).
- a) **Eastern Belt M54/A5, A41/A464 and A4169/A458/A454**
Aqualate Mere Ramsar Site (A41 crosses the surface water catchment)
Berrington Pool Ramsar Site (A458)
 - b) **A5 West corridor**
Morton Pool and Pasture Ramsar Site
River Dee and Bala Lake SAC
 - c) **Central Shropshire**
Hencott Pool Ramsar Site
Bomere and Shomere Pools Ramsar Site
Berrington Pool Ramsar Site
 - d) **North East Shropshire and the A41 corridor**
Brown Moss SAC and Ramsar Site
 - e) **A49 corridor**
Brown Moss SAC and Ramsar Site

- 3.178. **Paragraph 2** of the policy states ‘Development likely to affect an internationally designated wildlife site, through atmospheric emissions must comply with the requirements for a project level HRA in accordance with policy **DP12**.’ Paragraph **3** sequentially proposes development to be directed towards Principal and Key Settlements and Strategic Sites (Settlement Policies have already been screened above). Paragraph **3c** covers criteria for windfall sites within the ‘strategic corridors’. Paragraph **4** states that ‘Proposals for development in the ‘strategic corridors’ must satisfy the requirements of Policy **SP13** (Delivering Sustainable Economic Growth & Enterprise). **SP13** paragraph **2e** requires employment development to satisfy the requirements of national and local policies, especially to conserve the natural environment. Policy **DP12. The Natural Environment** paragraph **1** requires a project level HRA for all proposals where the Local Planning Authority identifies a likely significant effect on an internationally designated site. In view of the protection provided by policies within the DLP there should be no adverse effect on the integrity of international sites as a result of policy **SP14**.
- 3.179. **DP10. Tourism, Culture and Leisure:** This policy seeks to deliver high quality, sustainable tourism, cultural and leisure development. Paragraph 1c states emphasis will be placed on ‘Supporting development that promotes opportunities for accessing, understanding and engaging with Shropshire’s landscape, cultural and historic assets including the Shropshire Hills AONB, rights-of-way network, canals, rivers and meres & mosses.’ Many of the international sites screened in to this HRA are ‘meres and/or mosses’ and those which may be affected by the DLP through recreation impacts are listed in Table 4 for Stage 1 screening and Table 7 for the Appropriate Assessment, where mitigation measures are described.
- 3.180. **DP10** paragraph **2** states that ‘Tourism, leisure and recreation development proposals that require a countryside location will be permitted where the proposal complements the character and qualities of the site’s immediate surroundings, and meets the requirements in Policies **SP10, DP12, DP16, DP23, SP11** and relevant local and national guidance.
- 3.181. **DP12. The Natural Environment** paragraph **1** requires a project level HRA for all proposals where the Local Planning Authority identifies a likely significant effect on an internationally designated site. In view of the protection provided by policies within the DLP there should be no adverse effect on the integrity of international sites as a result of policy **DP110**.

Assumptions made when undertaking this Habitats Regulations Assessment

- 3.182. The screening conclusions, appropriate assessment and the integrity test necessarily rely on some assumptions and are inevitably subject to some limitations. Most of the assumptions and limitations would not affect the conclusions, but the following points are recorded in order to ensure that the basis of the assessment is clear.
- 3.183. A desk-based search has been made for details of the international sites and their vulnerabilities. Assuming that most ecological surveys are likely to be out of date after 3 years in the planning process, historical data for many sites is considered to be quite old. Where necessary, it is assumed that new survey data will be obtained for international sites, if possible, for the project level HRA.
- 3.184. Assessment of potential impacts and adverse effects on international sites has been based on published information and best practice documents (see reference list), advice from statutory agencies and other specialists and the author's professional opinion.
- 3.185. Scientific understanding of natural processes and ecosystems, ecological responses to impacts and the effects generated is continuously improving. The conclusions of this HRA will be re-visited if new information comes to light as a result of the statutory and public consultations. After adoption of the new Local Plan, project level HRAs must take in to account the most recent and relevant information which becomes available as well as that considered for the HRA of the Adopted Plan.
- 3.186. Saved allocations from the SAMDev Plan are marked in Appendix 5 as having no likely significant effects on water quantity or quality based on the conclusions of the SAMDev Plan HRA and the responses of the water companies and EA at the time. The current Water Cycle Study (Ref. 14) has taken both saved and new allocations into account and any necessary amendments will be made following further consultation with water companies, the EA and NRW.
- 3.187. Visitor surveys for international sites are largely unavailable, except for those specifically commissioned by Shropshire Council for its own sites (Brown Moss and Cole Mere). Provision has been made in the plan policies to take into account any new visitor management plans in future.

Summary of Stage 2 Appropriate Assessment

3.188. 12 international sites (7 SSSIs in the Midlands Meres and Mosses Ramsar Phase 1 and 2 sites) and 2 policies could not be screened out in Stage 1 of this HRA. Following a detailed Appropriate Assessment, it has been concluded that for the following international sites there will be no adverse effects on their integrity as a result of the Regulation 19: Pre-Submission Draft Plan.

Brown Moss SAC
Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC
Midland Meres & Mosses Ramsar Phase 1
 Brown Moss
 Fenemere
 Marton Pool (Chirbury)
Midland Meres & Mosses Ramsar Phase 2
 Cole Mere
 Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses
 Morton Pool and Pasture
 White Mere
Montgomery Canal SAC
River Clun SAC
River Dee & Bala Lake SAC
The Stiperstones & the Hollies SAC

3.189. With minor policy wording changes to **S14.2. Community Hubs: Oswestry Place Plan Area** there will be no adverse effect on the integrity of the Tanat and Vyrnwy Bat Sites SAC.

3.190. Comprehensive water management policies (**DP19 -22**) have been included in the DLP in response to the findings of the Shropshire Water Cycle Study. However, as a precautionary measure, final HRA assessment of the following sites will be undertaken once formal consultations with Severn Trent Water and the Environment Agency have been completed. These consultations will be completed prior to publishing the Submission Draft Local Plan. Until then uncertainty remains.

Severn Estuary SPA
Severn Estuary SAC
Severn Estuary Ramsar Site

3.191. The DLP includes mechanisms for plan and project-level mitigation measures, which may include;

- Requiring mitigation measures to remove any adverse effect on integrity under **Policy DP12. The Natural Environment**;

- requiring development in the River Clun Catchment to be nutrient neutral or to provide a betterment under policy **DP13. Development in the River Clun Catchment**;
 - increasing the amount of semi-natural open space to provide alternative informal recreation opportunities in line with policy **DP12. The Natural Environment**, **DP15. Open Space** and **DP14. Green Infrastructure**;
 - developer contributions towards remedial actions for recreational impacts identified in the management or action plan for the designated site or in the Place Plan for the area, such as visitor management measures in line with **DP12. The Natural Environment** and **DP25. Infrastructure Provision** and the relevant **Settlement Policies**.;
 - water management measures in policies **DP19. Water Resources and Water Quality**, **DP20. Water Efficiency**, **DP21. Flood Risk** and **DP22. Sustainable Drainage Systems**.
 - Site specific recommendations within settlement policies.
- 3.192. The Council will work with Natural England and Natural Resources Wales to determine what site-specific mitigation measures are appropriate for recreational pressure in the light of the findings of further research when available. Where necessary, on the production of evidence-based site Visitor Management Plans, mitigation measures will be required at the project stage through the mechanisms set out in **DP12**, **DP14**, **DP15** and **DP25**, the priorities in the Place Plans and updates of the international site Management Plans. The DLP provides the mechanisms for achieving the necessary mitigation.

4. Conclusions of the Habitats Regulations Assessment of the Pre-Submission Draft Shropshire Local Plan.

Integrity Test

- 4.1. With the counter-acting and mitigation measures set out in this HRA, and proposed minor alterations to policy **S14.2** the Council is confident that the elements of the Draft Local Plan, including the Vision, strategic, development or settlement policies, allocated and saved sites will not have an adverse impact on the integrity of the identified international sites, with the exception of the Severn Estuary SAC/SPA/Ramsar Sites. Policy wording has been included in the DLP which will protect the latter three sites, but the final conclusions of the Appropriate Assessment will be made following formal consultation with Severn Trent Water, Natural Resources Wales and the Environment Agency.

- 4.2. Appendix 5 gives the screening results for all Settlement Policies and site allocations. Appendix 4 provides the screening results for international sites.
- 4.3. This assessment uses existing information and is at a higher level than would be required for planning application proposals. A consequence is that it identifies more sites as being likely to have impacts on an international site, than subsequent assessments will, when details of specific proposals are known. It, therefore, represents a precautionary approach.
- 4.4. The main points to be drawn from the assessment are considered to be that: -
- None of the sites are within an international wildlife site, therefore, none of them would result in direct loss of habitat within one;
 - Where it seems likely that development of a proposed site could affect an international site, counteracting measures within policies have been adopted or are proposed;
 - The mitigation measures that could be required to counteract the effects would commonly be requirements of planning permissions, or of Environment Agency permits, for the developments that are proposed;
 - No reasonable scientific doubt remains as to the absence of likely significant effects or adverse effects on site integrity arising from the implementation of the Draft Local Plan for all but the Severn Estuary SAC/SPA and Ramsar Sites, where uncertainty remains.
- 4.5. Formal allocation within the Draft Local Plan does not reflect a commitment from Shropshire Council to grant planning permission when a planning application is subsequently made. The National Planning Policy Framework paragraph 177 states that “The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.”
- 4.6. **If it should not prove possible for the developer to show, to the satisfaction of Shropshire Council, Natural England and Natural Resources Wales and beyond reasonable scientific doubt, that the proposed development would not impact on the integrity of any Natura 2000 Designated Site then Shropshire Council would refuse to grant planning permission.**

5. References and Abbreviations

The following documents have informed this report:

References

1. Article 6(3) and (4) of the European Communities (1992) Council Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora (the Habitats Directive)
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<https://www.gov.uk/government/publications/air-quality-uk-national-air-pollution-control-programme>
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https://magic.defra.gov.uk/Metadata_for_magic/SSSI%20IRZ%20User%20Guidance%20MAGIC.pdf
20. Natural England (March 2020) Advice on achieving nutrient neutrality for new development in the Solent Region, Version 4.
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22. Scottish Natural Heritage (January 2015) Habitats Regulations Appraisal of Plans
23. Shropshire Council Local Development Framework Adopted Core Strategy March 2011
24. Shropshire Council Development within the River Clun Catchment Interim Guidance Note 12, 2013
25. Shropshire Council (2010) Outline Water Cycle Study Final Report
26. Shropshire Council (2014) Water Cycle Evidence for Shropshire Local Plan
27. The Conservation of Habitats and Species Regulations 2010 (the "Habitats Regulations") (SI No. 2010/490).
28. White, J, Liley, D. & Underhill-Day, J. (2009). Cannock Chase Visitor Impact Mitigation Strategy. Footprint Ecology.
29. WSP (2020) Traffic Impact on Air Quality at International Sites for the Habitat Regulations Assessment, Final Report.
30. <https://www.gov.uk/guidance/appropriate-assessment#what-are-the-implications-of-the-people-over-wind-judgment-for-habitats-regulations-assessments>

Previous Shropshire HRA documents

1. Core Strategy Development Plan Document: Habitats Regulation Assessment, Screening Report (March 2009)
2. Core Strategy Development Plan Document: Habitats Regulation Assessment, Stage 2 Report (February 2010)
3. Draft Mineral Allocations for the plan period 2012-2026 HRA Stage 3 Report (Specific Sites) June 2011
4. Draft Stage 3 Habitats Regulation Assessment Reports of potential allocations was prepared in October 2011 for the Site Allocations and Management of Development DPD
5. SAMDev Draft Development Management Policies HRA January 2013
6. SAMDev Pre-Submission Draft Habitats Regulation Assessment (draft March 2014)
7. Habitats Regulations Assessment of Mineral Allocations for the plan period 2012 – 2026 Report (draft March 2014)
8. Shropshire Council SAMDev Habitats Regulation Assessment (July 2014)

9. Shropshire Council (January 2017) Local Plan Review 2016 – 2036, Issues and Strategic Options Habitat Regulations Assessment Initial Screening Report.
10. Shropshire Council Local Plan Review Consultation on Preferred Scale and Distribution of Development (October 2017) HRA Screening Report.
11. Preferred Site Allocations – November 2018;
12. Strategic Sites – June 2019.
13. Shropshire Council Reg. 18 Pre-Submission Draft Local Plan HRA July 2020

Abbreviations and definitions

NE	Natural England
EA	Environment Agency
HRA	Habitats Regulations Assessment
SPA	Special Protection Area classified in accordance with Article 4 of the EC Birds Directive (1979)
SAC	Special Area of Conservation designated under the EC Habitats Directive.
Ramsar site	A site listed as a wetland of international importance under the provision of the Ramsar Convention. A Ramsar site is not a 'European site' as a matter of law but is given the same protection as SPA's and SAC's.
International site	One of the following designated sites: <ul style="list-style-type: none">• Special Area of Conservation (SAC),• candidate SAC (cSAC),• possible SAC (pSAC),• Special Protection Area (SPA),• potential SPA (pSPA),• proposed and listed Wetlands of International Importance (Ramsar Sites)
IRZ	Natural England Impact Risk Zone
DLP	Regulation 18: Pre-Submission Draft Shropshire Local Plan 2016-2038
LPR	Local Plan Review
SAMDev	Site Allocations & Management of Development Plan
SPD	Supplementary Planning Document

Representations from Natural England and Natural RW

- 5.1. Natural England have responded to the following consultation documents and iterations of the HRAs for the Local Plan Review:
 - Issues and Options – January 2017; NE response dated 20/03/2017

- Preferred Scale and Distribution of Growth – December 2017; NE response dated 21/12/2017
 - Preferred Site Allocations – November 2018; NE response dated 08/02/2019
 - Strategic Sites – June 2019. NE online response 2019.
 - Reg.18 Pre-Submission Draft Local Plan
- 5.2. NRW responded to a specific consultation on road traffic emissions on the 26/02/2018. And to the Reg18. Pre-Submission Draft Local Plan.

Public consultation

- 5.3. In response to the current lockdown restrictions, which came into force on the 5th January 2021, the representation period has been extended. The representation period now runs from Friday 18th December 2020 - Friday 26th February 2021. **All representations must be made by 5:00pm on Friday 26th February 2021.**
- 5.4. This HRA Report is published as a supporting document at the same time and representations on the HRA are welcomed.
- 5.5. A two-part Representation Form, adapted from the Planning Inspectorate's model form, will be available for all interested parties to complete and submit.
- **Part A Representation Form:** Personal details (need only be completed once).
 - **Part B Representation Form:** Your response(s) (please fill in a separate Part B Representation Form for each representation you wish to make, relating it to the relevant paragraph, policy (including its explanation), site or policies map).
- If when completing the Part B Representation Form you require more space than allowed, please continue on a separate sheet and submit it alongside the Part B Representation Form. If you are completing more than one Part B Representation Form, please ensure it is clear to which Part B Representation Form any additional sheets relate.*
- 5.6. When completing the **Part B Representation Form**, please tick the relevant box to indicate that the representation relates to the Habitats Regulations Assessment of the Regulation 19: Pre-Submission Draft of the Shropshire Local Plan.
- 5.7. When making a representation on the Habitats Regulations Assessment of the Regulation 19: Pre-Submission Draft of the Shropshire Local Plan, please indicate whether you consider that the representation means the Regulation 19: Pre-Submission Draft of the Shropshire Local Plan is or is not legally compliant, sound and compliant with the duty to cooperate.

- 5.8. If the representation on Habitats Regulations Assessment of the Regulation 19: Pre-Submission Draft of the Shropshire Local Plan is seeking a modification to the Regulation 19: Pre-Submission Draft of the Shropshire Local Plan, you should set out clearly in what way you consider the Regulation 19: Pre-Submission Draft of the Shropshire Local Plan is legally non-compliant or unsound, having regard as appropriate to soundness criteria (further information is available within the **Representation Form: Guidance Note** available on the Shropshire Council website). Your representation should be supported by evidence wherever possible. It will be helpful if you also say precisely how you think the Regulation 19: Pre-Submission Draft of the Shropshire Local Plan should be modified.
- 5.9. Completed Representation Forms and other correspondence can be submitted by emailing: Planningpolicy@Shropshire.gov.uk
If submitting your own response, please enter your last name in the subject field of the email;
If submitting a response on behalf of a client, please enter their last name in the subject field of the email.
- 5.10. Completed Representation Forms and other correspondence can also be submitted by post to: **Shropshire Council, Planning Policy & Strategy Team, Shirehall, Abbey Foregate, Shrewsbury, Shropshire, SY2 6ND**
Our preference is for people to respond using the two-part Representation Form via email to:
Planningpolicy@Shropshire.gov.uk
- 5.11. **Please Note:** We cannot accept anonymous representations. You must provide your name and contact details. Your personal data will be processed in line with our [Planning Policy Privacy Notice](#).

Appendix 1: Maps of international sites considered in this report

Due to its large size, this Appendix is available as a separate document

Appendix 2 Description of international sites

The following tables provide detailed information on international sites considered in this report including: site name, location, conservation objectives (where known), site vulnerabilities and reasons for designation.

Information has been sourced from the Joint Nature Conservation Committee (JNCC) website, Natural England (NE) and Natural Resources Wales websites and through direct enquiries.

