FOOTPRINT ECOLOGY

HRA report for Bradford Metropolitan District Local Plan, preferred options February 2021

Authors: Durwyn Liley, Bernie Fleming and Zoe Caals

FOOTPRINT ECOLOGY, FOREST OFFICE, BERE ROAD, WAREHAM, DORSET BH20 7PA
WWW.FOOTPRINT-ECOLOGY.CO.UK
01929 552444

Footprint Contract Reference: 540
Date: 4th February 2021
Version: Final
Recommended Citation: Liley, D., Fleming, B. & Caals, Z. (2021) HRA report for Bradford Metropolitan District Local Plan, preferred options February 2021. Unpublished report for Bradford Metropolitan District Council.

Summary

This report is the Habitats Regulations Assessment (HRA) report for the Bradford Metropolitan District Draft Local Plan. This HRA report has been prepared by Footprint Ecology, on behalf of Bradford Metropolitan District Council.

HRA is the step by step process of ensuring that a plan or project being undertaken by, or permitted by a public body, will not adversely affect the ecological integrity of a European wildlife site. European sites include Special Protection Areas (SPAs), which are classified for their bird populations of European interest, and Special Areas of Conservation (SACs), which are designated for habitats and species of European interest. The legislation sets out a clear step by step approach for decision makers considering any plan or project.

In this instance the HRA is undertaken on the draft Local Plan, as it is a plan being prepared by a public body. When undertaking a HRA of a plan that is prepared over time, the HRA process is iterative and is refined alongside the plan.

The first stage is a screening stage, whereby each aspect of the plan is checked to establish whether there are any risks to the European sites. Any identified likely significant effects, or where there is uncertainty, leads to the appropriate assessment stage. This is a more detailed analysis of the nature of the potential risks and what the consequences may be for the habitats and/or species that are interest features of the European sites.

At the draft plan, or Regulation 18 stage in plan making, a record of screening of the entire document, ready for consultation, is provided within this report. After the consultation, the HRA will progress with further detailed evidence gathering and assessment, and this will inform the preparation of the plan at Regulation 19 stage. The screening of the plan has identified the following themes for more detailed assessment:

Urban effects

These particular risks are associated with development in very close proximity to European site boundaries, including cat predation, increased occurrence of predators associated with urban areas, increased fire risk, dumping of garden waste and the physical proximity of the built environment. Likely significant effects alone are identified for the South Pennine Moors SAC and South Pennine Moors Phase II SPA as a result of the quantum of growth proposed. Policy wording ensures no additional residential development within 400m of the European site boundary and a draft

Supplementary Planning Document (SPD) has been produced to provide further information.

Prior to submission and to inform the next iteration of the HRA, checks should be made of urban effects specific to one allocation (IL1/H in Ilkley) and the scope for mitigation. There may therefore be specific mitigation requirements for this site that need to be included within the plan at the next version. It may also be that site-specific details will only be finalised following project level HRA when site-specific design (such as layout and access details) are known. If this is the case, the submission version of the HRA will need to set out the details required in the project-level assessment.

Impacts to supporting habitat

A number of qualifying features of the two moorland SPA sites are relatively mobile species and will use areas outside the SPA boundary - this is particularly the case with some of the wading birds such as Golden Plover and Curlew which will forage in areas outside the SPA.

Screening identified 33 site allocations (2,715 potential dwellings) where likely significant effects, in relation to impacts to supporting habitat/functionally-linked land and the South Pennine Moors Phase II SPA, could not be ruled out alone. The screening was precautionary and all the sites are within 2.5km of the SPA and, using Corine landcover data, are identified as having some component of grassland or other habitat (not urban or woodland). Visual checks against habitat suitability models produced for Golden Plover suggest risks for the 33 sites are low.

Policy SP11 provides strong protection and clearly sets out a zonal approach that is set out in more detail within a separate planning framework draft SPD. The draft SPD will be finalised prior to submission of the Plan. The next iteration of the HRA will need to undertake more detailed GIS analysis and possibly some more detailed checks of some of the allocations. Should these identify any remaining concerns, the submission version of the Plan will need to remove those sites or ensure further checks/wording for each (such as permission only being granted subject to targeted bird survey results) in order for a conclusion of no adverse effects on integrity at plan-level to be made.