Table 1: Berwyn SPA

Site Name: Berwyn SPA, SH 917280, Gwynedd / Powys / Wrexham / Denbighshire, Wales
Site Description: Berwyn is an extensive area of acidic North Wales upland, reaching an altitude of 827 m, straddling the Glyndwr, Montgomery and Meirionnydd districts of Clwyd, Powys and Gwynedd respectively. It comprises blanket mire and heather-dominated heath, with some acidic grassland and Bracken <i>Pteridium aquilinum</i> dominated areas. It is one of the largest and most important upland massifs of this type in Wales. It supports large and diverse assemblages of breeding upland birds, including raptors such as Hen Harrier <i>Circus cyaneus</i> , Merlin <i>Falco columbarius</i> and Peregrine <i>Falco peregrinus</i> .
Conservation Objectives for SAC:
<p>Hen Harrier The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:</p> <ol style="list-style-type: none"> 1. The size of the population must be being maintained at eleven breeding pairs or increased beyond this. 2. There will be sufficient appropriate habitat to support the population in the long-term including patches of tall heather available for nesting and roosting, areas grasslands, bracken of low trees/scrub for feeding with an adequate supply of prey species in the form of small birds and small mammals to maintain successful breeding. 3. Distribution of species within site is maintained. 4. Distribution and extent of habitats supporting the species is maintained. 5. Developments should not be permitted where they can be shown to have likely adverse impacts upon hen harrier. 6. Populations of legally controllable predator species, such as foxes and carrion crows, will not pose a threat to ground nesting birds. 7. Hunting territories will be managed by controlled grazing to improve structural diversity within the grasslands. This will increase seed production and maximise prey availability e.g. small passerines. 8. There will be no disturbance of any nest location. 9. Illegal human persecution of protected bird species should not occur. 10. All factors affecting the achievement of these conditions are under control

Merlin The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

1. The size of the population must be being maintained at 13 breeding pairs or increased beyond this.
2. There will be sufficient appropriate habitat to support the population in the long-term including patches of tall heather available for nesting and roosting, areas grasslands, bracken of low trees/scrub for feeding with an adequate supply of prey species in the form of small birds and small mammals to maintain successful breeding.
3. Distribution of species within site is maintained.
4. Distribution and extent of habitats supporting the species is maintained.
5. Developments should not be permitted where they can be shown to have likely adverse impacts upon merlin.
6. Populations of legally controllable predator species, such as foxes and carrion crows, should not pose a threat to ground nesting birds.
7. Adjoining hunting territories will be managed by controlled grazing to improve structural diversity within the grasslands. This will increase seed production and maximise prey availability e.g. small passerines.
8. There will be no disturbance of any nest location.
9. Illegal human persecution of protected bird species should not occur.
10. All factors affecting the achievement of these conditions are under control

Peregrine The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

1. The size of the population must be being maintained at 13 breeding pairs or increased beyond this.
2. Mountainous and moorland terrain with cliffs, crags and quarries for nesting and roosting plus grasslands, bracken of low trees/scrub for feeding with an adequate supply of prey species in the form of small birds and small mammals to maintain successful breeding.
3. The range of the population must not be contracting.
4. Distribution and extent of habitats supporting the species is maintained.
5. Developments should not be permitted where they can be shown to have likely adverse impacts upon peregrine.
6. Populations of legally controllable predator species, such as foxes and carrion crows, should not pose a threat to ground nesting birds.
7. Adjoining hunting territories will be managed by controlled grazing to improve structural diversity within the grasslands. This will increase seed production and maximise prey availability e.g. small passerines.
8. There will be no disturbance of any nest location.
9. Illegal human persecution of protected bird species should not occur.
10. All factors affecting the achievement of these conditions are under control

Red Kite The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

1. The size of the population must be being maintained at 2 breeding pairs or increased beyond this.

<p>2. Sufficient Broadleaf woodland required for nesting and roosting plus heath and rough grassland for feeding with an adequate supply of prey species in the form of carrion, small birds and small mammals to maintain successful breeding. (NOTE: Red kite do not nest within the SPA.)</p> <p>3. Developments should not be permitted where they can be shown to have likely adverse impacts upon red kite.</p> <p>4. Adjoining hunting territories will be managed by controlled grazing to improve structural diversity within the grasslands. This will increase seed production and maximise prey availability e.g. small passerines.</p> <p>5. There will be no disturbance of any nest location.</p> <p>6. Illegal human persecution of protected bird species should not occur.</p> <p>7. All factors affecting the achievement of these conditions are under control.</p>	
<p>Site Vulnerability: Persecution, habitat destruction, accidental nest destruction, poorly planned habitat management works, inappropriate grazing, lack of nest sites.</p>	
<p>Reason for Designation (qualifying features)</p>	<p>Environmental Conditions Needed to Support Site Integrity</p>
<p>Hen harrier <i>Circus cyaneus</i> Merlin <i>Falco columbarius</i> Peregrine <i>Falco peregrinus</i> Red kite <i>Milvus milvus</i></p>	<p>Manage recreational access. Ensure habitat management works are appropriate. Keep grazing at appropriate levels.</p>

Table 2: Berwyn and South Clwyd Mountain SAC

<p>Site Name: Berwyn and South Clwyd Mountain SAC, SH917280 , Wales</p>
<p>Site Description: Berwyn is an extensive area of acidic North Wales upland, reaching an altitude of 827 m, straddling the Glyndwr, Montgomery and Meirionnydd districts of Clwyd, Powys and Gwynedd respectively. It comprises blanket mire and heather-dominated heath, with some acidic grassland and Bracken <i>Pteridium aquilinum</i> dominated areas. It is one of the largest and most important upland massifs of this type in Wales. It supports large and diverse assemblages of breeding upland birds, including raptors such as Hen Harrier <i>Circus cyaneus</i>, Merlin <i>Falco columbarius</i> and Peregrine <i>Falco peregrinus</i>.</p> <p>The site is considered important for the following habitats and species:</p> <p>European dry heaths for which this is considered to be one of the best areas in the United Kingdom. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) for which the area is</p>

considered to support a significant presence.

Blanket bogs for which this is considered to be one of the best areas in the United Kingdom.

Transition mires and quaking bogs for which the area is considered to support a significant presence.

Calcareous and calcshist screes of the montane to alpine levels (*Thlaspietea rotundifolii*) which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares, and for which the area is considered to support a significant presence.

Calcareous rocky slopes with chasmophytic vegetation, which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares, for which the area is considered to support a significant presence.

Conservation Objectives for SAC:

7130 Blanket bogs

1. There will be no measurable decline in blanket bog; the area of the habitat must be stable or increasing.
2. Dry blanket bog on moisture shedding ridges and slopes will be defined as ericoid (typically *Calluna*) dominated, with clearly subordinate *Erica tetralix*. *Empetrum nigrum*, *Vaccinium vitis-idaea* and/or *V. myrtillus* will be present at high frequency. *Eriophorum vaginatum* typically constant but sometimes only at low cover – other graminoids are typically scarce. *Vaccinium oxycoccus* may sprawl over the thick bryophyte mat but other elements of “wet” bog such as *Narthecium* and *Drosera* are characteristically sparse. Hypnoid mosses (typically *Hypnum jutlandicum* and *Pleurozium schreberi*) often the dominant bryophyte component, and *Sphagna* where present most often represented by *Sphagnum capillifolium*.
3. Wet blanket bog on plateaux and col areas is characterised by a more even balance between ericoids and graminoids. *Eriophorum vaginatum* generally achieves a higher cover than in drier situations and *E. angustifolium* is constant. Representation of *Molinia caerulea* and *Trichophorum cespitosum* is variable according to past management and hydrology. Smaller elements such as *Vaccinium oxycoccus*, *Narthecium* and *Drosera* are typically present. Hypnoids and *Sphagnum capillifolium* may still comprise the main bryophyte element, but often joined by species of *Sphagnum* sect. *Sphagnum*.
4. All areas of blanket bog should exhibit a high water table just below the surface of the ground for the majority of the year and this consistent with continued peat formation.
5. In areas of wet bog in particular, the vegetation should develop or retain an irregular pattern with drier hummocks and wetter hollows.
6. The quality of blanket bog (including in terms of ecological structure and function) must be maintained.
7. Areas with habitats classed as degraded or modified blanket bog and bare peat should be restored to a more sustainable state by encouraging the growth of typical blanket bog vegetation and the blocking of drainage ditches.
8. Burning blanket bog will be discouraged as it retards the development of hummock & hollows as well as the development of more sensitive *Sphagna*.
9. There should be no moor drains or grips draining the peat body.
10. There should be no evidence of damage caused, for example, by active drainage or burning.
11. Any typical species must also be at FCS, as defined below.
12. Non-native plant species should be absent.
13. There should be no decline in the range or abundance of characteristic plant species and vegetation communities.
14. All factors affecting the achievement of these conditions are under control.

4030 European dry heaths:

1. There will be no measurable decline of dry heath area; the area of the habitat must be stable or increasing.
2. The European dry heath consists principally of NVC type H12 *Calluna vulgaris*–*Vaccinium myrtillus* heath, with frequent *Empetrum nigrum* and occasional *Vaccinium vitis-idaea*. Other heath vegetation present includes areas of H18 *Vaccinium myrtillus*–*Deschampsia flexuosa* heath and in some areas stands of damp H21 *Calluna vulgaris*–*Vaccinium myrtillus*–*Sphagnum capillifolium* heath. These latter heaths occur in an intermediate position between the drier heaths and blanket mire and support occasional plants of *Listera cordata*.
3. Its quality (including in terms of ecological structure and function) must be being maintained.
4. The areas of heath vegetation should be retained and where possible permitted to re-establish on areas modified or degraded as a result of agricultural improvement, or through inappropriate management.
5. The dry heathland should have a diverse age structure in the heather and other shrubby plants.
6. Management will ensure the development of a mosaic of age structures through pioneer, building, mature to degenerate heather with at least 10% identified for no-management and allowed to develop through to maturity.
7. Management will not be undertaken within sensitive habitat areas.
8. Some native scrub development will be acceptable up to 10% cover with higher densities, up to 20% within e.g. identified black grouse management zones.
9. Heather and other plants should not exhibit signs of suppressed growth forms due to grazing.
10. There should be areas of long heather providing nesting habitat for ground nesting birds such as grouse, merlin and hen harriers; and areas of lower young heather, and wet flushes where birds can feed on heather shoots and invertebrates.
11. Non-native plant species should be absent.
12. Any typical species must also be at FCS, as defined below.
13. All factors affecting the achievement of these conditions are under control.

6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia)

1. The extent of the calcareous and neutral grasslands should be maintained or increase in size at the expense of bracken, scrub and other more improved grasslands. No loss in extent is acceptable.
2. The calcareous grassland varies floristically. At low altitudes the sward of the calcareous grassland should be rich in calcicolous species such as *Carlina vulgare*, *Briza media* and *Sanguisorba minor*. Locally scarce species such as *Gymnadenia conopsea* and *Blackstonia perfoliata* should also be present. At higher elevations the calcareous sward has more acid species present. Along with the typical indicator species of calcareous grassland, acid loving species such as *Agrostis tenuis* and *Potentilla erecta* are regular. Within the sward, fine leaved grasses and herb species like *Briza media*, *Carlina vulgaris* and *Thymus polytrichus* will be regular, although due to the upland nature of the site other more typically acid-loving herbs like heath *Galium saxatile* and *Campanula rotundifolia* may commonly occur. Though described as grasslands, more than half of the ground cover will consist of herbaceous species.
3. The limestone grassland areas will have a wide variety of plant communities with the limestone grasslands having those typical of thin, lime rich soils.

4. Grazing will be at levels that allow plants to flower and set seed whilst preventing the spread of trees and scrub.
5. Bracken will only be found in a few isolated patches at the perimeters.
6. Within the sward tree and scrub seedlings, and robust or tussock forming grasses such as *Dactylis glomerata*, and *Deschampsia cespitosa* are uncommon or at low cover. While weeds and other agriculturally favoured species such as *Lolium perenne*, *Urtica dioica*, *Cirsium arvensis* and *C. vulgare* are rare or absent.
7. Introduced species should be absent and control measures should be taken if any such species becomes established.
8. High levels of grazing results in localised soil erosion on steeper parts of the escarpment, which degrades some areas. However, grazing pressure should be sufficient to open small transient patches of bare ground within the sward providing a seed bed for the vascular plant species and suitable habitat for the diminutive bryophytes, macro-lichens and short-lived vascular plant species which are particularly characteristic of limestone grassland on the steeper, more exposed slopes.
9. On deeper soils south of the quarry acid grassland develops and in places forms a mosaic of habitats with the calcareous grassland. On these soils the spread of gorse and bracken should be controlled.
10. All factors affecting the achievement of these conditions are under control.

7140 Transition mires and quaking bogs

1. There will be no measurable decline in Transition mires and quaking bogs; the area of the habitat must be stable or increasing.
2. Typically characterised by a range of low-growing sedges over an extensive carpet of *Sphagnum* bog mosses, accompanied by other mosses, rushes and some scattered herbs.
3. The water table is above the surface of the substrate, giving rise to characteristic floating mats of vegetation.
4. The vegetation normally has intimate mixtures of species considered to be acid-lovers and others thought of as lime-lovers.
5. There should be no moor drains or grips draining the mire.
6. There will be no threats to the transition mire habitat from burning or grazing.
7. There is no significant input of nutrient-rich water from ditches and surrounding land.
8. All factors affecting the achievement of these conditions are under control.

8120 Calcareous and calcshist screes of the montane to alpine levels (*Thlaspietea rotundifolii*)

1. There will be no measurable decline of habitat, the area of the habitat must be stable but due to its nature an increase in extent is unlikely.
2. The feature is typically characterised by sensitive pioneer species including maidenhair spleenwort, and bryophytes that are able to colonise the scree, as the crags and ledges provide shelter from grazing and frost action.
3. The flora representative of this feature reflects the base rich nature of the rocks including limestone, calcareous-schists and the more basic igneous rocks such as serpentine and basalt.
4. The scree community is important for the rich fern flora and acts as refugia for a number of rare species.
5. Light grazing will prevent the succession to scrub and minimise colonisation by species such as ash and hazel whilst not damaging the feature through overgrazing.
6. The scree will remain largely undisturbed by human activity and the depositional slopes will continue to accumulate small amounts of scree. The vegetation is only likely to be truly representative of this feature where it occurs on stable scree on less steep slopes

where the vegetation can accumulate.

7. The existing diversity of species in each of the above communities should be maintained.
8. There will be no reduction in extent as a result of undesirable human activity such as afforestation, quarrying, climbing or civil engineering works.
9. The use of herbicides, such as Asulox to control the spread of bracken, should be restricted to areas where they will not adversely impact the feature.
10. Only native species should be present.
11. All factors affecting the achievement of these conditions are under control.

8210 Calcareous rocky slopes with chasmophytic vegetation

1. There will be no measurable loss of habitat, the area of the habitat must be stable but due to its nature an increase in extent is unlikely.
2. The chasmophytic vegetation will consist of plant communities colonising cracks and fissures of rock faces. The type of plant communities developing will be largely determined by the base-status of the rock face.
3. The chasmophytic vegetation is usually dominated by ferns such as *Asplenium ruta-muraria* and small herbs such as *Thymus praecox* and *Hieracium* spp. The inaccessibility of rock habitats to grazing animals, specially rock ledges provides a refuge for many vascular plants that are sensitive to grazing, including numerous local and rare species.
4. Bryophytes and crustose lichens should form a dominant component in crevices but are also found on open rock surfaces where there is a lack of competition from vascular plants. Ledge communities are recognised as part of the feature on the site due to the spectacular stepped topography.
5. Grass benches should be floristically diverse supporting species characteristic of the feature such as *Campanula rotundifolia*, *Centaurea nigra* and *Dryopteris* spp.
6. The existing diversity of species in each of the above communities should be maintained.
7. Only native species should be present.
8. Chasmophytic vegetation and grass benches vegetation will not exhibit signs of overgrazing.
9. There will be no reduction in extent as a result of undesirable activities such as quarrying.
10. Small scale excavations may enhance the interest of the site by providing additional exposures but would be deleterious to the highly vulnerable scree and clitter slopes.
11. The use of herbicides, such as Asulox, to control the spread of bracken should be restricted to areas where they will not adversely impact the feature.

Site Vulnerability: The blanket bog, heaths, fens, and grasslands have been threatened by inappropriate agricultural development including drainage, reseeded, application of fertilisers, burning, track construction and the adoption of damaging grazing regimes. Some areas of grassland and heath are also threatened by the encroachment of bracken. These problems are being addressed successfully by means of management agreements with owners and occupiers and through joint agreements with the Tir Gofal scheme. Local tourist pressure and damage by recreational vehicles can cause erosion problems. This is being

addressed by visitor management and wardening as well as positive management works of vegetation reinstatement on eroded areas.	
Reason for Designation	Environmental Conditions Needed to Support Site Integrity
<p>Annex 1 habitats that are a primary reason:</p> <p>4030 European dry heaths Berwyn contains the largest stands of upland European dry heath in Wales. The dry heath is characteristic of Berwyn’s more easterly location and less oceanic climate than the other major Welsh uplands, and consists principally of NVC type H12 Calluna vulgaris – Vaccinium myrtillus heath, with frequent crowberry Empetrum nigrum and occasional cowberry Vaccinium vitis-idaea. Other heath vegetation present includes areas of H18 Vaccinium myrtillus – Deschampsia flexuosa heath and in some areas stands of damp H21 Calluna vulgaris – Vaccinium myrtillus – Sphagnum capillifolium heath. These latter heaths occur in an intermediate position between the drier heaths and blanket mire and support occasional plants of lesser twayblade Listera cordata.</p> <p>7130 Blanket bogs Berwyn supports the most extensive tract of near-natural blanket bog in Wales. Much of the blanket bog vegetation is dominated by NVC type M19 Calluna vulgaris – Eriophorum vaginatum blanket mire, with crowberry Empetrum nigrum and an often extensive hypnoid moss cover; within this community cloudberry Rubus chamaemorus is found close to the southernmost limit of its British range. On deeper peats, there are smaller stands of M18 Erica tetralix – Sphagnum papillosum mire, some of which exhibit distinctive surface patterning. The mire vegetation shows transitions to heather-dominated dwarf-shrub heath</p> <p>Annex I habitats that are present as a qualifying feature: 6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia) 7140 Transition mires and quaking bogs</p>	<p>Control of tourist pressure and access Appropriate management/grazing Limitation of erosion</p>

<p>8120 Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii) 8210 Calcareous rocky slopes with chasmophytic vegetation</p>	
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Table 3: Brown Moss

<p>Site Name: Brown Moss SAC, SJ561394, Shropshire, England.</p>
<p>Site Description: Brown Moss (32.02ha) is a series of pools set in heathland and woodland. The pools support Floating water plantain Luronium natans for which the SAC is designated, and vary considerably in their water chemistry and also in their water levels which fluctuate considerably and apparently independently. Floating water plantain appears to behave as a metapopulation on this site, colonising the various pools according to their suitability. The site is of special importance for the marsh, swamp and fen communities associated with the pools which occupy hollows in the sand and gravel substrate.</p>
<p>Conservation Objectives for SAC:</p> <p>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;</p> <ul style="list-style-type: none"> • The extent and distribution of Luronium natans, • The structure and function (including typical species) of the habitat of Luronium natans, • The supporting processes on which the habitat of Luronium natans rely, • The populations of Luronium natans, and, • The distribution of Luronium natans within the site. <p>Supplementary Advice to support the Conservation Objectives is not currently available.</p>
<p>Definition of Favourable Condition for Brown Moss SSSI: Subject to natural change, to maintain, in favourable condition, the habitat for the internationally important population of Floating Water Plantain (Luronium natans), with particular reference to the standing open water. (Maintenance implies restoration if the feature is not currently in favourable condition).</p>
<p>Site Vulnerability: Colonisation by trees is being addressed but continues to be of concern due to the shading, nutrient and hydrological effects on the open water and heathland. The presence of Crassula helmsii is a threat to Luronium natans and various control mechanisms are being explored. The site dried out almost completely in summer 2013. The influence of groundwater and direction of flow is thought to be key to the management of the notified feature. Surface drains and ditches also exist, some draining surrounding farmland, others linking the</p>

<p>pools. Some of these have become silted up or diverted and need further investigation to determine the quantity and quality of water coming into the site.</p> <p>High phosphorus and nitrogen concentrations in groundwater and surface water feeding the pools is being caused by agricultural run-off, gathering geese, septic tanks and release from sediment. The eutrophication this causes impacts on the suitability of the pools for Floating water plantain.</p> <p>Of the total external and internal sources of phosphorus, sediment was the major contributor. Phosphorus release from sediment contributed up to 84% of the total supply. Birds are a major contributor leading to high phosphorus levels in pools, thereby affecting macrophyte communities. Control of geese has been mooted but the area is open access land and is well used by the local public. Nitrogen deposition exceeds site relevant critical loads.</p>	
Reason for Designation	Environmental Conditions Needed to Support Site Integrity
<p>Annex II Species that is a primary reason for selection of site: Floating Water Plantain <i>Luronium natans</i>.</p>	<p>Sensitive to;</p> <ul style="list-style-type: none"> • Hydrological changes, • Water pollution, • Invasive species, • Siltation, • Air pollution including atmospheric nitrogen deposition, • Shading through tree colonisation, and Changes in grazing regime.