Recreation

Recreation use involves people walking, cycling or driving to the European site for recreational activity such as dog walking, jogging, walking etc. This can lead to impacts such as disturbance to birds, trampling damage and increased fire risk.

The draft Plan includes policy SP11 which clearly establishes a zone of influence (7km) within which housing growth could lead to increased recreation use. A strategic

approach to mitigation to address the recreation issues is set out in more detail within a separate planning framework draft SPD, which has been published for consultation alongside the Local Plan.

By submission of the Plan, it will be possible to have the SPD finalised and adopted, and therefore a mitigation approach fully secured. The mitigation approach will need to cover both the South Pennine Moors SAC/SPA and the North Pennine Moors SAC/SPA. For the next iteration of the HRA, prior to submission, it will be necessary to check any changes to the Plan (e.g. levels of housing and locations) and any changes to the SPD to ensure the mitigation is adequate and will allow a conclusion of no adverse effects on integrity (on the South Pennine Moors SAC/SPA or the North Pennine Moors SAC/SPA) from recreation, alone or in-combination, to be reached.

Air quality

Increased vehicle traffic on roads crossing, or adjacent to, European sites, could result in impacts to sensitive habitats, with impacts focussed within 200m of roads. Atmospheric pollutants of concern include oxides of nitrogen (NOx), ammonia (NH3) and the consequential deposition of nitrogen (N) and acid, which can then lead to changes in plant species composition and mortality.

The implications of the Local Plan in relation to air quality need to be assessed against background trends and the trajectory of vehicle emission improvements. Improvements in vehicular technology and standards that all vehicles are currently being manufactured to, may outweigh impacts from new development. The improvements may be retarded by additional development, but future background levels of nitrogen are expected to decline with Government clean air strategies and the target to stop the sales of new diesel and petrol cars by 2030.

The air quality policy EN8 within the draft Plan identifies the need for air quality modelling work to be carried out to assess possible effects of the allocations and proposed growth on the European sites.

Preliminary checks undertaken in this HRA report highlight a number of road sections that cross the South Pennine Moors SAC/South Pennine Moors Phase II SPA and the North Pennine Moors SAC/SPA. In order to rule out adverse effects on integrity in future iterations of the HRA it will be necessary to understand how traffic flows will change on these road sections. Depending on the scale of traffic increases, it may be necessary to also undertake air quality modelling. It will be necessary to understand the vulnerability of the European site interest and the distribution of vulnerable features in relation to the road network. This will need to be a key area of focus for future iterations of the HRA.

Contents

Acknowledgements

We are grateful to Vikki Van Sylvan, Jonathan Dicken, Danny Jackson and Miriam Baines at Bradford Metropolitan District Council for their assistance and helpful discussion during the preparation of this initial HRA report at Preferred Options stage. Our thanks also to Liam O'Reilly (Natural England) for useful discussion.
Cover image of Golden Plover © Durwyn Liley, Footprint Ecology.

1. Introduction

Context

1.1 This report is a Habitats Regulations Assessment (HRA) report relating to the draft Bradford Metropolitan District Local Plan. This HRA report has been prepared by Footprint Ecology on behalf of Bradford Metropolitan District Council. It provides further information on the proximity of, and scope for potential impacts upon, European protected sites in relation to the plan, which is at the draft (Regulation 18) stage. HRAs of local plans are iterative documents, finalised once the Plan comes into effect. This report builds upon the previous HRA work carried out by Footprint Ecology.

The Bradford Metropolitan District Core Strategy Partial Review

1.2 The Bradford District lies on the edge of the Pennines and is in close proximity to the City of Leeds, falling within the Leeds Strategic Housing Market Area and therefore being an important area of focus for housing and economic growth. Spatial planning for the District is closely aligned with that of the neighbouring authorities.

1.3 Within the District Boundary, and therefore the jurisdiction of the Local Plan, there is a combination of the densely populated City of Bradford, with a large expanse of the internationally important Pennine Moorland habitat to the west. This immediately presents very differing characteristics of the District as it runs from east to west, and clear challenges for spatial planning. There are a number of additional towns and villages forming smaller but still significant settlements also located in close proximity to the moors.