Table 4: Cannock Chase SAC

<p>Site Name: Cannock Chase SAC, SJ982188 , Staffordshire, England</p>
<p>Site Description: Area 1236.93 ha</p> <p>The area of lowland heathland at Cannock Chase is the most extensive in the Midlands. The character of the vegetation is intermediate between the upland or northern heaths of England and Wales and those of southern counties. Dry heathland communities are of the heather – western gorse (<i>Calluna vulgaris</i> – <i>Ulex gallii</i>) and heather – wavy hair-grass (<i>Calluna vulgaris</i> – <i>Deschampsia flexuosa</i>) types. Within the heathland, species of northern latitudes occur, such as cowberry <i>Vaccinium vitis-idaea</i> and crowberry <i>Empetrum nigrum</i>. Cannock Chase has the main British population of the hybrid bilberry <i>Vaccinium intermedium</i>, a plant of restricted occurrence. The scarcity of water over much of the Chase effectively confines wetland flora and fauna to the stream valley systems and a scatter of natural and artificial pools and damp depressions. The Oldacre and Sherbrook valleys have small-scale mosaics of spring-fed mire and wet heath vegetation, a result of complex water chemistry. Where acidic conditions prevail the mires are mostly formed of bog mosses <i>Sphagnum</i> spp. with cranberry <i>Vaccinium oxycoccus</i>, cottongrasses <i>Eriophorum</i> spp. and cross-leaved heath <i>Erica tetralix</i>.</p>

<p>Conservation Objectives for SAC: 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;</p> <ul style="list-style-type: none"> • The extent and distribution of qualifying natural habitats • The structure and function (including typical species) of qualifying natural habitats, and, • The supporting processes on which the qualifying natural habitats rely <p>Supplementary Advice to support the Conservation Objectives is not currently available. (November 2016)</p>	
<p>Definition of Favourable Condition for Cannock Chase SSSI:</p>	
<p>Site Vulnerability: Cannock Chase Special Area of Conservation is also a Country Park and lies in the heart of Cannock Chase Area of Outstanding Natural Beauty. Given its location it is a popular outdoor recreation destination and is subject to high visitor pressure. The Cannock Chase SAC Partnership has been set up to deliver robust access management measures to mitigate the negative effects of predicted future increases in recreational usage of the SAC. Current management of SAC land is targeted at restoring and strengthening the heathland vegetation mosaics.</p> <p>As well as negative effects from recreational pressure, the site is sensitive to under grazing, drainage of the wetland areas and hydrological changes. <i>Phytophthora pseudosyringae</i>, a disease on bilberry in the dry heath habitat, is spreading on site. Air pollution, particularly atmospheric Nitrogen deposition, is impacting on the SAC and the site is also vulnerable to wildfires/arson and the spread of invasive species.</p>	
<p>Reason for Designation</p>	<p>Environmental Conditions Needed to Support Site Integrity</p>
<p>Annex I habitats: H4010. Northern Atlantic wet heaths with <i>Erica tetralix</i>; Wet heathland with cross-leaved heath H4030. European dry heaths</p>	<p>Robust access management measures to mitigate damage from visitors. Restore and strengthen the heathland vegetation mosaics. Monitor and manage spread of <i>Phytophthora pseudosyringae</i>. Reduced atmospheric pollution including Nitrogen impacting on site. Control of invasive species. Adequate fire prevention.</p>

Table 5: Downton Gorge

Site Name: Downton Gorge SAC, SO443743, Herefordshire, England.
Site Description: Downton Gorge (69.3 ha) lies on a stretch of the River Teme, it is an example of ancient semi-natural woodland with steep ravines and dingles occurring in side valleys. The site includes several nationally scarce types of woodland and is important for a range of species including ferns. The site includes Downton Gorge National Nature Reserve.
<p>Conservation Objectives for SAC:</p> <p>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;</p> <ul style="list-style-type: none"> • The extent and distribution of qualifying natural habitats (and its component vegetation and typical species, plus transitional communities) and habitats of qualifying species; • The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species; • The supporting processes on which qualifying natural habitats and habitats of qualifying species rely; • The populations of qualifying species; • The distribution of qualifying species within the site. <p>Draft Supplementary Advice on Conserving and Restoring Site Features is available for this site and has been consulted for this site account.</p>
Definition of Favourable Condition for Downton Gorge SSSI: To maintain, in favourable condition, the Tilio-Acerion ravine forest. (Maintenance implies restoration if the feature is not currently in favourable condition).
<p>Site Vulnerability: The site is potentially vulnerable to the effects of air- and water-borne pollution, particularly in respect of its significant lichenological interest. Exceedance of the critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it. The critical values for nitrogen and acidity for this feature at this SAC are currently exceeded. Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for this site and sustaining this feature.</p> <p>Interior woodland conditions need to be protected, including from change due to damage at the site edge.</p>

Reason for Designation	Environmental Conditions Needed to Support Site Integrity
<p>Annex I Habitats that are a primary reason for selection of site: H9180. Tilio-Acerion forests of slopes, screes and ravines (priority feature); Mixed woodland on base-rich soils associated with rocky slopes</p>	<ul style="list-style-type: none"> • Reduction in air and water borne pollution. • Prevention of over grazing by deer, • Control of invasive or introduced non-native species, • Maintenance and restoration of connectivity in the wider landscape • Protection from light pollution (from direct glare, chronically increased illumination and/or temporary, unexpected fluctuations in lighting)

Table 6: Elenydd SAC

<p>Site Name: Elenydd SAC, SN824704, Ceredigion / Powys, Wales.</p>
<p>Site Description: The Elenydd – Mallaen area occupies the southern section of the Cambrian Mountains in central Wales, stretching from the upper Cothi and Tywi valleys north-west of Llandovery to the Ystwyth, Elan and Wye valleys in the north. These hills are built of rocks of Silurian and Ordovician age and the landforms are typical of the 'slate uplands' of south-central Wales, with plateaux separated by steep-sided valleys. Elenydd is located in the centre of this area. It is one of the most important areas of hill land in Wales for nature conservation and is of outstanding interest for its range of breeding birds. Much of the hill vegetation is also of special interest. Elenydd is important in Mid Wales for its nutrient-poor upland lakes. The area supports a wide variety of uncommon plants and animals.</p>
<p>Conservation Objectives for SAC:</p> <p>Blanket Bogs The extent, quality and diversity of blanket bog vegetation within the constituent sites is maintained and, where possible, degraded bog is restored to good condition.</p> <ol style="list-style-type: none"> 1. Populations of uncommon bog plants, such as tall bog-sedge, slender sedge, magellanic bog-moss and round-fruited collar-moss, are stable or increasing. 2. The bogs continue to provide suitable habitat for breeding birds, including golden plover, dunlin and red grouse, and invertebrates, such as large heath butterfly. 3. Peat profiles containing important pollen records are maintained. 4. All factors affecting the achievement of these conditions are under control. <p>European Dry Heaths The extent, quality and diversity of heath vegetation within the constituent sites is maintained and, where possible, degraded heath is restored to good condition.</p> <ol style="list-style-type: none"> 1. The main heathland areas have a varied age structure with a mosaic of young heath, mature heath and degenerate heath. 2. Sunny slopes in certain areas support vegetation that includes bell heather and western gorse and steep north and east facing

slopes have a rich variety of mosses and liverworts beneath the dwarf shrub canopy, including bog mosses in some areas.

3. Populations of uncommon plants, such as lesser twayblade, are stable or increasing.
4. The larger heathland areas provide suitable habitat for breeding birds, including red grouse and merlin.
5. All factors affecting the achievement of these conditions are under control.

Calaminarian grasslands of the *Violetalia calaminariae* The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

1. The habitat covers at least its current measured area.
2. Lichens dominate large blocks of metal rich spoil from mine workings, tips, walls and other built structures.
3. Lichens, mosses, ferns and a few higher plants such as sea campion are present on rock outcrops in cliffs, open cuts and about the entrances to shafts and adits.
4. On open, usually level ground, plant communities are found represented by the moss genus *Weissia* and a range of crustose metallophyte lichens. The moss *Ditrichum plumbicola* and sea campion occur in the most base-rich areas, usually associated with scattered lime mortar from adjacent buildings.
5. Heath, shrub, trees or other woody species are scarce or absent
6. Light grazing prevents the growth of tall herbs, scrub and woodland. Grazing levels are carefully managed to avoid undesirable levels of ground disturbance.
7. Areas of disturbed bare ground occupy less than 10% of potential areas that could be occupied by this habitat.
8. There is less than 1% cover of non-native plants.
9. There is no newly dumped material.
10. The habitat is spreading gradually across this extensive site wherever suitable conditions exist.
11. All factors affecting the achievement of these conditions are under control.

Oligotrophic to mesotrophic standing waters of the *Isoeto-Nanojuncetea* The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

1. The plan area contains several upland lakes with mildly acidic, nutrient-poor (oligotrophic) water and fairly stoney beds. Water plants found here include shoreweed, water lobelia, alternate watermilfoil, quillwort, spring quillwort, bulbous rush, floating bur-reed, broad-leaved pondweed, intermediate water-starwort and water moss.
2. Fully developed oligotrophic lake vegetation is present in each of the lakes, including all of the component species typical of the SAC feature, as represented in the Elenydd SAC.
3. For each of the lakes where it occurs, the extent and species composition of the oligotrophic lake vegetation is stable or increasing in range and/or diversity.
4. The rare stonewort *Nitella gracilllis*, scarce six-stamened waterwort and awlwort are found in Llyn Gynon. Six-stamened waterwort is also found growing in shallow water on the stony bed of Dolymynach Reservoir.
5. Populations of these water plants are all stable or increasing and the water quality of the lakes remains suitable for their survival in the long term.
6. Plants indicating unfavourable condition for this feature e.g. filamentous algae associated with eutrophication and invasive non-native species will absent or maintained or restored below an acceptable threshold level.
7. With the exception of Dolymynach Reservoir, near-natural hydrological and geomorphological processes and forms will be

<p>operating in the lakes e.g. water levels, water depth, stability of bed substrate, with no artificial regulation of water levels or altered sediment regimes.</p> <p>8. Low nutrient and shade levels are maintained.</p> <p>9. All factors affecting the achievement of these conditions are under control.</p> <p>Floating Water Plantain The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:</p> <p>1. The floating water-plantain populations are viable throughout their current distribution in the plan area (maintaining themselves on a long-term basis), namely in Llyn Cerrigllwydion Uchaf, Llyn Cerrigllwydion Isaf, Gwynllyn and Llyn Gynon.</p> <p>2. Each floating water-plantain population will be able to complete sexual and/or vegetative reproduction successfully.</p> <p>3. Potential for genetic exchange between floating water-plantain populations, in and/or outside the plan area, will be evident in the long-term.</p> <p>4. Near-natural hydrological and geomorphological processes and forms will be operating in the 4 lakes e.g. water levels, water depth, stability of bed substrate, with no artificial regulation of water levels or altered sediment regimes.</p> <p>5. Low nutrient and shade levels will be maintained, with no species present indicative of unfavourable conditions e.g. filamentous algae.</p> <p>6. The dispersal of floating water plantain will be unhindered.</p> <p>7. There will be no non-native invasive species present.</p> <p>8. All factors affecting the achievement of the above conditions are under control.</p>	
<p>Site Vulnerability: Erosion, burning, water abstraction, nitrogen & acid deposition, scrub encroachment, afforestation, water pollution, invasive plant species.</p>	
<p>Reason for Designation</p>	<p>Environmental Conditions Needed to Support Site Integrity</p>
<p>Annex I Habitats that are a primary reason for selection of site: Calaminarian grasslands of the <i>Violetalia calaminariae</i>, Blanket bogs</p> <p>Annex I Habitats present as a qualifying feature but not a primary reason for selection of site: Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoeto-Nanojuncetea</i>, European dry heaths.</p> <p>Annex II species that are a primary reason for selection of this site: Floating Water Plantain <i>Luronium natans</i></p>	<p>Maintain water quality and level. Manage scrub encroachment. Control pollution. Control and manage recreational access. Control introduced species.</p>

Table 7: Fenn`s, Whixall, Bettisfield, Wem and Cadney Mosses

<p>Site Name: Fenn`s, Whixall, Bettisfield, Wem and Cadney Mosses SAC, SJ486364, Shropshire / Wrexham, England / Wales.</p>
<p>Site Description: Fenn`s, Whixall, Bettisfield, Wem and Cadney Mosses (949.2ha) together form an outstanding example of lowland raised mire, straddling the English/Welsh border. It is amongst the largest and most southerly raised bogs in the UK. The site as a whole supports a wide range of characteristic acid peat bog vegetation including thirteen species of Sphagnum moss, which represent successional stages in the development of a raised mire.</p>
<p>Conservation Objectives for SAC:</p> <p>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;</p> <ul style="list-style-type: none"> • The extent and distribution of qualifying natural habitats • The structure and function (including typical species) of qualifying natural habitats, and • The supporting processes on which qualifying natural habitats rely <p>Supplementary Advice to support the Conservation Objectives is not currently available.</p>
<p>Definition of Favourable Condition for Fenn`s, Whixall, Bettisfield, Wem & Cadney Mosses SSSI: To maintain, in favourable condition, the active raised bogs and degraded raised bogs still capable of natural regeneration on the site.</p>
<p>Site Vulnerability: The lowland raised mire is dependent upon high water levels and a continuation of active peat-forming processes.</p> <p>Much of the site is subject to mineral planning consents for peat extractions which are currently being reviewed. The site has a history of peat-cutting and until recently, part of the site has been subject to large-scale commercial extraction, involving drainage over much of the peat body.</p> <p>Afforestation and agricultural improvement on marginal areas of the peat body have accelerated the lowering of water levels, resulting in encroachment by scrub and a decline in the extent of peat-forming communities.</p> <p>Nutrient enrichment through water in drainage ditches will damage low-nutrient bog habitats.</p> <p>Aerial nitrogen deposition is similarly raising nutrient levels on the bog surface.</p> <p>A greater part of the site is now owned, leased or managed under agreement by conservation organisations. Within these areas, mire rehabilitation management is taking place under the guidance of a management plan.</p> <p>It is intended to seek to increase the areas under positive conservation management by implementation of the joint Countryside</p>

<p>Council for Wales/English Nature acquisition strategy.</p> <p>The Fenn's and Whixall NNR has an up to date management plan and visitor management strategy.</p>	
Reason for Designation	Environmental Conditions Needed to Support Site Integrity
<p>Annex I Habitats that are a primary reason for selection of site: Active raised bog (priority habitat).</p> <p>Annex I Habitats present as a qualifying feature but not a primary reason for selection of site: Degraded raised bogs still capable of natural regeneration; Degraded raised bog</p>	<p>Maintenance of appropriate (high) water levels. Prevention of nutrient-rich drainage water contaminating the site. Control and amelioration of aerial nitrogen deposition. Prevention of afforestation and removal of scrub/trees on designated habitat. Prevention of peat extraction. Monitoring and control invasive species.</p>

Table 8: Fens Pools SAC

<p>Site Name: Fens Pools SAC, SO920888, Dudley, England</p>
<p>Site Description: Area: 20.40ha The site comprises of a series of small pools and a wide range of other habitats from swamp, fen and inundation communities to unimproved neutral and acidic grassland and scrub. Great crested newts Triturus cristatus occur as part of an important amphibian assemblage. The site, which shows evidence of post industrial activities, overlies Etruria marls and coal measures of the Carboniferous period.</p>
<p>Conservation Objectives for SAC: 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;</p> <ul style="list-style-type: none"> • The extent and distribution of the habitats of the qualifying species • The structure and function of the habitats of the qualifying species • The supporting processes on which the habitats of the qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site. <p>Supplementary Advice to support the Conservation Objectives is not currently available. (November 2016)</p>

Definition of Favourable Condition for Fens Pools SSSI:	
To maintain the extent of the amphibian habitat (terrestrial and aquatics) at Fens Pools. No loss of area or fragmentation of site (through significant barriers to amphibian dispersal) compared with status at designation. On this site favourable condition is defined in terms of the amphibian and Great Crested Newt attributes and targets.	
Site Vulnerability:	
The Great Crested Newts are under constant pressure from activities including: fly tipping; off road vehicles; unlicensed grazing and under-management of areas including the pools, woodland and scrub areas. High illicit stocking with tethered horses means that the grass sward is severely over-grazed. Scrub management around the pools has not been carried out in the last few years. In addition some pools have dried out and are getting smaller due to vegetation encroachment. Infected alpine newts identified in 2009 with Chytrid fungus may pose a risk to the great crested newt population (GCN), the effects of this disease is unknown. Surveys since 2009 haven't detected the fungus in smooth, alpine or crested newts. The numbers of GCN has remained constant since 2009 even though the alpine newt numbers have increased, indicating that the alpine newts are not out-competing the GCN for food and having a detrimental impact on the notified feature. Off road vehicles/burnt out vehicles pose a pollution threat to the GCN when the abandonment affects the breeding pools for the GCN. Fens Pools is partially isolated as a result of its location with in a large urban area. The connectivity / genetic interchange with other great crested newt populations is believed to be low or non-existent.	
Reason for Designation	Environmental Conditions Needed to Support Site Integrity
S1166. Triturus cristatus; Great crested newt	A reduction in grazing pressure. Appropriate scrub control and maintenance of unshaded pools. Monitoring the alpine newt population and check for signs of disease. Control of pollution from burnt out vehicles and tipping and generally maintaining good water quality. Improved habitat linkages for Great Crested Newts. Minimise introduced fish populations.