1.4 The current local plan consists of a portfolio of planning documents including the adopted Core Strategy DPD, two Area Action Plans (Bradford City Centre and Shipley and Canal Road Corridor); the Waste Management DPD and carried forward policies from the Replacement Unitary Development Plan (RUDP). The new draft Bradford District Local Plan radically simplifies this structure to a single planning document.

1.5 Headline figures for delivery within the new draft Plan are:

- A housing requirement of 1,704 dwellings per annum or 30,672 homes over the 18 years of the plan (2020-2038);
- Almost 8,000 new affordable homes;
- Over 80 hectares of employment land;
- Almost 29,000 jobs over the plan period;

- 325 housing sites;
- Designation of 1,693 open spaces totalling 2,781ha of land.

1.6 This HRA report is produced alongside the draft Plan at the Regulation 18 stage. The next stage in the development of the Local Plan will be the Publication Draft Local Plan (Regulation 19), which will set out the Council's final position on the plan and the version which it intends to submit to the Secretary of State for public examination following further consultation on its 'soundness'. The HRA report will be further updated to accompany the Regulation 19 version of the Plan.

Habitats Regulations Assessment process

1.7 The designation, protection and restoration of European wildlife sites is embedded in the Conservation of Habitats and Species Regulations 2017, as amended which are commonly referred to as the 'Habitats Regulations'.

1.8 The Habitats Regulations are in place to transpose European legislation set out within the Habitats Directive (Council Directive 92/43/EEC), which affords protection to plants, animals and habitats that are rare or vulnerable in a European context, and the Birds Directive (Council Directive 2009/147/EC), which originally came into force in 1979, and which protects rare and vulnerable birds and their habitats. These key pieces of European legislation seek to protect, conserve and restore habitats and species that are of utmost conservation importance and concern across Europe.

1.9 This assessment has been carried out under the terms of Regulation 105 of the Conservation of Habitats and Species Regulations 2017 as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019[1].

European sites

1.10 The European Directives operate on the basis that sites are in place to serve as an ecologically functioning network, and ultimately it is the preservation of that network as a whole that is the overall aim of the European Directives.

1.11 The term 'national sites network' was introduced into the 2017 Habitats Regulations by the 2019 Amendment Regulations. The national network of sites includes Special Areas of Conservation (SACs) designated under the Habitats

[1] The amending regulations generally seek to retain the requirements of the 2017 Regulations but with adjustments for the UK's exit from the EU, for example by amending references to the Natura 2000 network so that they are construed as references to the national site network: see regulation 4, which also confirms that the interpretation of these Regulations as they had effect, or any guidance as it applied, before exit day, shall continue to do so

Directive and Special Protection Areas (SPAs) classified under the Birds Directive. The suite of sites includes those in the marine environment as well as terrestrial, freshwater and coastal sites. These sites have the benefit of the highest level of legislative protection for biodiversity. There are specific duties in terms of avoiding deterioration of habitats and species for which sites are designated or classified, and stringent tests have to be met before plans and projects can be permitted, with a precautionary approach embedded in the legislation, i.e. it is necessary to demonstrate that impacts will not occur, rather than they will. The overarching objective is to maintain sites and their interest features in an ecologically robust and viable state, able to sustain and thrive into the long term, with adequate resilience against natural influences. Where sites are not achieving their potential, the focus should be on restoration.

1.12 The UK is also a contracting party to the Ramsar Convention, which is a global convention to protect wetlands of international importance, especially those wetlands utilised as waterfowl habitat. HRA guidance (Tyldesley et al., 2021) states that competent authorities in England and Wales should, as a matter of policy, treat listed Ramsar sites and proposed Ramsar sites in the same way as classified SPAs and designated SACs. Most Ramsar sites are also a SPA or SAC, but, importantly, the Ramsar features and boundary lines may vary from those for which the site is designated as an SPA or SAC.

1.13 The NPPF requires decision makers to apply the same protection and process to Ramsar sites as that set out in legislation for European sites. Formally proposed sites, i.e. sites proposed for European designation (potential SPAs, candidate SACs and Sites of Community Importance) and going through the designation process, and those providing formal compensation for losses to European sites, are also given the same protection.

1.14 This report refers to all the above sites as 'European sites' for assessment purposes, as the legislation is applied to all such sites, either directly or as a result of policy. The use of the term 'European sites' here is synonymous with "habitats sites' which is the terminology used in the NPPF.

Process

1.15 The step by step process of HRA is summarised in Figure 1.

1.16 Within the Habitats Regulations, local planning authorities, as public bodies, are given specific duties as 'competent authorities' with regard to the protection of sites designated or classified for their species and habitats of European importance. Competent authorities are any public body or individual holding public office with a statutory remit and function, and the requirements of the legislation apply where the competent authority is undertaking or implementing

a plan or project, or authorising others to do so. Regulation 63 of the Habitats Regulations sets out the HRA process for plans and projects, which includes development proposals for which planning permission is sought. Additionally, Regulation 105 specifically sets out the process for assessing emerging land use plans.

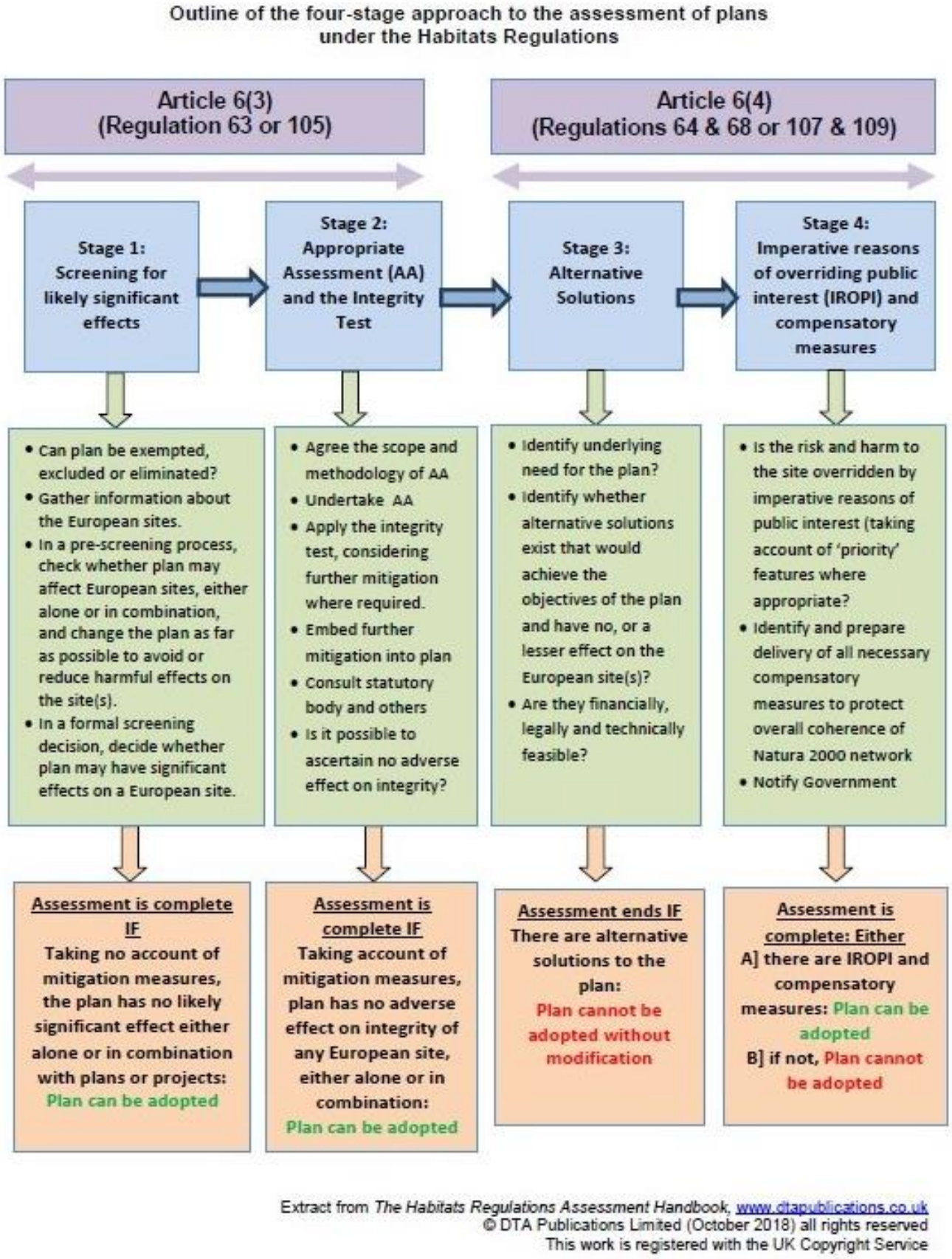


Figure 1: Outline of the assessment of plans under the Habitat Regulations

1.17 Throughout all stages, there is a continual consideration of the options available to avoid and mitigate any identified potential impacts. A competent authority may consider that there is a need to undertake further levels of evidence gathering and assessment in order to have certainty, and this is the Appropriate Assessment stage. At this point the competent authority may identify the need to add to or modify the project in order to adequately protect the European site, and these mitigation measures may be added through the imposition of particular restrictions and conditions.

1.18 For plans, the stages of HRA are often quite fluid, with the plan normally being prepared by the competent authority itself. This gives the competent authority the opportunity to repeatedly explore options to prevent impacts and demonstrate that all potential risks to European sites have been successfully dealt with.

1.19 When preparing a plan, a competent authority may therefore go through a continued assessment as the plan develops, enabling the assessment to inform the development of the plan. For example, a competent authority may choose to pursue an amended or different option where impacts can be avoided, rather than continue to assess an option that has the potential to significantly affect European site interest features.

1.20 After completing an assessment, a competent authority should only approve a project or give effect to a plan where it can be ascertained that there will not be an adverse effect on the integrity of the European site(s) in question. In order to reach this conclusion, the competent authority may have made changes to the plan, or modified the project with restrictions or conditions, in light of their Appropriate Assessment findings.

1.21 Where adverse effects cannot be ruled out, there are further exceptional tests set out in Regulation 107. Exceptionally, a plan or project could be taken forward for imperative reasons of overriding public interest where adverse effects cannot be ruled out and there are no alternative solutions. It should be noted that meeting these tests is a rare occurrence and ordinarily, competent authorities seek to ensure that a plan or project is fully mitigated for, or it does not proceed.