Table 9: Granllyn SAC

Site Name: Granllyn SAC, SJ 224115, Powys, Wales
Site Description: Breeding population of Great Crested Newts (<i>Triturus cristatus</i>) for which this was, at the time of notification, the largest population in mid-Wales and one of the most important areas in Europe for this species. The site is situated in the village of Guilsfield just outside of Welshpool on the Mid Wales border. The site is made up of two water bodies Granllyn Pool and The Moat that act as breeding sites for the great crested newts. The Granllyn Pool is a kettle formation with a peat soil and pond bottom. Surrounding these water bodies the rest of the site in composed of generally improved and well-grazed pasture. The exception to this being the grassland surrounding the Granllyn Pool (the main breeding site) which was planted up in 2004 to form a community woodland site. There is a wet juncus area in the

<p>northern most pasture of the Moat & Field (unit 2). Small blocks of woodland, hedgerows, minor roads, a cemetery and orchard are also included within the site boundary.</p>	
<p>Conservation Objectives for SAC: Great Crested Newts The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:</p> <ol style="list-style-type: none"> 1. No less than 100 great crested newts are present on the site. 2. At least 2 display/breeding ponds are to be found throughout the entire site. 3. Great crested newt larvae are found in Granllyn Pool breeding ponds in at least one out of every two years. 4. The newt display/breeding ponds have a water depth of 10cm or more during the summer months. 5. Native macrophytes cover no more than 75% of pond/water body surfaces. Aquatic marginal vegetation is present around the pond edges. 6. Breeding/display ponds are not be heavily shaded by surrounding bank-side vegetation. 7. Algal blooms and surface sheens are absent from display/breeding ponds. 8. Fish are not present in breeding/display ponds supporting great crested newts. 9. Only small numbers of water and wildfowl can be seen on the ponds. 10. The terrestrial habitat surrounding breeding ponds comprise of refuge areas, foraging areas, hibernacula and corridors that aid the dispersal of great crested newts. If these features are not present the conservation management aim will be to provide them. 11. Off site habitats that function as stepping stone or corridors located between SAC compartments are maintained for migration, dispersal; foraging and genetic exchange purposes. 12. All factors affecting the achievement of the above conditions are under control. 	
<p>Site Vulnerability: Invasive plants, dominant emergent species and trees, introduction of predators (fish), waterborne pollution, lack of terrestrial habitats, development and recreational use.</p>	
<p>Reason for Designation</p>	<p>Environmental Conditions Needed to Support Site Integrity</p>
<p>Annex II species that is a primary reason for selection of this site: Great crested newt (<i>Triturus cristatus</i>)</p>	<p>Appropriate pond management. Maintenance of water quality. Scrub/tree management.</p>

Table 10: Johnstown newt sites SAC

<p>Site Name: Johnstown Newt Sites SAC, SJ 310466, Wrexham, Wales</p>
<p>Site Description: The site is located in the environs of the village of Johnstown, south west of Wrexham, at an altitude of 130m above mean sea level. It is of special interest for its population of the great crested newt <i>Triturus cristatus</i>. This species has suffered a marked decline throughout Great Britain and Continental Europe as a result of habitat loss. Great Britain is considered to support one of the strongholds for this species in Western Europe.</p> <p>The Bettisfield Formation feldspathic sandstone and coal measures underlie the site and a number of capped mine shafts are present within the boundaries of the site. Where present, natural soils are of over-consolidated till (boulder clay) origin. The majority of the water bodies originated following the cessation of mineral extractive industries including coal mining and quarrying for clay and associated industrial developments. Certain ponds, particularly at Hafod, were specifically created for amphibian conservation purposes.</p> <p>Surrounding areas of land support a mosaic of scrub and planted trees, grassland, and tall ruderal vegetation. These form important foraging and over wintering areas for adult and juvenile amphibians.</p>
<p>Conservation Objectives for SAC:</p> <p>The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:</p> <ol style="list-style-type: none"> 1. No less than 300 great crested newts will be present on the site 2. At least 30 display/breeding ponds will be found throughout the entire site 3. Great crested newt larvae will be found in 7 or more of the breeding ponds 4. Half of the display/breeding ponds on the site will have a water depth of 10cm or more during the summer months. 5. Native macrophytes will cover at least half of the pond surface yet some of the water surface will still remain open. 6. Aquatic marginal vegetation will be present around the ponds 7. Breeding/display ponds will not be heavily shaded by surrounding vegetation 8. Algal blooms and surface sheens will be absent from display/breeding ponds 9. Fish will not be present in breeding/display ponds which support great crested newts 10. Only small numbers of water and wildfowl will be seen on the ponds 11. The terrestrial habitat surrounding breeding ponds will comprise of refuge areas for newts, foraging areas, areas of hibernacula and corridors which will aid the dispersal of great crested newts 12. Off site habitats that function as stepping stone or corridors located between SAC compartments will be maintained for migration, dispersal, foraging and genetic exchange purposes 13. Off-site features that impact on successful dispersal, such as roadside gully-pots, will not be subject to future construction 14. Non-native aquatic species will not be present 15. Amphibian chytridiomycosis will not be present 16. All factors affecting the achievement of the foregoing conditions are under control.
<p>Site Vulnerability:</p> <p>The important great crested newt populations are dependent on the preservation of suitable aquatic and terrestrial habitat. These are vulnerable to</p>

destruction and inappropriate management. Situated in the urban fringe, these post-industrial sites are subject to threat from unregulated public access, fly-tipping and pollution. They are also subject to pressures for development. Management agreements and acquisition by public bodies has secured appropriate management of some areas. Close liaison with planning authorities and the provision of site wardening are controlling many of the pressures. Habitat management is underway on areas owned by the local authority to secure optimum habitat conditions.	
Reason for Designation	Environmental Conditions Needed to Support Site Integrity
Annex II species that are a primary reason for selection of this site: Great crested newt <i>Triturus cristatus</i>	Management of pollution and fly-tipping. Management of development. Management of recreational pressure.

Table 11: Montgomery Canal

Site Name: Montgomery Canal SAC, SJ220058, Powys, Wales
<p>Site Description: The Montgomery Canal is a partially restored but largely unused waterway. It runs for approximately 36 kilometres from near Aberbechan (three kilometres north-east of Newtown) to the English border at Llanymynech. It also has a small number of linked off-line reserves (kept as small individual management units); these were created to protect examples of the habitats and species found in the canal when restoration of the canal was started in the 1970s. There is 1.3km of canal from Pant to Llanymynech which is not part of the designated Special Area of Conservation (SAC) but is in hydrological continuity with the Welsh SAC (there is a dry section between this and the English SSSI section of the canal) therefore the Welsh SAC is potentially at risk from the effects of development in Shropshire.</p> <p>It supports the largest, most extensive population of floating water-plantain <i>Luronium natans</i> in lowland Britain. This is a semi-natural population, having colonised from drift material or seed but needing periodic human disturbance for continued growth; in this respect the canal is a substitute for the species' former slow-moving, mesotrophic river niche, which has been largely destroyed in lowland Britain.</p> <p>The floating water-plantain is just one of a number of species of submerged, floating and marginal plant species that make up the canal habitat SSSI feature. This habitat is distributed along the entire length of the canal within the SSSI; the interest and quality varies from species-poor to species rich, depending a number of factors, including water depth and management frequency.</p>
<p>Conservation Objectives for SAC: The vision for this feature is to maintain the extent and distribution of <i>L. natans</i> within the Montgomery Canal at favourable conservation status, where all of the following conditions are satisfied:</p> <ol style="list-style-type: none"> 1. The <i>L. natans</i> population in favourable condition will reflect the natural carrying capacity of the canal habitat and will be limited principally by species ability to spread or be relocated (vegetative or otherwise), the suitability of the rooting medium and competition between species as part of habitat succession. 2. Recreation pressure, principally through boat movements and fisheries management, will not significantly affect the maintenance of the species, or its ability to disperse throughout the canal network and any associated off-line reserves. 3. The ecological status of the water environment, including elements of water quality and physical habitat quality, will be sufficient to

<p>support the population of <i>L. natans</i> in favourable condition. 4. All factors affecting the achievement of the above conditions are under control.</p>	
<p>Site Vulnerability: Enrichment through agricultural or domestic nutrient inputs is a likely threat as this could affect the populations of floating water-plantain. Several sections of canal currently suffer from lack of management. CCW will liaise with owners and occupiers to achieve an appropriately scaled and timed management. To ensure that bank protection and other engineering works are undertaken in a sensitive manner, CCW will liaise with competent and relevant authorities to agree on appropriate methods and practices. For example, the mowing of terrestrial and marginal vegetation would not harm aquatic plants but herbicide run-off from the towpath could be a problem. The effects of boat traffic on populations of floating water-plantain are uncertain and are being investigated by British Waterways. It is certain that the species will be detrimentally affected above a certain point as the actions of propeller/wash will detach floating leaves and create turbidity which will reduce light transfer to submerged leaves. The population of floating water-plantain is vulnerable to colonisation by aggressive species which can have an impact on the canal's ecology, through blanket coverage of the canal channel and increased nutrient input because of a large leaf biomass. The introduction of certain fish species could also damage aquatic plant populations.</p>	
<p>Reason for Designation</p>	<p>Environmental Conditions Needed to Support Site Integrity</p>
<p>Annex II species that are a primary reason for selection of this site: Floating Water Plantain <i>Luronium natans</i>.</p>	<p>Dredging and weed cutting to maintain open water and water flow. Maintenance of sufficiently good water quality. Maintenance of water clarity. Protected from mechanical damage.</p>

Table 12: Motte Meadows SAC

<p>Site Name: Motte Meadows SAC, SJ840134, Staffordshire, England</p>
<p>Site Description: Motte Meadows (43.87ha) contains lowland hay meadows with limited influence of agricultural intensification and so demonstrates good conservation of structure and function. There are transitions to other dry and wet grassland types. The site is important for a range of rare meadow species, including fritillary <i>Fritillaria meleagris</i> at its most northerly native locality. Motte Meadows SAC represents one of the best areas in England for Lowland Meadow with <i>Alopecurus pratensis</i>, <i>Sanguisorba officinalis</i>. It has been maintained through traditional agricultural practices and contains an extensive example of an alluvial flood meadow.</p>
<p>Conservation Objectives for SAC: Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the</p>

<p>Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;</p> <ul style="list-style-type: none"> • The extent and distribution of qualifying natural habitats • The structure and function (including typical species) of qualifying natural habitats, and • The supporting processes on which qualifying natural habitats rely <p>Supplementary Advice to support the Conservation Objectives is not currently available. (November 2016)</p>	
<p>Definition of Favourable Condition for Motte Meadows SSSI: To maintain, in favourable condition, the lowland hay Meadow. (Maintenance implies restoration if the feature is not currently in favourable condition).</p>	
<p>Site Vulnerability: The meadows are dependent upon traditional agricultural management - hay-cutting and aftermath grazing with no use of agrochemicals. The site is vulnerable to nutrient run-off from adjacent agricultural land. The site is owned and managed by Natural England with all the above issues addressed through the site's management plan. The site is also vulnerable to a lowering of both ground and surface water levels, because the floristic composition is dependent on a high water table in autumn and winter. This will be addressed through consultation with the Environment Agency, and any problems arising from licensed abstractions will be dealt with through the review process under the Habitats Regulations.</p>	
<p>Reason for Designation:</p>	<p>Environmental Conditions Needed to Support Site Integrity:</p>
<p>Annex I Habitats that are a primary reason for selection of site: H6510. Lowland hay meadows (<i>Alopecurus pratensis</i>, <i>Sanguisorba officinalis</i>)</p>	<p>Maintenance of autumn/winter high water levels. Maintenance of traditional management. Reduced nutrient input.</p>

Table 13: Rhos Goch SAC

<p>Site Name: Rhos Goch SAC, SO197483, Powys, Wales.</p>
<p>Site Description: The central core of the site comprises Rhos Goch National Nature Reserve (NNR), a peat bog that has developed in a small glacial lake basin to the north of Hay-on-Wye in Powys. The site also includes surrounding wet meadows and patches of woodland forming part of the "lagg zone" of the bog. The site is the source of two streams, the Cwm-illa Brook (which flows north-east towards the River Arrow) and the Bach Howey (which flows south-west towards the River Wye).</p>
<p>Conservation Objectives for SAC:</p> <p>Active raised bogs The vision for this feature is for it to be in a favourable conservation status within the site, where all of the following conditions are satisfied:</p> <ol style="list-style-type: none"> 1. Raised bog habitat with only a few scattered trees covers at around 20 % of the site. 2. The bog surface consists of a series of pools and hummocks.

3. The drier hummocks support heather, hare's-tail cottongrass, cross-leaved heath and purple moor-grass, while the pools are dominated by common cottongrass and bog-mosses.
4. Purple moor-grass is not overwhelmingly dominant on the raised bog.
5. Scattered birch trees and willow scrub, where present, do not form a closed canopy.
6. There is no significant bracken encroachment around the bog edges or on the bog dome.
7. Water levels on the bog remain high throughout the year.
8. The vegetation is not affected by atmospheric pollution.
9. All other factors affecting the achievement of the foregoing conditions are under control.

Transition mires and quaking bogs The vision for this feature is for it to be in a favourable conservation status within the site, where all of the following conditions are satisfied:

1. "Transition mire", comprising basin bog and swamp vegetation, with some scattered trees and scrub, covers at around 10% of the site.
2. There is a broad zone of "transition mire" extending to at least 6 ha on the southwest side of the raised bog dome (unit 1), with smaller patches of similar vegetation close to the main ditches in Portway meadows (unit 2).
3. Areas closest to the raised bog have vegetation that is characteristic of more acidic conditions, with plants such as sedges, common cottongrass, marsh cinquefoil, soft rush, water horsetail and marsh pennywort over carpets of bog mosses.
4. In the central zone of this transition mire, bog-mosses are gradually replaced by others, such as bog groove-moss and spear-mosses, with a greater range of other typical "poor-fen" plants, including bogbean, water mint, bog pondweed, marsh marigold, lesser spearwort, common marsh-bedstraw and forget-me-nots.
5. The areas furthest from the raised bog support additional plants that are found in more nutrient rich swamps, including common spike-rush, bulrush, lesser pond-sedge, greater tussock-sedge, gipsywort and the locally rare greater spearwort. Here the taller swamp plants form a dense canopy during the summer months but the water beneath supports floating plants such as floating club-rush, ivy-leaved duckweed and bladderwort.
6. There are large patches of rusty willow scrub but they occupy less than 10% of the south western bog transition zone in total and the willow and birch trees are not encroaching into the open bog and swamp areas.
7. Plants indicating high nutrient levels and disturbance, such as floating sweet-grass and creeping buttercup, may be prominent at the edges of the common but these plants are uncommon in the central wetland areas.
8. There are poached areas with sparse vegetation, where grazing animals roam, but these cover less than 5% of the swamp zone in total.
9. Water levels are maintained so that surface water is present throughout the year.
10. There is no significant input of nutrient-rich water from ditches and surrounding land.
11. All other factors affecting the achievement of the foregoing conditions are under control.
12. There are good populations of wetland breeding birds, including water rail, snipe, sedge warbler and reed bunting.

Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) The vision for this feature is for it to be in a favourable conservation status within the site, where all of the following conditions are

satisfied:

1. Around 20% of the site supports alluvial forest.
2. The majority of this woodland is found in the “lagg zone” of the raised bog around the northeastern edge of the common (unit 1). With small patches within the meadows at Portway (unit 2), Dol-y-cannau (unit 3) and Cefn-y-blean (unit 5).
3. The tree canopy consists of mixtures of downy birch, alder and rusty willow, with some ash and aspen in places.
4. The ground flora consists of a variety of wetland plants, including common reed, greater tussock sedge, purple moorgrass, meadowsweet, hemp-agrimony, bittersweet, soft rush, opposite-leaved golden-saxifrage and marsh marigold.
5. The woodland is maintained as far as possible by natural processes.
6. The canopy is fairly even but there occasional gaps where trees have died.
7. The location of open glades varies over time.
8. Standing and fallen dead wood is plentiful.
9. Non native trees and shrubs, such as Scots pine and sycamore, are rare.
10. Plants indicating high nutrient levels, such as common nettle, bramble, cleavers and creeping buttercup, occur locally but are nowhere overwhelmingly dominant.
11. Plants indicating surface drying, such as purple moor-grass, bracken and bramble, do not dominate the woodland ground flora.
12. Grazing is light enough to allow regeneration of trees and shrubs.
13. Water levels are maintained so that surface water is present throughout the year.
14. There is no significant input of nutrient-rich water from ditches and surrounding land.
15. All other factors affecting the achievement of the foregoing conditions are under control.
16. The woodland supports populations of typical breeding birds.