1.22 In such circumstances where a competent authority considers that a plan or project should proceed under Regulations 64 or 107, they must notify the relevant Secretary of State. Normally, planning decisions and competent authority duties are then transferred, becoming the responsibility of the Secretary of State, unless on considering the information, the planning authority is directed by the Secretary of State to make their own decision on the plan or project at the local level. The decision maker, whether the Secretary of State or

the planning authority, should give full consideration to any proposed 'overriding reasons' for which a plan or project should proceed despite being unable to rule out adverse effects on European site interest features, and ensure that those reasons are in the public interest and are such that they override the potential harm. The decision maker will also need to secure any necessary compensatory measures, to ensure the continued overall coherence of the European site network if such a plan or project is allowed to proceed.

Definitions, references to case law and guidance

1.23 The principles of case-law, government policy and best practice in HRAs are set out in the HRA Handbook (Tyldesley et al., 2021), to which Footprint Ecology subscribes. We also follow government guidance on the use of Habitats Regulations Assessment[2].

1.24 Drawing on the Handbook, other relevant guidance and case law, we clarify the following terms used in the flow chart (Figure 1):

1.25 In Stage 1, A '**likely significant effect'** following Waddenzee[3], is a 'possible significant effect; one whose occurrence cannot be excluded on the basis of objective information'. It is a low threshold and simply means that there is a risk or doubt regarding such an effect. The screening stage is a preliminary examination, sometimes described as a coarse filter, or following Waddenzee, '*a trigger in order to determine whether an appropriate assessment must be undertaken*'. There should however be credible evidence to show that there is a real rather than a hypothetical risk of effects that could undermine a site's conservation objectives. This was amplified in the Bagmoor Wind[4] case where '*if the absence of risk… can only be demonstrated after a detailed investigation, or expert opinion,* [then] *the authority must move from preliminary examination to appropriate assessment'.*

1.26 Following the People Over Wind judgement[5], when making screening decisions for the purposes of deciding whether an appropriate assessment is required, competent authorities cannot take into account any mitigation measures. The

[2] https://www.gov.uk/guidance/appropriate-assessment
[3] Waddenzee: European Courts C-127/02 Waddenzee 7th September 2004, reference for a preliminary ruling from the Raad van State.
[4] Bagmoor Wind: UK courts Bagmoor Wind v The Scottish Ministers, Court of Session [2012] CSIH 93
[5] People Over Wind: European Court Case C-323/17 People Over Wind & Peter Sweetman v Coillte Teoranta 12 April 2018

implications are considered in more detail in the initial screening section of this report.