Bog Woodland The vision for this feature is for it to be in a favourable conservation status within the site, where all of the following conditions are satisfied:

1. Around 10 - 15 % of the site supports bog woodland.
2. All of this woodland occurs in patches around the edges of the raised bog or in the adjacent “lagg zone” around the north-eastern edge of the common.
3. The tree canopy consists of mainly downy birch on the bog surface and mixtures of downy birch, rusty willow and alder in the lagg zone.
4. The ground flora generally consists of purple moor-grass and common reed over carpets of bogmosses. Other typical plants found here include marsh cinquefoil, water horsetail, lady fern, bilberry and velvet bent grass. Royal fern is abundant in some areas.
5. The woodland is maintained as far as possible by natural processes.
6. The canopy may be fairly open, particularly on the raised bog dome, with large glades.
7. The location of open glades may vary over time.
8. Standing and fallen dead wood are common in places.
9. Non native trees and shrubs, such as Scots pine, are rare.
10. Plants indicating high nutrient levels, such as common nettle, bramble, cleavers and creeping buttercup are absent.
11. Plants indicating surface drying, such as bracken, do not dominate the ground flora.

12. Grazing is light enough to allow some regeneration of trees and shrubs.
13. Water levels are maintained so that water table is at or close to the surface throughout the year.
14. All other factors affecting the achievement of the foregoing conditions are under control.

Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) The vision for this feature is for it to be in a favourable conservation status within the site, where all of the following conditions are satisfied:

1. Species-rich “fen-meadow” vegetation occupies between 6 and 10% of the site in total.
2. A large part of Portway meadows (unit 2) support this vegetation and there are other patches on the drier ground at the south-west end of the common (unit 1), Llanshiver (unit 4) and Cefn-yblaen (unit 5).
3. The vegetation consists of mixtures of purple moor-grass and sharp-flowered rush, with a wide variety of other plants, including devil’s-bit scabious, meadow thistle, fen bedstraw, marsh valerian, flea sedge, quaking grass, cross-leaved heath, tawny sedge and marsh orchids.
4. Purple moor-grass and rushes are not completely dominant and there is no significant accumulation of dead vegetation from year to year.
5. Plants indicating disturbance and nutrient enrichment, such as Yorkshire fog, floating sweetgrass, rough-meadow grass, marsh thistle, creeping buttercup and cleavers are not prominent in these areas.
6. The fen meadow areas may have scattered trees or bushes but are generally free from dense or invading scrub.
7. Some bare ground is present but cattle poached areas are not extensive.
8. Water levels are maintained so that the water table is close to the surface throughout the year but these areas are not subject to regular flooding.
9. There is no significant input of nutrient-rich water from ditches and surrounding land.
10. All other factors affecting the achievement of the foregoing conditions are under control.
11. There are good populations of wetland breeding birds, such as snipe and lapwing.

Site Vulnerability:

Scrub encroachment, afforestation, water abstraction, atmospheric pollution, over grazing.

Reason for Designation

Annex I Habitats that are a primary reason for selection of site: Active raised bogs, Transition mires and quaking bog
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), Bog woodland, Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae).

Environmental Conditions Needed to Support Site Integrity

Control of atmospheric pollution and deposition.
Scrub management.
Maintenance of appropriate grazing regime.

Table 14: River Clun SAC

Site Name: River Clun SAC, SO393754, Herefordshire, Shropshire, England.
Site Description: The River Clun SAC (14.93ha, 7.4 km) includes only the lower reaches of the river and supports a significant population of Freshwater Pearl Mussel <i>Margaritifera margaritifera</i> , one of the few lowland populations left in the UK.
<p>Conservation Objectives for SAC:</p> <p>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;</p> <ul style="list-style-type: none"> • 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. <p>Supplementary Advice to support the Conservation Objectives is not currently available.</p>
Definition of Favourable Condition for River Teme SSSI which contains the River Clun SAC: To maintain, in favourable condition, the habitats for the population of Pearl Mussel (<i>Margaritifera margaritifera</i>). (Maintenance implies restoration if the feature is not currently in favourable condition).
<p>Site Vulnerability: <i>Margaritifera margaritifera</i> is dependent on very high water quality, requiring low sediment, phosphate and nitrogen levels and clean gravels. It also relies on the presence of trout and salmon for part of its breeding cycle. Intensification of agriculture across the catchment is a significant threat to the long-term survival of the isolated population at this site i.e. enhanced sedimentation through poor agricultural practice leading to smothering of adult and juvenile mussels and eutrophication of waters through fertiliser run-off from adjacent land.</p> <p>In addition upstream domestic sewage treatment works are believed to give a significant nutrient loading. Recent increase in the occurrence of alder disease also poses a risk through loss of shading bankside tree cover. Some of these issues will be addressed by revised authorisation, Review of Consents /AMP 5 processes. Sustainable agricultural management is being promoted via production of Whole Farm Plans, Environmentally Sensitive Area Agreements and Countryside Stewardship Agreements for landowners within the catchment. A Nutrient Management Plan has been produced by NE and EA which has investigated the issues in depth and an Action Plan is underway. Residential and employment development in the catchment has been limited through the HRA process until necessary modifications have been made to sewage treatment works.</p>

Reason for Designation	Environmental Conditions Needed to Support Site Integrity
Annex II Species that are a primary reason for selection of site: Freshwater pearl mussel <i>Margaritifera margaritifera</i>	Maintained good water quality (targets on 0.01mg/litre of orthophosphate (SRP), 1.5mg/l of Total Nitrogen (TON) and 10mg/l suspended solids) Maintained salmonid populations. Maintained riparian vegetation.

Table 15: River Dee and Bala Lake (England) SAC

Site Name: River Dee and Bala Lake SAC, SJ422503, Cheshire / Denbighshire / Gwynedd / Shropshire / Flintshire / Wrexham, England / Wales.
Site Description: River Dee and Bala Lake (1308.92) is an important example in England of water courses of plain to montane levels with Ranunculion fluitantis and Callitricho-Batrachion vegetation. It supports populations of Sea Lamprey and Floating Water Plantain which are important in England and significant populations of several fish species and otter <i>Lutra lutra</i> .
<p>Conservation Objectives for SAC: (England)</p> <p>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;</p> <ul style="list-style-type: none"> • 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. <p>Supplementary Advice to support the Conservation Objectives is not currently available.</p>
Definition of Favourable Condition for River Dee and Bala Lake SSSI: Maintain in a favourable condition the water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho- Batrachion</i> vegetation. Maintain, in favourable condition, habitats for the populations of Atlantic salmon, bullhead, brook lamprey, river lamprey, sea lamprey, otter and floating water-plantain.
Site Vulnerability: The habitats and species for which the site is designated are dependent on the maintenance of good water

quality and suitable flow conditions. Fish species require suitable in-stream habitat and an unobstructed migration route. Otters also require suitable terrestrial habitat to provide cover and adequate populations of prey species.

The site and its features are threatened by practices which have an adverse effect on the quality, quantity and pattern of water flows. In particular the following may threaten riverine ecosystems: inappropriate flow regulation; excessive abstraction (for industry, agriculture and domestic purposes); threats to water quality from direct and diffuse pollution; eutrophication and siltation. Degradation of riparian habitats due to engineering works, agricultural practices and invasive plant species may also have an adverse effect. The Atlantic salmon population is threatened by excessive exploitation by high sea, estuarine and recreational fisheries. Introduction of non-indigenous species could also threaten both fish and plant species.

These issues are being addressed by a variety of statutory bodies that are in a position to overcome these threats through regulatory powers and partnerships with landowners, industry and other interested parties.

Reason for Designation	Environmental Conditions Needed to Support Site Integrity
<p>Annex I Habitats that are a primary reason for selection of site: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation (Rivers with floating vegetation often dominated by water-crowfoot) .</p> <p>Annex II Species that are a primary reason for selection of site:</p> <ul style="list-style-type: none"> • Salmo salar; Atlantic salmon • Luronium natans; Floating water-plantain <p>Annex II Species present as a qualifying feature but not a primary reason for selection of site:</p> <ul style="list-style-type: none"> • Petromyzon marinus; Sea lamprey • Lampetra planeri; Brook lamprey • Lampetra fluviatilis; River lamprey • Cottus gobio; Bullhead • Lutra lutra; Otter 	<p>Maintenance of water quality. Maintenance of flow. Avoid excessive water extraction (industry, domestic, agriculture). Resist degradation of riparian habitats. Control salmon exploitation at sea. Resist invasive species.</p>

Table 16: River Dee and Bala Lake (Wales) SAC

<p>Site Name: River Dee and Bala Lake SAC, SH887311 to SJ287710, Cheshire / Denbighshire/ Gwynedd/ Shropshire/ Flintshire/ Wrexham, England/ Wales.</p>
<p>Site Description: The source of the River Dee lies within the Snowdonia National Park and its catchment contains a wide spectrum of landscapes from high mountains around Bala, steep-sided wooded valleys, near Llangollen, to the rich agricultural plains of Cheshire and north Shropshire and the vast mudflats of the estuary. The course and topography of the River Dee and its tributaries were strongly influenced and modified during the last Ice Age.</p> <p>The site extends from the western extremity of Llyn Tegid taking in the entire lake and its banks to its outfall into the River Dee. It then takes in the river and its banks downstream to where it joins the Dee Estuary SSSI. A number of the Dee's tributaries are also included, these being the Ceiriog, Meloch, Tryweryn, and Mynach.</p> <p>Llyn Tegid, the Tryweryn and the Dee form part of the River Dee Regulation System. The flow of water is controlled by Environment Agency Wales (EAW), primarily in order to minimise flooding and for the transportation of water to abstraction points down stream. The level of control is such that the Dee itself is said to be the most regulated river in Europe.</p> <p>Parts of the Rivers Dee and Ceiriog lie within both Wales and England. They have therefore been notified as two separate SSSIs – the Afon Dyfrdwy (River Dee) SSSI in Wales and the River Dee (England) SSSI in England. However, the features for which the SSSIs are notified, in particular migratory fish, depend upon the whole river ecosystem.</p>
<p>Conservation Objectives for SAC:</p> <p>While not a feature in its own right the ecological status of the water course is a major factor in determining FCS for all of the site features. The vision for the water course is therefore described below. This section is an integral part of the conservation objectives for all features of this SAC.</p> <p>Vision For the Water Course</p> <p>The vision for the water course is for it to be in favourable conservation status, where all of the following conditions are satisfied:</p> <ol style="list-style-type: none"> 1. 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). 2. There will be no deterioration in water quality other than that temporarily generated by natural variations in water flow or by man made variations occurring as a result of operating the River Dee flow control regime within its normal operating parameters. 3. The Dee flow regime should remain within 10% of 'recent actual flow' as described by Bethune (2006). 4. The river planform and profile should be predominantly unmodified. Physical modifications having an adverse effect on the integrity of the SAC will be avoided. 5. Artificial factors impacting on the capability of each feature to occupy the full extent of its potential range should be modified where necessary to allow passage, eg. weirs, bridge sills, or other forms of barrier.

6. Natural limiting factors such as waterfalls, which may limit the natural range of a feature or its dispersal between naturally isolated populations, should not be modified.
7. Flow objectives for assessment points in the Dee Catchment Abstraction Management Strategy will be agreed between EA and CCW as necessary.
8. Levels for nutrients, in particular phosphate, will be agreed between EA and CCW for each Water Framework Directive water body in the River Dee and Bala Lake 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).
9. The levels of water quality parameters, in addition to those deemed to be nutrients and including levels of suspended solids, that may affect the distribution and abundance of SAC features will be agreed between EA and CCW for each Water Framework Directive water body in the River Dee and Bala Lake SAC, and measures taken to maintain them below these levels (It is anticipated that these limits will concur with the standards used by the Review of Consents process).
10. Potential sources of pollution, nutrient enrichment and/or suspended solids that have not been addressed in the review of Consents such as, but not confined to, diffuse pollution or disturbance to sediments, will be considered in assessing plans and projects.

The conservation objective for the water course as defined above must be met for each of the following features.

Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

1. The extent of this feature within its potential range in this SAC should be stable or increasing
2. The extent of the sub-communities that are represented within this feature should be stable or increasing.
3. The conservation status of the feature's typical species should be favourable.
4. All known, controllable factors, affecting the achievement of these conditions are under control (many factors may be unknown or beyond human control).

Atlantic Salmon The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

1. The SAC feature populations will be stable or increasing over the long term.
2. The natural range of the features in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future.
3. There will be no reduction in the area or quality of habitat for the feature populations in the SAC on a long-term basis
4. All known, controllable factors, affecting the achievement of these conditions are under control (many factors may be unknown or beyond human control).

Floating Water Plantain The vision for this feature is for it be in favourable conservation status, where all of the following conditions are satisfied:

1. There will be no contraction of the current *L. natans* extent and distribution, and the populations will be viable throughout their current distribution & will be able to maintain themselves on a long-term basis. Each *L. natans* population must be able to complete

sexual and/or vegetative reproduction successfully.

2. The lake will have sufficient habitat to support existing *L. natans* populations within their current distribution and for future expansion.

3. All factors affecting the achievement of these conditions are under control.

Sea Lamprey, River Lamprey, Brook Lamprey The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

1. The SAC feature populations will be stable or increasing over the long term.

2. The natural range of the features in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future.

3. There will be no reduction in the area or quality of habitat for the feature populations in the SAC on a long-term basis

4. All factors affecting the achievement of these conditions are under control.

Bullhead The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

1. The SAC feature populations will be stable or increasing over the long term.

2. The natural range of the features in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future.

3. There will be no reduction in the area or quality of habitat for the feature populations in the SAC on a long-term basis

4. All factors affecting the achievement of these conditions are under control

European Otter The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

1. The SAC otter population is stable or increasing over the long term, both within the SAC and within its catchment.

2. There will be no loss of otter breeding or resting sites other than by natural means (such as naturally occurring river processes) within the SAC or its catchment.

3. There number of potential resting sites within the SAC will not be a factor limiting that limits the otter population's size or extent

4. There should be no reduction of fish biomass within the SAC or its tributaries except for that attributable to natural fluctuations

5. There should be no loss of amphibian habitat likely to provide a source of prey for members of the SAC otter population.

6. The potential range of otters in the within the SAC or its catchment is neither being reduced nor is likely to be reduced for the foreseeable future.

7. All known or potential access or dispersal routes within the catchment for otters that might be considered part of the SAC population should be maintained such that their function is not impaired including the incorporation of measures or features required to avoid disturbance.

8. Off site habitats likely to function as 'stepping stones' within the catchment for members of the SAC otter population will be maintained for migration, dispersal, foraging and genetic exchange purposes.

9. All man-made structures within or likely to be used by otters from the SAC population must incorporate effective measures to facilitate the safe movement and dispersal of otters.

10. All known, controllable factors, affecting the achievement of these conditions are undercontrol (many factors may be unknown or beyond human control).

Site Vulnerability: The habitats and species for which the site is designated are dependent on the maintenance of good water quality and suitable flow conditions. Fish species require suitable in-stream habitat and an unobstructed migration route. Otters also require suitable terrestrial habitat to provide cover and adequate populations of prey species.

The site and its features are threatened by practices which have an adverse effect on the quality, quantity and pattern of water flows. In particular the following may threaten riverine ecosystems: inappropriate flow regulation; excessive abstraction (for industry, agriculture and domestic purposes); threats to water quality from direct and diffuse pollution; eutrophication and siltation. Degradation of riparian habitats due to engineering works, agricultural practices and invasive plant species may also have an adverse effect. The Atlantic salmon population is threatened by excessive exploitation by high sea, estuarine and recreational fisheries. Introduction of non-indigenous species could also threaten both fish and plant species.

These issues are being addressed by a variety of statutory bodies that are in a position to overcome these threats through regulatory powers and partnerships with landowners, industry and other interested parties.

Reason for Designation	Environmental Conditions Needed to Support Site Integrity
<p>Annex I Habitats that are a primary reason for selection of site: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation (Rivers with floating vegetation often dominated by water-crowfoot) .</p> <p>Annex II Species that are a primary reason for selection of site:</p> <ul style="list-style-type: none"> • Salmo salar; Atlantic salmon • Luronium natans; Floating water-plantain <p>Annex II Species present as a qualifying feature but not a primary reason for selection of site:</p> <ul style="list-style-type: none"> • Petromyzon marinus; Sea lamprey • Lampetra planeri; Brook lamprey • Lampetra fluviatilis; River lamprey • Cottus gobio; Bullhead • Lutra lutra; Otter 	<p>Maintenance of water quality. Maintenance of flow. Avoid excessive water extraction (industry, domestic, agriculture). Resist degradation of riparian habitats. Control salmon exploitation at sea. Resist invasive species.</p>

Table 17: Severn Estuary SAC/SPA/European Marine Site(EMS), Ramsar.

<p>Site Name: Severn Estuary SAC/SPA/EMS, Ramsar, Bristol City, Gloucestershire, Bath & North East Somerset, Somerset, South Gloucestershire, England. Bro Morgannwg/Vale of Glamorgan, Caerdydd/Cardiff, Casnewydd/ Newport, Sir Fynwy/ Monmouthshire, Wales.</p>
<p>Site Description:</p> <p>The Severn Estuary is located between Wales and England in south-west Britain. It is a large estuary with extensive intertidal mud-flats and sand-flats, rocky platforms and islands. Saltmarsh fringes the coast backed by grazing marsh with freshwater ditches and occasional brackish ditches. The subtidal seabed is rock and gravel with subtidal sandbanks. The site also supports reefs of the tube forming worm <i>Sabellaria alveolata</i>.</p> <p>The estuary's classic funnel shape, unique in the UK, is a factor causing the Severn to have one of the highest tidal ranges in the world. A consequence of the large tidal range is an extensive intertidal zone, one of the largest in the UK. The tidal regime results in plant and animal communities typical of the extreme physical conditions of liquid mud and tide-swept sand and rock. The species-poor intertidal invertebrate community includes high densities of ragworms, lugworms and other invertebrates forming an important food source for passage and wintering waders and fish.</p> <p>The site is of importance during the spring and autumn migration periods for waders, as well as in winter for large numbers of waterbirds, especially swans, ducks and waders. The fish fauna is very diverse with more than 110 species identified. The site is of particular importance for migratory fish.</p>
<p>Conservation Objectives for SAC:</p> <p>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;</p> <ul style="list-style-type: none"> • 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.
<p>Conservation Objectives for SPA:</p> <p>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;</p> <ul style="list-style-type: none"> • 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.

Site Vulnerability:

Public access and recreation may have an impact on bird species sensitive to disturbance, causing displacement from feeding, roosting and moulting areas, and if severe could affect long term survival and population numbers and distributions within the Estuary. There are a wide range of recreational activities within the site (walking, dog walking, horse riding, biking, beach activities, angling, wildfowling, other shooting (eg clay pigeon)) that may cause damage to habitats where pressure is high.

Modification to water courses and barriers to Annex II migratory fish (and those included in the fish assemblage) in the tributary rivers are preventing completion of the life cycle and potentially altering the hydrodynamics of the site. This includes existing structures and operations (bridges, power station lagoons, jetties, dredging, flood alleviation) influencing the flow of water, sediments and therefore migration.

As sea levels rise, man-made defences are constraining the natural roll back of estuarine habitats, causing squeeze and loss of habitat and having impacts on species dependant upon those habitats (birds: feeding/ roosting, and fish: feeding/ nursery and shelter areas).

Changes in ownership and other land practices can result in changes in management and use of land (eg.changes in grazing practice) which affects species composition, habitat availability, and quality of saltmarsh habitats and use of land for other activities that may cause damage or disturbance.

There is a risk of significant changes in estuarine populations (including declines in some SPA bird populations) in parts of the Estuary resulting from climate change and other man-made and natural modifications to on- and offsite environments.

There is uncertainty over water quality in the Estuary due to diffuse (including agricultural) or direct pollution (eg. industrial, sewage treatment works, thermal, radioactive).

Activities around the Estuary include fertiliser application, potentially dairy and poultry production, road traffic, industry (including power stations), and shipping which are all sources of nitrogen pollution. Nitrogen deposition exceeds site relevant critical loads, with potential impacts on vegetation structure and diversity.

Commercial fishing activities can cause habitat damage and disturbance to wildlife.

There are recent reports of marine invasive non-native species (the Australian barnacle *Austrominius modestus*, Mitten crab *Eriocheir sinensis*, and the Pacific Oyster *Crassostrea gigas*) in the Estuary (or the Bristol Channel). These could have an impact on native species and habitats but the abundance and impact in the Severn Estuary of these species is unclear.

Reason for Designation

The site is designated under Article 4(4) of the Habitats Directive (92/43/EEC) as it hosts the following habitats listed in Annex I:

Environmental Conditions Needed to Support Site Integrity

Reduction of human impacts on disturbance to birds and damage to habitats.
Reduction, removal (where possible), and prevention of barriers to

<ul style="list-style-type: none"> • Sandbanks which are slightly covered by sea water all the time. (Subtidal sandbanks) • Estuaries • Mudflats and sandflats not covered by seawater at low tide. (Intertidal mudflats and sandflats) • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) • Reefs <p>Qualifying species: The site is designated under Article 4(4) of the Directive (92/43/EEC) as it hosts the following species listed in Annex II:</p> <ul style="list-style-type: none"> • Sea Lamprey (<i>Petromyzon marinus</i>) • River Lamprey (<i>Lampetra fluviatilis</i>) • Twaite Shad (<i>Alosa fallax</i>) <p>SPA</p> <ul style="list-style-type: none"> • A037 <i>Cygnus columbianus bewickii</i>; Bewick’s swan (Non-breeding) • A048 <i>Tadorna tadorna</i>; Common shelduck (Non-breeding) • A051 <i>Anas strepera</i>; Gadwall (Non-breeding) • A149 <i>Calidris alpina alpina</i>; Dunlin (Non-breeding) • A162 <i>Tringa totanus</i>; Common redshank (Non-breeding) • A394 <i>Anser albifrons albifrons</i>; Greater white-fronted goose (Non-breeding) Waterbird assemblage 	<p>migratory species.</p> <p>Limit coastal squeeze by provision of sustainable coastal defences,</p> <p>Improvement to existing structures and delivery of compensatory habitat.</p> <p>Appropriate levels and timing of grazing, and management of intertidal saltmarsh habitat.</p> <p>Understand/prepare for changes in species distribution (caused by climate change/other events).</p> <p>Prevention/reduction in decline in water and sediment quality (applying relevant measures to all relevant tributaries in England and Wales).</p>
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Table 18: River Wye SAC

<p>Site Name: River Wye SAC, SO109369 , Monmouthshire, Gloucestershire, Herefordshire, Powys, England/Wales</p>
<p>Site Description: River Wye (2234.89ha) represents a high quality example of water courses of plain to montane levels with <i>Ranunculus fluitans</i> and <i>Callitriche-Batrachion</i> vegetation and is also significant for Transition mire and quaking bog. The riverine habitat supports important and significant populations of many fish species and Otter <i>Lutra lutra</i>.</p>

Conservation Objectives for SAC:

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

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

Supplementary Advice to support the Conservation Objectives is not currently available. (November 2016)

Definition of Favourable Condition for River Wye SSSI: Maintain the river as a habitat for floating formations of water crowfoot (*Ranunculus*) of plain and submountainous rivers, populations of Atlantic salmon, allis shad, twaite shad, bullhead, lampreys, and whiteclawed crayfish, and the river and adjoining land as habitat for populations of otter.

Site Vulnerability: Water quality impacts arising from changing agricultural land-use within the catchment are having direct and indirect effects on the SAC interests through effects of diffuse pollution such as nutrient run-off and increased siltation. English Nature and the Countryside Council for Wales are seeking to address such issues through improved targeting of existing and new agri-environment schemes and through improvements in compliance with agricultural Codes of Practice.

Water quality is also affected by synthetic pyrethroid sheep-dips and by pointsource discharges within the catchment. The impact of sewage treatment works on the SAC is being addressed through the Asset Management Plan process and review under the Habitats Regulations. Loss of riparian habitat is occurring as a result of changes in agricultural land-use practices and other factors, including riverside development and the loss of alder tree-cover through disease. These impacts and concerns over water quality will be identified and actions recommended within the joint English Nature/Environment Agency/Countryside Council for Wales conservation strategy for the river.

Fishing activities are implicated in the decline of the salmon; initiatives such as the Wye Salmon Action Plan will help to address this issue. There is increasing demand for abstraction from the river for agriculture and potable water. The impact of this is still being investigated by the Environment Agency, but maintenance of water levels and flow will be addressed under the review of consents under the Habitats Regulations.

Demand for increased recreational activities is a source of potential concern for the future. Regularisation of the functions of the competent authorities, currently being sought, should reduce the risk of damage to the SAC as a result of developments for such activities.

Reason for Designation	Environmental Conditions Needed to Support Site Integrity
<p>Annex I Habitats that are a primary reason for selection of site: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation.</p> <p>Annex I Habitats present as a qualifying feature but not a primary reason for selection of site: Transition mires and quaking bogs.</p> <p>Annex II Species that are a primary reason for selection of site: White-clawed (or Atlantic stream) crayfish <i>Austropotamobius pallipes</i>, Sea lamprey <i>Petromyzon marinus</i>, Brook lamprey <i>Lampetra planeri</i>, River lamprey <i>Lampetra fluviatilis</i>, Twaited shad <i>Alosa fallax</i>, Atlantic salmon <i>Salmo salar</i>, Bullhead <i>Cottus gobio</i>, Otter <i>Lutra lutra</i>.</p> <p>Annex II Species present as a qualifying feature but not a primary reason for selection of site: Allis Shad <i>Alosa alosa</i>.</p>	<p>Maintain water quality & flow. Control recreational activities. Control water abstractions. Maintain water table level. Removal & prevention of barriers to fish migration. Control human activities and disturbance. Control of fishing level.</p>

Table 19: Tanat & Vrynwy Bat Sites

<p>Site Name: Tanat & Vrynwy Bat Sites SAC, SJ171152, SJ177181, SJ164236, SJ187234, SJ109237, SJ048258, Powys, Wales.</p>
<p>Site Description: The site consists of six separate SSSI divided into ten management units, all situated within the northeastern part of Montgomeryshire. The greatest distance between any two sites is less than 20 kilometres. Two of the SSSI contain buildings that house maternity roosts (Bryngwyn and Hendre), whilst the other four are disused mines containing hibernation roosts. Five of the sites (the exception being Bryngwyn) also contain a small amount of associated habitat, in the form of broadleaved woodland or hedgerows. Other roosts of both types are known both within this locality and further south within Montgomeryshire. It is not known how the different sites relate to one another in terms of the seasonal movements of the bats, and so no judgement can be made as to whether they support one meta-population or several smaller populations.</p>

The numbers of bats at all the sites varies significantly from year to year, but at the time of writing Hendre contained the largest number of breeding bats (2nd largest in Montgomeryshire, in top ten in Wales) and Allt-y-Main Mine the largest hibernating group (2nd largest in Montgomeryshire, probably in top twelve in Wales). The overall population, as judged by annual counts, has shown an increase in recent years, consistent with the national trend, and the SAC is thought to support at least 4% of the UK population of this species. Numbers have not been increasing at all of the individual sites however. Bryngwyn suffered a major reduction for unknown reasons in between 1999 and 2003, from which it appears to be slowly recovering. Garth-eryr suddenly lost virtually all its bats between 1997 and 2002 (reasons again unknown), and yet the nearest maternity roost (Hendre) has increased its numbers. It appears that either the Hendre bats are now hibernating elsewhere, or the Garth-eryr bats were from an unknown maternity roost that may since been lost.

Conservation Objectives for SAC: There is only one feature for the site, and so the vision for this feature is the same as that for the site.

The two maternity roosts contain a minimum of 300 adult Lesser Horseshoe Bats in total every year, with at least 200 at Hendre Cottage and at least 100 at Bryngwyn Hall Stables and Coach House. The buildings are maintained in a suitable condition for use by the bats, to ensure that the roofs are in good repair, not heavily shaded by surrounding trees, and the roof space is undisturbed (except in emergencies). Access for the bats to and from the buildings and roof spaces is unhindered and flight paths along surrounding hedgerows and woodland edges are protected. All other factors that affect the species are under control.

The four hibernation roosts contain a minimum of 200 Lesser Horseshoe Bats in total every year, with at least 50 in each of Allt-y-main Mine and Penygarnedd Mine; and evidence of continued use of West Llangynog Slate Mine and Garth-eryr. All four sites are maintained in a suitable condition for use by the bats, by ensuring that they remain undisturbed (except for monitoring purposes), and that the entrance is free from obstruction. The extent, quality and connectivity of broadleaved woodland habitat is also maintained and may be enhanced if possible. All other factors that affect the species are under control.

Site Vulnerability: Full protection of bat species depends upon no disturbance to both summer (breeding) and winter (hibernating) roosts and continuity of invertebrate food supply by appropriate traditional land management, for example, maintenance of continuous hedgerows.

The winter roosts (hibernacula) are not vulnerable as all mine entrances are now securely grilled and the underground workings are considered to be stable. The bats which use two of the four mines may be vulnerable because the associated breeding roosts are not known. The two known breeding roosts are potentially vulnerable to accidental fire, and casual or deliberate human disturbance, for example blocking of entrances. All roost sites are the subject of a programme of monitoring visits to check site integrity and count the numbers of bats. The quality of surrounding feeding habitats is maintained through land management agreements with owners/occupiers.

Reason for Designation	Environmental Conditions Needed to Support Site Integrity
<p>Annex I species that are a primary reason for selection of this site: Lesser Horseshoe Bat <i>Rhinolophus hipposideros</i>.</p>	<p>Identification of unknown summer roost sites Ongoing protection of known summer roost sites</p>

Table 20: The Stiperstones and the Hollies SAC

<p>Site Name: The Stiperstones and the Hollies SAC, SJ375006, Shropshire, England.</p>
<p>Site Description: The Stiperstones and the Hollies (601.46ha) represents a Nationally important area of dry heath, showing transitions between lowland and northern upland heaths and also hosts a significant presence of sessile oak woodlands with <i>Ilex</i> and <i>Blechnum</i>. The tors and boulders of the upper slopes provide important habitat for several species of moss and also support a diverse lichen flora. The most extensive vegetation type present is H12 <i>Calluna vulgaris</i> – <i>Vaccinium myrtillus</i> dry heath, which is characteristic of the uplands. South-facing slopes support stands of H8 <i>Calluna vulgaris</i> – <i>Ulex gallii</i> heath, a predominantly lowland vegetation community of south-west Britain.</p> <p>The northern end of the ridge, known as The Hollies, is an area of ‘holly parkland’ of great antiquity and considered to be unique for both its size and for the age of the holly <i>Ilex aquifolium</i> trees. These trees, which have unusually large girths, are at least 250 years old.</p>
<p>Conservation Objectives for SAC: 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;</p> <ul style="list-style-type: none"> • The extent and distribution of qualifying natural habitats • The structure and function (including typical species) of qualifying natural habitats, and • The supporting processes on which qualifying natural habitats rely <p>Supplementary Advice to support the Conservation Objectives is not currently available.</p>
<p>Site Vulnerability: The heathland is dependent on the continuation of traditional heather moorland management with rotational burning or cutting supplemented by light grazing. In the recent past, lack of management on parts of the site has resulted in scrub encroachment, and on other parts high stocking levels has caused overgrazing and a deterioration of the heathland interest. These issues are being addressed by an effective management programme on that part of the site which is managed as a National Nature Reserve and, on land in private ownership, by management agreements and ESA payments.</p>

<p>The sessile oak woods have been traditionally managed either as high forest or as oak coppice. Neglect and grazing of coppiced woods in the past has led to deterioration in the woodland interest. Traditional management of these woods has been reinstated by effective management of the National Nature Reserve and by agreement of a site management statement with woodlands in private ownership.</p>	
<p>Reason for Designation</p>	<p>Environmental Conditions Needed to Support Site Integrity</p>
<p>Annex I Habitats that are a primary reason for selection of site: European dry heaths.</p> <p>Annex I Habitats present as a qualifying feature but not a primary reason for selection of site: Old sessile oak woods with Ilex and Blechnum in the British Isles.</p>	<p>Control of afforestation. Control of grazing pressure. Maintain appropriate woodland management. Monitor and control invasive species.</p>

Table 21: West Midland Mosses (only site in Shropshire is Clarepool Moss)

<p>Site Name: West Midland Mosses SAC, SK026282, Cheshire / Shropshire / Staffordshire, England.</p>
<p>Site Description: West Midland Mosses (184.18ha) is a collection of sites which between them represent nationally important dystrophic water bodies, transition mires and quaking bogs. West Midlands Mosses contains three notable pools, one at Clarepool Moss and two at Abbots Moss, that are examples of dystrophic lakes and ponds in the lowlands of England and Wales, where this habitat type is rare. The pool at Clarepool Moss is unusual as a dystrophic type on account of its relatively base-rich character, which is reflected in the presence of a diverse fauna and flora. The West Midland Mosses SAC sites also display excellent examples of spatial transitions from very acidic communities to base-rich vegetation and from open water to terrestrial habitats, as well as temporal transitions from base-rich vegetation to rain-fed bog vegetation.</p>
<p>Conservation Objectives for SAC:</p> <p>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;</p> <ul style="list-style-type: none"> • The extent and distribution of qualifying natural habitats • The structure and function (including typical species) of qualifying natural habitats, and • The supporting processes on which qualifying natural habitats rely

Supplementary Advice (Draft) can be found at:

<http://publications.naturalengland.org.uk/publication/6449667604742144>

The draft contains targets relating to the two listed habitat features briefly summarised below:

H3160 Natural dystrophic lakes and ponds

Maintaining the total extent of the H3160 feature at 2.9ha.

Targets relating to non-native species, maintaining the characteristic zonation of fringing vegetation, maintaining a characteristic zonation of fringing vegetation around the open water body, maintaining a characteristic and well defined hydrosere associated with the water body, maintaining the natural shoreline of the lake and the substrate as predominantly peaty.

Restoring the abundance of the species listed below to enable each of them to be a viable component of the H3160 Annex 1 habitat;

Characteristic species;

Utricularia spp (bladderworts), Sphagnum spp, Comarum palustre (marsh cinquefoil), Juncus bulbosus (bulbous rush), Nymphaea alba, Menyanthes trifoliata and Potamogeton polygonifolius (bog pondweed) with associates of Sparganium angustifolium (floating bur-reed), Eleogiton fluitans (floating club-rush) and Drepanocladus spp. Assemblage of dragonflies and damselflies (including white-faced darter Leucorrhinia dubia, downy emerald Cordulia aenea and black darter Sympetrum danae).

Controlling fish populations, restoring stable nutrient levels and acidity levels to reflect unimpacted conditions. Restoring water quality to 'good' chemical status (i.e. compliance with relevant Environmental Quality Standards).

At a site, unit and/or catchment level restore natural hydrological processes to provide the conditions necessary to sustain the H3160 feature within the site.

Restoring as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).

Maintaining the natural connectivity of the water body to other water bodies. This feature is groundwater dependent. Connectivity with surface water may provide pollution source to the feature.

Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain or restore the structure, functions and supporting processes associated with the H3160 feature.

H7140. Transition mires and quaking bogs

Restoring the total extent of the H7140 feature to 110 hectares, based on the mapped extent of peat and basin dimensions.

Ensuring the component vegetation communities of the H7140 feature are referable to and characterised by the following National Vegetation Classification types (including transitions between them ; M1, M2, M3, M4, M5, M9, M18, M22, S2, S3, S24, S27, W2, W4, W5).

Restoring the abundance of species listed to enable each of them to be a viable component of the H7140 habitat.

Ensuring invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H7140 feature.

At a site, unit and catchment level, restoring natural hydrological processes to provide the conditions necessary to sustain the H7140

<p>feature within the site and surface water and groundwater supplies to a natural, low-nutrient status. Restoring the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support (directly or indirectly) the H7140 feature.</p> <p>Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).</p>	
<p>Site Vulnerability: Colonisation of open schwingmoors or Sphagnum lawns and rafts in the West Midland Mosses by birch and pine is controlled by works under Management Agreement or by National Nature Reserve management. Several sources of nutrient enrichment, including atmospheric deposition of nutrients, pose a potential threat at these sites.</p>	
<p>Reason for Designation</p> <p>Annex I Habitats that are a primary reason for selection of site:</p> <p>Natural dystrophic lakes and ponds (Acid peat-stained lakes and ponds),</p> <p>Transition mires and quaking bogs (wet mires often identified by an unstable `quaking` surface).</p>	<p>Environmental Conditions Needed to Support Site Integrity</p> <p>Control of afforestation.</p> <p>Control of nutrient input.</p> <p>Control of recreational disturbance.</p>

Table 22: Midland Meres and Mosses (Ramsar Phase 1)

<p>Site Name: Midland Meres and Mosses (Ramsar phase 1), Shropshire/ Clwyd/ Cheshire/ Staffordshire, England.</p>
<p>Site Description: Phase 1 of the Ramsar designation covers 513.25ha and is entirely co-incident with the following 16 Sites of Special Scientific Interest (SSSI). These are Bagmere, Berrington Pool, Betley Mere, Bomere, Shomere & Betton Pools, Brown Moss, Chartley Moss, Clarepool Moss, Fenemere, Flaxmere, Hatchmere, Marton Pool (Chirbury), Quoisley Mere, Tatton Mere, The Mere (Mere), White Mere and Wybunbury Moss SSSI's.</p> <p>NB. Those SSSIs in the Ramsar phase 1 designation indicated in bold above are considered in this screening document.</p> <p>Diverse series of lowland open water and peatland sites supporting habitats such as meres with associated fringing habitats, reed swamp, fen, carr and damp pasture. Peat accumulation has resulted in nutrient poor peat bogs (mosses) forming in some sites on the fringes of the meres or completely infilling basins. These habitats support a wide range of nationally important flora and fauna.</p>
<p>Conservation Objectives:</p> <p>Ramsar criterion – peatland.</p> <p>The conservation objectives for the site are to maintain in favourable condition:</p> <ul style="list-style-type: none"> • the habitat types for which the site is designated.

<p>Site Vulnerability: Invasive species: considered a major impact on this site. Water quality: eutrophication is considered a major impact on this site. Recreational pressure and disturbance: in line with other bog and mire habitats, trampling and erosion are likely to be a significant issue where public access occurs. Water quality: declines in water quality through nutrient enrichment and sediment. Land use in surrounding areas: agricultural practices and urban runoff are likely to affect the scattered sites through nutrient enrichment and sedimentation.</p>	
<p>Reasons for Designation:</p> <p>Criterion 1a. A particularly good example of a natural or near natural wetland, characteristic of this biogeographical region, The site comprises the full range of habitats from open water to raised bog. Criterion 2a. Supports a number of rare species of plants associated with wetlands. The site contains the nationally scarce six-stamened waterwort <i>Elatine hexandra</i>, needle spike-rush <i>Eleocharis acicularis</i>, cowbane <i>Cicuta virosa</i>, marsh fern <i>Thelypteris palustris</i> and elongated sedge <i>Carex elongate</i>. Criterion 2a. Contains an assemblage of invertebrates, including the following rare wetland species. 3 species considered to be endangered in Britain, the caddis fly <i>Hagenella clathrata</i>, the fly <i>Limnophila fasciata</i> and the spider <i>Cararita limnaea</i>. Other wetland Red Data Book species are; the beetles <i>Lathrobium rufipenne</i> and <i>Donacia aquatica</i>, the flies <i>Prionocera pubescens</i> and <i>Gonomyia abbreviata</i> and the spider <i>Sitticus floricola</i>.</p>	<p>Environmental Conditions Needed to Support Site Integrity</p> <p>Environmental Conditions needed to support site integrity will need to be considered at the full Habitats Regulations stage since this range of sites is varied and needs consideration in relation to specific plans and policies.</p>

Table 23: Midland Meres and Mosses (Ramsar Phase 2)

<p>Site Name: Midland Meres and Mosses (Ramsar phase 2), Shropshire/ Clwyd/ Cheshire/ Staffordshire, England.</p>
<p>Site Description: Phase 2 of the Ramsar sites covers 1740.3ha and is entirely co-incident with the following 19 Sites of Special Scientific Interest (SSSI). These are: Abbots Moss, Aqualate Mere, Black Firs & Cranberry Bog, Brownheath Moss, Chapel Mere, Cole Mere, Cop Mere, Fenn’s, Whixall, Bettisfield, Wem & Cadney Mosses, Hanmer Mere, Hencott Pool, Linmer Moss, Llyn Bedydd, Morton Pool & Pasture, Oak Mere, Oakhanger Moss, Oss Mere, Rostherne Mere, Sweat Mere & Crose Mere and Vicarage Moss.</p>

<p>NB. Those SSSIs in the Ramsar phase 2 designation indicated in bold above are considered in this screening document.</p>	
<p>Conservation Objectives: Ramsar criterion – peatland. The conservation objectives for the site are to maintain in favourable condition: • the habitat types for which the site is designated.</p>	
<p>Site Vulnerability: Invasive species: considered a major impact on this site. Water quality: eutrophication is considered a major impact on this site. Land take for development · Recreational pressure and disturbance: in line with other bog and mire habitats, trampling and erosion are likely to be a significant issue where public access occurs. Water quality: declines in water quality through nutrient enrichment and sediment. Land use in surrounding areas: agricultural practices and urban runoff are likely to affect the scattered sites through nutrient enrichment and sedimentation.</p>	
<p>Reason for Designation:</p>	<p>Environmental Conditions Needed to Support Site Integrity</p>
<p>Criterion 1a. A particularly good example of a natural or near natural wetland, characteristic of this biogeographical region, The site comprises the full range of habitats from open water to raised bog. Criterion 2a. Supports a number of rare plants associated with wetlands, including the nationally scarce cowbane <i>Cicuta virosa</i>, elongated sedge <i>Carex elongate</i> and bog rosemary <i>Andromeda polifolia</i>. Also present are the nationally scarce bryophytes <i>Dicranum undulatum</i>, <i>Dicranum affine</i> and <i>Sphagnum pulchrum</i>. Criterion 2a. Containing an assemblage of invertebrates, including several rare wetland species. There are 16 species of Red Data Book insect listed for the site including the following endangered species: the moth <i>Glyphipteryx lathamella</i>, the caddisfly <i>Hagenella clathrata</i> and the sawfly <i>Trichiosoma vitellinae</i>.</p>	<p>Environmental Conditions needed to support site integrity will need to be considered at the full Habitats Regulations Assessment stage since this range of sites is varied and needs consideration in relation to specific plans and policies.</p>

Table 24: Midland Meres & Mosses Ramsar Phases 1 and Phase 2 – individual sites and features

Ramsar phases split into Ramsar features/SSSI unit from Information on Natura 2000 Sites in the West Midlands, Prepared for Natural England by Treweek Environmental Consultants, 2009.

Phase 1 Sites/Ramsar feature	Open water	Swamp	Fen	Basin Mire	Raised bog	Wet pasture	Carr	Invertebrates	Plants
Clarepool Moss	+			+				dotted footman	
Wybunbury Moss				+		+	+	assemblage <i>Carorita limnaea</i>	<i>Andromeda polifolia</i> <i>Thelypteris palustris</i>
Brown Moss	+	+	+	+					<i>Luronium natans</i>
Berrington Pool	+	+	+						
Betley Mere	+	+	+			+	+		
Bomere, & Shomere Pools	+	+		+			+		<i>Elatine hexandra</i> <i>Thelypteris palustris</i>
Fenemere	+	+	+			+	+		<i>Cicuta virosa</i> <i>Thelypteris palustris</i>
Marton Pool	+	+					+		
Quoisley Meres	+	+	+			+	+		<i>Cicuta virosa</i> <i>Thelypteris palustris</i>
White Mere	+						+		<i>Carex elongata</i> <i>Eleocharis acicularis</i>

Phase 2 Sites/Ramsar feature	Open water	Swamp	Fen	Basin Mire	Raised bog	Wet pasture	Carr	Invertebrates	Plants
Fenns and Whixall Moss					+		+	assemblage <i>Hagenella</i> small pearl-	<i>Andromeda polifolia</i> <i>Dicranum undulatum</i> <i>Sphagnum pulchrum</i>
Aqualate Mere	+	+	+			+	+	assemblage	
Black Firs & Cranberry Bog	+			+			+		<i>Cicuta virosa</i>
Brownheath Moss			+				+		<i>Carex elongata</i>
Chapel Mere	+	+					+		
Cole Mere	+					+	+		<i>Carex elongata</i>
Cop Mere	+	+	+				+		
Hencott Pool							+		<i>Carex elongata</i> <i>Cicuta virosa</i>
Limmer Moss				+					<i>Thelypteris palustris</i>
Morton Pool & Pasture	+	+				+	+		<i>Thelypteris palustris</i>
Oss Mere	+	+				+	+		<i>Cicuta virosa</i> <i>Thelypteris palustris</i>
Sweat Mere & Crose Mere	+	+	+			+	+		<i>Carex elongata</i> <i>Thelypteris palustris</i>

Natural England is in the process of revising conservation objectives for SSSI units in Shropshire in order to take secondary European Features such as species into account. The tables below include Conservation Objectives where they have been provided by Natural England. The most up to date Conservation objectives for the SSSI units will be sought from Natural England prior to carrying out a full Appropriate Assessment on any lower tier document.

Table 25: Ramsar Midland Meres & Mosses Phase 1 individual site descriptions

Site Name: Berrington Pool SSSI, SJ525072, Shropshire, England
Site Description: Berrington Pool (4.69ha) is a small but deep mere in a steep-sided hollow, with water of comparatively low fertility. There is a rich flora of emergent species, including some which are uncommon, notably slender sedge <i>Carex lasiocarpa</i> at one of its most southerly localities in Britain. There are extensive beds of white water lily <i>Nymphaea alba</i> . Vegetation dominated by water horsetail <i>Equisetum fluviatile</i> and bottle sedge <i>Carex rostrata</i> is better represented here than at any other Shropshire mere. Other emergent plants include greater reedmace <i>Typha latifolia</i> . The aquatic fauna is of interest, especially for dragonflies, of which ten species are known to breed here. The site includes an area of fen at the western end of the pool, with a flora which includes bladder sedge <i>Carex vesicaria</i> and, in a ditch, water violet <i>Hottonia palustris</i> .
Definition of Favourable Condition for SSSI:
Site Vulnerability: Biological disturbance (trampling / erosion etc) from increased public access and from native and non-native invasive species such as crassula or scrub, lowering of the water table from abstractions or conversely water-logging, eutrophication and siltation from surrounding land use, in particular agricultural run-off and potentially sewage outfalls.
Site Name: Bomere, Shomere & Betton Pools SSSI, SJ504078, Shropshire, England
Site Description: Bomere, Shomere & Betton Pools (59.08ha), as a group, are particularly important for the variety of water chemistry, and hence flora and fauna, which they display. The site also includes a small basin mire, a more extensive area of peat around Shomere and an area of woodland.
Definition of Favourable Condition for SSSI:
Site Vulnerability: Bomere, Shomere and Betton Pools – biological disturbance from (trampling/erosion etc) from increased public access – watersports are already popular at the site and having an impact – as well as from native and non-native invasive species such as crassula, rhododendron and sycamore, fluctuations in the water table from nearby land drainage or abstractions, eutrophication from surrounding land use, in particular agricultural run-off and potentially sewage outfalls.

Site Name: Brown Moss SSSI, SJ562395, Shropshire, England also SAC
Site Description: Brown Moss (31.32ha) differs from the other North Shropshire Mosses in consisting of a series of pools set in an area of heathland and woodland, rather than an expanse of peat. It has been suggested that the site may once have been peat covered, and that peat removal in the past has led to the present condition of the site.
Definition of Favourable Condition for SSSI: Subject to natural change, to maintain, in favourable condition, the habitat for the internationally important population of Floating Water Plantain (<i>Luronium natans</i>), with particular reference to the standing open water. (Maintenance implies restoration if the feature is not currently in favourable condition).
Site Vulnerability: Colonisation by trees is being addressed but continues to be of concern due to the shading, nutrient and hydrological effects on the open water and heathland. The presence of <i>Crassula helmsii</i> is a threat to <i>Luronium natans</i> and various control mechanisms are being explored.

Site Name: Clarepool Moss SSSI, SJ433342, Shropshire, England – part of West Midlands Mosses SAC
Site Description: Clarepool Moss (15.62ha) is a basin mire which has developed, in part at least, as a quaking bog (Schwingmoor). In this respect it is similar to Chartley Moss (Staffordshire) and Wybunbury Moss (Cheshire), but different from the other major sites in North Shropshire.
Qualifying features of West Midland Mosses SAC: H3160. Natural dystrophic lakes and ponds; Acid peat-stained lakes and ponds H7140. Transition mires and quaking bogs; Very wet mires often identified by an unstable `quaking` surface
Site Vulnerability (for SAC): Colonisation of open schwingmoors or Sphagnum lawns and rafts in the West Midland Mosses by birch and pine is controlled by works under Management Agreement or by National Nature Reserve management. Several sources of nutrient enrichment, including atmospheric deposition of nutrients, pose a potential threat.

Site Name: Fenemere SSSI, SJ445228, Shropshire, England

Site Description: Fenemere (16.34ha) is a particularly rich and interesting mere with eutrophic water. Fenemere is also important for its rich aquatic invertebrate fauna. There are extensive beds of white and yellow water-lilies *Nymphaea alba* and *Nuphar lutea*, but otherwise the aquatic vegetation is sparse, consisting of horned pondweed *Zannichellia palustris*, fennel-leaved pondweed *Potamogeton pectinatus* and Canadian pondweed *Elodea canadensis*.

Reed beds are well developed round the edge and dominated by common reed *Phragmites australis*. Other species present include lesser reedmace *Typha angustifolia*, bulrush *Schoenoplectus lacustris* and bur-reed *Sparganium erectum*. Great duckweed *Lemna polyrhiza*, a scarce plant, occurs in the reed beds. On the western side of the mere there is a broad belt of alder carr, in which tussock sedge *Carex paniculata*, cyperus sedge *C. pseudocyperus* and cowbane *Cicuta virosa* occur.

The site includes, to the north and west of the mere, a series of damp pastures which are exceptionally rich botanically. The flora includes marsh orchid *Dactylorhiza incarnata*, bogbean *Menyanthes trifoliata*, marsh arrow-grass *Triglochin palustris* and water dropwort *Oenanthe fistulosa*.

Definition of Favourable Condition for SSSI:

Site Vulnerability:

Site Name: Marton Pool, Chirbury SSSI, SJ296027, Shropshire, England

Site Description: Marton Pool (17.21ha) is a natural lake of moderate fertility, somewhat detached from the main series of Shropshire meres. There are extensive areas of reedswamp and carr. It is among the most valuable of the Shropshire meres for aquatic plants, and the flora includes fan-leaved water crowfoot *Ranunculus circinatus*, blunt-leaved pondweed *Potamogeton obtusifolius* and small pondweed *P. berchtoldii*. Water-lilies, both white, *Nymphaea alba* and yellow, *Nuphar lutea* are present, but not abundant.

Definition of Favourable Condition for SSSI:

Site Vulnerability:

Site Name: Quoisley Mere SSSI, SJ549456, Cheshire, England
Site Description: Quoisley Meres (28.25ha) has been selected to represent a type of mere with nutrient rich open water and well developed fringing habitats. The site also includes areas of damp grassland.
Definition of Favourable Condition for SSSI:
Site Vulnerability:

Site Name: White Mere SSSI, SJ414330, Shropshire, England
Site Description: White Mere (31.97ha) is one of the richest of the North Shropshire meres for aquatic plants, with a flora which includes needle spike-rush <i>Eleocharis acicularis</i> , shoreweed <i>Littorella uniflora</i> , small pondweed <i>Potamogeton berchtoldii</i> and grey club-rush <i>Schoenoplectus tabernaemontani</i> .
Definition of Favourable Condition for SSSI:
Site Vulnerability:

Table 26: Ramsar Midland Meres & Mosses Phase 2

Site Name: Aqualate Mere SSSI, SJ770205, Staffordshire
Site Description: Aqualate Mere (241.00ha) is the largest of the meres with the most extensive reedswamp community. The mere and its surrounds form a complex of open water, fen, grassland and woodland unrivalled in Staffordshire for the variety of natural features of special scientific interest. The esker formation on the north side of the mere is of national geomorphological importance in its own right. The large area and juxtaposition of seminatural habitats supports an outstanding assemblage of beetles, moths and sawflies. The site has nationally important numbers of breeding herons <i>Ardea cinerea</i> and passage shoveler <i>Anas clypeata</i> and is regionally significant for breeding waders.
Definition of Favourable Condition for SSSI:
Site Vulnerability: Reductions in water levels from ground water and surface water abstractions, eutrophication from raised nitrogen and phosphorous and siltation entering the site via incoming water, largely from the nearby canal, as well as the presence of invasive species, in particular fish.

Site Name: Brownheath Moss SSSI, SJ562395, Shropshire
Site Description: Brownheath Moss (31.32ha) differs from the other North Shropshire Mosses in consisting of a series of pools set in an area of heathland and woodland, rather than an expanse of peat. It has been suggested that the site may once have been peat covered, and that peat removal in the past has led to the present condition of the site.
Definition of Favourable Condition for SSSI:
Site Vulnerability:

Site Name: Cole Mere SSSI, SJ433332, Shropshire
Site Description: Cole Mere is one of the largest of the Shropshire meres, with an almost complete fringe of woodland. There is a comparatively rich flora of aquatic macrophytes, including small pondweed <i>Potamogeton berchtoldii</i> , fan-leaved water crowfoot <i>Ranunculus circinatus</i> and autumnal water-starwort <i>Callitriche hermaphroditica</i> . Lesser yellow water-lily <i>Nuphar pumila</i> occurs here at what is probably its only English locality – the main centre of distribution of this species is the Scottish Highlands. Most of the surrounding woodland is of artificial origin but is included in the site since it is of value as a habitat for birds and adds to the diversity of the site. However, near the eastern end there is an area of semi-natural alder carr in which greater spearwort <i>Ranunculus lingua</i> and the rare elongated sedge <i>Carex elongata</i> occur. At the south-eastern end of the site there is an area of damp, rush-dominated pasture, with characteristic species such as lesser spearwort <i>Ranunculus flammula</i> and carnation sedge <i>Carex panicea</i> . The aquatic invertebrate fauna of Cole Mere is particularly diverse.
Definition of Favourable Condition for SSSI:
Site Vulnerability:

<p>Site Name: Cop Mere SSSI, SJ802297, Staffordshire</p>
<p>Site Description: Cop Mere (37.8ha) is a shallow lake lying in a hollow in Keuper Marl. In many respects it is an outlier of the series of meres concentrated in North Shropshire and Cheshire. However, it differs from many of the meres in having a distinct inflow and outflow, the River Sow, which enters the mere at the western end and leaves at the eastern end.</p>
<p>Definition of Favourable Condition for SSSI:</p>
<p>Site Vulnerability: Reductions in water levels (possibly from long-term increased abstraction rates from the River Sow), eutrophication and siltation from surrounding agricultural run-off and invasive species, especially encroaching rhododendron scrub.</p>
<p>Site Name: Fenn’s, Whixall, Bettisfield, Wem & Cadney Mosses SSSI, SJ490365, Shropshire/Clwyd, England/Wales also SAC</p>
<p>Site Description: Fenn’s, Whixall, Bettisfield, Wem and Cadney Mosses (948.4ha) together form an outstanding example of a lowland raised mire. The moss complex, which straddles the border between Shropshire, England and Clwyd, Wales, is one of the largest and most southerly raised mires in Britain. The site is highly valued ecologically as an example of mire development occurring under relatively warm and dry conditions and lying at the edge of the British range for this type of habitat.</p>
<p>Definition of Favourable Condition for SSSI: To maintain, in favourable condition, the active raised bogs and degraded raised bogs still capable of natural regeneration on the site.</p>
<p>Site Vulnerability: The lowland raised mire is dependent upon high water levels and a continuation of active peat-forming processes.</p> <p>Much of the site is subject to mineral planning consents for peat extractions which are currently being reviewed. The site has a history of peat-cutting and until recently, part of the site has been subject to large-scale commercial extraction, involving drainage over much of the peat body. Afforestation and agricultural improvement on marginal areas of the peat body have accelerated the lowering of water levels, resulting in encroachment by scrub and a decline in the extent of peat-forming communities.</p> <p>A greater part of the site is now owned, leased or managed under agreement by conservation organisations. Within these areas, mire rehabilitation management is taking place under the guidance of a management plan.</p> <p>It is intended to seek to increase the areas under positive conservation management by implementation of the joint Countryside Council for Wales/English Nature acquisition strategy.</p>

Site Name: Hanmer Mere SSSI (Wales)

Site Description: Naturally eutrophic (nutrient rich) mere, supporting water plants including curled pondweed, horned pondweed, floating beds of yellow water lily, and marginal vegetation including reedmace and branched bur-reed.

Another important element of this feature is the semi-natural vegetation types associated with the mere including swamp and mere marginal vegetation, marshy grassland, wet woodland and broad-leaved woodland together with a small stream flowing out of the mere.

Definition of Favourable Condition for SSSI:

Site Vulnerability: Water quality - There is no known inflow for the mere and all its water either runs off the immediate catchment area or results from rainfall. Nutrient run-off from agricultural land.

Fishery management and angling.

A fish survey undertaken in 1996 indicated that the mere has remarkably low fish stocks with only small numbers of pike, bream and eel present. The mere is currently fished at low intensity by a private angling club and this should continue without any intensification.

Recreational interest

The mere has a history of low usage and minimal disturbance. The present low intensity usage should be maintained. Public access is limited to the public footpath following the eastern side of the mere, and should continue to be confined to areas where appropriate facilities are in place.

Site Name: Hencott Pool SSSI, SJ490160, Shropshire

Site Description: Most of Hencott Pool (11.5ha) is swamp carr on very wet peat dominated by alder *Alnus glutinosa* and common willow *Salix cinerea* with frequent crack willow *Salix fragilis*. Although there are considerable areas of bare peat beneath the trees, there is a rich flora of fen plants. The site is notable for the size of its population of elongated sedge *Carex elongata*. Other uncommon species include purple smallreed *Calamagrostis canescens*, cyperus sedge *Carex pseudocyperus*, cowbane *Cicuta virosa*, great spearwort *Ranunculus lingua* and fine-leaved water dropwort *Oenanthe aquatica*. There are locally extensive moss carpets of *Calliergon cordifolium*, *C. cuspidatum* and *Sphagnum squarrosum*.

Definition of Favourable Condition for SSSI: Stand loss due to natural processes e.g. in minimum intervention stands is acceptable eg due to wind blow or Phytopthera disease.

Stand destruction may occur if the understorey and ground flora are irretrievably damaged even if the canopy remains intact, eg by pollution. As a guideline, loss can be defined as at least 0.5 ha or 0.5% of the stand area, whichever is the smaller.

Targets for extent may be modified where a target has been set to increase the extent of other habitat features on the site at the expense of woodland.

This site is a former pool and is now entirely scrubbed over with willow and alder carr (Lockton and Whild, 2003). It was in this late stage of succession at notification (Walker, 1984) and the whole site has to be considered as woodland at the moment. Standing water is usually present under the woodland and fen vegetation survives in certain places under the trees and scrub.

The site is important as an example of the succession from open water to basin bog to alder car (Walker, 1984), and therefore it would be beneficial to retain and restore some of the other features of interest that demonstrate the transition from open water to alder carr.

Therefore some loss in extent of the successional woodland, providing it was restored to open water or open fen vegetation would be acceptable. Although it is too early give estimates of extent for restored vegetation it should be no more than 5.7ha which was the total of fen and open water on the 1881 Edition OS Map.

There should be no loss in extent of the area covered by semi natural vegetation.

Site Vulnerability: Eutrophication mainly from surrounding agricultural run-off, lowering of the water table from surrounding activities, invasive species, in particular Canadian geese that graze, trample and enrich the vegetation.

Site Name: Llyn Bedydd SSSI (Wales)

Site Description: The SSSI has two special features.

Standing water

Llyn Bedydd is a small 'mere' developed in a natural depression (kettle-hole) after the last ice age which covered this area some 20,000 years ago. The lake comprises an area of open water supporting a variety of water plants below, floating on the surface, and rising above the surface

of the water, as well as natural bank side vegetation.
Wet woodland
The wet woodland habitat is an uncommon habitat in Wrexham, and is dominated by alder, willow and other plants and animals tolerant of wet conditions and flooding.
Definition of Favourable Condition for SSSI:
Site Vulnerability: Water quality and pollution, fishery management, woodland

Site Name: Morton Pool & Pasture SSSI, SJ301239, Shropshire, England
Site Description: The chief interest of Morton Pool (3.72ha) is the fen and carr vegetation around it. The dominant species are alder <i>Alnus glutinosa</i> and sallow <i>Salix cinerea</i> with yellow flag <i>Iris pseudacorus</i> , reed canary grass <i>Phalaris arundinacea</i> and sedges, including lesser pond sedge <i>Carex acutiformis</i> and tussock sedge <i>Carex paniculata</i> , in the field layer. Uncommon plant species in this habitat include bird cherry <i>Prunus padus</i> , alder buckthorn <i>Frangula alnus</i> and marsh fern <i>Thelypteris thelypteroides</i> .
Definition of Favourable Condition for SSSI:
Site Vulnerability:

Site Name: Oss Mere SSSI, SJ565438, Shropshire, England
Site Description: Oss Mere (28.32ha) is a shallow mere of moderate fertility, bordered on two sides by reedswamp and alder carr. The site also includes woodland on dry peat and on fringe of damp grassland. Within the mere both white and yellow water lilies <i>Nymphaea alba</i> and <i>Nuphar lutea</i> occur, but are scarce. Horned pondweed <i>Zannichellia palustris</i> is the dominant submerged aquatic plant. The alder carr is particularly rich, and has a flora which includes cyperus sedge <i>Carex pseudocyperus</i> , cowbane <i>Cicuta virosa</i> , bog violet <i>Viola palustris</i> , marsh fern <i>Thelypteris thelypteroides</i> and royal fern <i>Osmunda regalis</i> , all of which are uncommon in Shropshire.
Definition of Favourable Condition for SSSI: Maintain the Fen, Marsh and Swamp, Broadleaved, mixed and yew woodland and Standing open water in favourable condition
Site Vulnerability:

Site Name: Sweat Mere & Crose Mere SSSI, SJ434304, Shropshire, England

Site Description: Sweat Mere and Crose Mere (38.58ha) are two dissimilar meres constituting a site of exceptional importance. They are the remnants of a once considerably larger wetland complex which included Whattall Moss, which in historic times was an acid peat bog but now is almost entirely affected. The meres and their surrounds form a complex of open water, reedswamp, fen and woodland habitats unrivalled in Shropshire for the variety of natural features of special scientific interest. Both meres have been subject to detailed research and intensive study. In particular the phytoplankton and the pollen stratigraphy of Crose Mere are very well documented.

Definition of Favourable Condition for SSSI:

Site Vulnerability:

Appendix 3: Tables of Impact pathways and international sites potentially affected by them.

Table 1: Air pollution potential impact pathways

Environmental change	International Site potentially vulnerable to impact	Issues for further consideration
<p>Local deposition of air pollutants caused by traffic emissions changing the plant species composition of vulnerable vegetation etc</p>	<p>Berwyn & South Clwyd Mountains SAC, Berwyn SPA, Cannock Chase SAC, Johnstown Newt Sites SAC, Montgomery Canal SAC, Midland Meres and Mosses Ramsar Phase 1 & 2, River Dee & Bala Lake SAC, River Clun SAC, Tanat bat SAC West Midland Mosses SAC are within 200m of A roads.</p>	<p>Those parts of sites within 200m of a major road may be at risk from increased acidification and nitrogen deposition causing changes in terrestrial plant communities for which the sites have been designated. This problem is worse at sites which already have acid soils and have little buffering capacity. Predicting whether traffic levels will increase and then establishing whether this will translate into increased levels of deposition on a site is difficult.</p>
<p>Diffuse air pollution</p>	<p>Berwyn & South Clwyd Mountains SAC, Berwyn SPA, Brown Moss SAC Cannock Chase SAC Downton Gorge SAC, Elenydd SAC, Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC, Midland Meres and Mosses Ramsar Phase 1 & 2 Montgomery Canal SAC, Rhos Goch SAC, River Clun SAC, River Dee SAC, River Wye SAC The Stiperstones and the Hollies SAC, West Midland Meres and Mosses SAC,</p>	<p>Many habitats are sensitive to increased levels of nitrogen, acidification or other airborne pollution. A number of sites are currently over their critical loads for acid and nitrogen deposition. Any further increase in background levels of diffuse air pollution could have cumulative effects and exacerbate an adverse situation. Measures need to be explored for reducing air emissions in the region to stabilise background levels of air pollution.</p>

Table 2: Hydrological potential effect pathways

Environmental change	International Site potentially vulnerable to impact	Issues for further consideration
Water quality effects from direct increase in run-off from hard standing and pollution from overloading water treatment infrastructure	Brown Moss SAC, Downton Gorge SAC, Fenn's, Whixall, Bettisfield, Cadney and Wem Mosses SAC, Montgomery Canal SAC, Midland Meres and Mosses Ramsar Phase 1 & 2, River Clun SAC, River Dee and Bala Lake SAC, Severn Estuary SPA/Ramsar River Wye SAC West Midland Mosses SAC	Capacity of existing wastewater infrastructure to deal with additional homes needs to be considered, especially during flood events. Some sites require local / specific management solutions. However scope for SUDS should be considered for upstream housing and other developments to reduce pollutants such as oil and road salt. 1.3km of the Montgomery Canal from Pant to Llanymnyech is not part of the designated Special Area of Conservation (SAC) but is in hydrological continuity with the Welsh SAC (there is a dry section between this and the English SSSI section of the canal) therefore the SAC is potentially at risk from the effects of development in Shropshire.
Pollution during flood events and problems resulting from raised or diverted water tables	Midland Meres and Mosses Ramsar Phase 1 & 2 River Clun SAC, River Dee and Bala Lake SAC	Some of the constituent sites in the Midland Meres and Mosses Ramsar Phase 1 & 2 suffer from water logging as a result of diverted or raised water tables. Species within the River Clun SAC and River Dee and Bala Lake SAC are vulnerable to short term increased pollution/ sedimentation resulting from flash flooding.
Concentration of pollutants or contaminants due to reduced/ low flow	River Clun SAC, River Dee & Bala Lake SAC, Severn Estuary SAC/SPA/Ramsar River Wye SAC Midland Meres and Mosses Ramsar Phase 1 & 2	Species within the River Clun SAC are reliant on a clean, cool, stable flow of water. Concentration of pollutants in rivers and pools can be toxic to a wide range of species and low water levels combined with high nutrient levels leads to algal blooms and reduced light levels in standing water.
Water abstraction resulting in lowered water tables / levels	Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC, River Clun SAC,	Increased abstraction arising from housing and economic development could impact on a range of international sites.

Environmental change	International Site potentially vulnerable to impact	Issues for further consideration
	River Dee & Bala Lake SAC, Severn Estuary SAC/SPA/Ramsar River Wye SAC West Midland Mosses SAC, Midlands Meres and Mosses Ramsar Phase 1 & 2	
Increased silt runoff from development & roads	Brown Moss SAC, Montgomery Canal SAC, Midland Meres and Mosses Ramsar Phase 1 & 2, River Clun SAC, River Dee SAC, West Midland Mosses SAC	Freshwater Pearl Mussels are particularly sensitive to increased silt levels within the River Clun SAC. Other sites are reliant on a clean, stable flow of water with low sediment levels.
Water quality impacts through boat use of Shropshire Union Canal	Midland Meres and Mosses Ramsar Phase 2 (Cole Mere), Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC, Montgomery Canal SAC.	There are overflows and sluice gates between the canal and Cole Mere Ramsar site and Fenn's, Whixall, Bettisfield, Cadney and Wem Mosses SAC and Ramsar site. The Montgomery Canal SAC may become reconnected in future (according to the Montgomery Canal Management Plan) to the existing navigable part of the Montgomery Canal in Shropshire, and from there to the Shropshire Union Canal.

Table 3: Recreational potential effect pathways

Environmental change	International Site potentially vulnerable to impact	Issues for further consideration
Induced development (i.e. need for increased infrastructure on a designated site to deal with an increase in visitor pressure) and related land use change in or around site.	Berwyn & South Clwyd Mountains SAC, Downton Gorge SAC, Elenydd SAC, Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC, Rhos Goch SAC, The Stiperstones and the Hollies SAC, West Midland Meres and Mosses SAC, Midland Meres and Mosses Ramsar Phase 1 & 2.	Increased recreational pressure can lead to the need for greater facilities and infrastructure on designated sites. Sites depend on supporting habitat outside the protected area boundary. Given the complexity of wetland sites in and around Shropshire there is potential for impacts relating to land use change around the designated sites as well as directly adjacent or within the designated areas.

Environmental change	International Site potentially vulnerable to impact	Issues for further consideration
Disturbance or damage / erosion caused by recreational/ amenity use.	Aqualate Mere Ramsar site, Berwyn SPA, Berwyn & South Clwyd Mountains SAC, Brown Moss SAC, Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC, Granllyn SAC, Johnstown Newt Sites SAC, Midlands Meres and Mosses Ramsar Phase 1 & 2, Montgomery Canal SAC, The Stiperstones & The Hollies SAC.	These sites are currently adversely affected to a degree by recreational pressure and are at risk from an increase in the number of households and improved physical accessibility in the region. The pathways by which recreational pressure impacts each site needs to be examined to understand the mechanisms by which further risk can be avoided. Risks include trampling, erosion, fishing, eutrophication from dog faeces and swimming by people and dogs.
Interference with grazing and other management necessary for the maintenance of designated features of international sites.	Aqualate Mere Ramsar site, Berwyn SPA, Berwyn & South Clwyd Mountains SAC, Brown Moss SAC, Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC, Granllyn SAC, Johnstown Newt Sites SAC, Midlands Meres and Mosses Ramsar Phase 1 & 2, Montgomery Canal SAC, The Stiperstones & The Hollies SAC.	Grazing is crucial to the favourable condition of many sites. There may be conflict between visitors, their dogs and livestock unless carefully managed.

Table 4: Biosecurity potential effect pathways

Environmental change	International Site potentially vulnerable to impact	Issues for further consideration
Intentionally or accidentally introduced species.	Berwyn & South Clwyd Mountains SAC, Brown Moss SAC, Cannock Chase SAC, Downton Gorge SAC, Elenydd SAC, Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses	All international sites could be affected by introduced or non-native species. Introduced species can alter plant communities, introduce disease or out-compete important species. Aquatic sites are particularly sensitive. Examples are the spread of the invasive shrimp

	<p>SAC, Granllyn SAC Johnstown Newt Sites SAC, Midland Meres and Mosses Ramsar Phase 1 & 2 Montgomery Canal SAC, Rhos Goch SAC, River Clun SAC, River Dee SAC, The Stiperstones and the Hollies SAC, West Midland Meres and Mosses SAC,</p>	<p>Dikerogammarus haemobaphes along waterways or the introduction of fish to Great Crested Newt sites.</p>
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Table 5: Other effects of development

Environmental change	International Site potentially vulnerable to impact	Issues for further consideration
<p>Development of sites being used by bats for breeding when away from the winter hibernation areas</p>	<p>Tanat and Vrynwy Bat Sites SAC.</p>	<p>The populations of bats using hibernation roosts at Tanat and Vrynwy Bat Sites SAC are at risk from development in Shropshire since the breeding summer roosts used by these bat populations have not been identified. The species, and the integrity of the international site could be at risk from redevelopment of rural sites, minerals sites, caves, mines and woodlands.</p>
<p>Raised night time light levels due to artificial lighting.</p>	<p>Brown Moss SAC, Downton Gorge SAC, Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC, Midland Meres and Mosses Ramsar Phase 1 & 2 Montgomery Canal SAC, River Dee SAC, Tanat and Vrynwy Bat Sites SAC, The Stiperstones and the Hollies SAC, West Midland Meres and Mosses SAC,</p>	<p>Any sites which are important for animal species, particularly invertebrates, birds and nocturnal mammals such as otters and bats, may be adversely affected by artificial lighting. Lighting can attract or repel species, interfere with feeding patterns, lifecycles or behaviour. Such impacts could occur if development takes place close to sensitive international sites or is of such a scale that it creates barriers to night time foraging or commuting routes.</p>

Appendix 4: Summary of screening of international sites

Attached as a separate pdf

Appendix 5: Summary of screening of elements of the Regulation 18: Pre-Submission Draft Local Plan

Attached as a separate pdf.

Appendix 6: Other plans and projects assessed for in-combination effects

Attached as a separate pdf.

Appendix 7: SAMDev Plan HRA of Minerals Allocations

Attached as a separate pdf