1.27 Stage 2 involves the **appropriate assessment and integrity test**. Here a plan can only be adopted if the competent authority can demonstrate that it will not adversely affect the integrity of the European site. This is a precautionary approach and means it is necessary to show the absence of harm.

1.28 Following Champion[6] **'appropriate'** is not a technical term but simply indicates that the assessment needs to be appropriate to the task in hand.

1.29 The **integrity** of a European site has been described as 'coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified[7]'. An alternative definition, after Sweetman[8], is 'the lasting preservation of the constitutive characteristics of the site'.

1.30 In terms of the burden of proof, the HRA of development plans was first made a requirement in the UK following a ruling by the European Court of Justice in EC v UK[9]. However, the judgement[10] recognised that any assessment had to reflect the actual stage in the strategic planning process and the level of evidence that might or might not be available. This was given expression in the High Court (Feeney)[11] which stated: "*Each … assessment … cannot do more than the level of detail of the strategy at that stage permits*".

1.31 The need to consider possible **in-combination** effects arises at stage 1 – the screening and also at stage 2 – the appropriate assessment and integrity test. The effects of the plan in-combination with other plans or projects are the cumulative effects which will or might arise from the addition of the effects of other relevant plans or projects alongside the plan under consideration. If during the stage 1 screening it is found the subject plan would have no likely effect alone, but might have such an effect in-combination then the appropriate assessment at stage 2 will proceed to consider cumulative effects. Where a plan is screened as having a likely significant effect alone, the appropriate assessment should initially concentrate on its effects alone.

---

[6] Champion: UK Supreme Court [2015] UKSC 52 22nd July 2015
[7] Para 20 of the ODPM Circ. 06/2005
[8] Sweetman: European Court C – 258/11 Sweetman 11th April 2013, reference for a preliminary ruling from the Supreme Court of Ireland
[9] Commission v UK (C-6/04) [2005] ECR 1-9017
[10] Commission of the European Communities v UK Opinion of Advocate General Kokott
[11] Feeney: Feeney v Oxford City Council [2011] EWHC 2699 (Admin) . 24th October 2011

Role of this report and previous HRA reports

1.32 The following documents are of relevance to this HRA due to their consideration of the natural environment and resources, and also the historic HRA work for the documents that form the currently adopted Local Plan.

The adopted Core Strategy HRA

1.33 The HRA for the adopted Core Strategy (Cox & Pincombe, 2014) was undertaken by Urban Edge Environmental Consulting in 2015 and is available as part of the evidence base for the existing Core Strategy. The HRA highlighted a number of potential risks to European sites arising from the quantum of growth proposed within the Core Strategy. This included a focus on the potential impact of increased recreation pressure on the South Pennine Moors Special Protection Area (SPA) and Special Area of Conservation (SAC). These are the key European sites of consideration in this report.

1.34 The HRA for the adopted core strategy, in addition to recreation, assessed the potential risks relating to water demand and water quality, air quality, urbanisation effects, loss of habitat that supports species outside the European site boundaries, and potential fatalities from development such as wind turbines.

1.35 For recreation, the HRA considered the data collected during visitor surveys conducted on the South Pennine Moors in 2013. Visitor survey data can help to identify the extent to which people are travelling to the European site. The 2013 data concluded that the majority of visitors were travelling under 7km, and this distance was therefore used in the Core Strategy as a 'zone of influence' within which additional housing may add to the visitor pressure on the moorlands.

1.36 The HRA concluded that measures would be required to mitigate for the recreational impact of the residential development coming forward. The HRA recommended that a range of measures should be developed, including the provision of alternative natural greenspace for recreation and visitor management at the European sites.

1.37 The current Core Strategy also recognises that SPA qualifying bird features will move in and out of the European site boundary. SPA birds will regularly use habitat outside the SPA boundary, for example for additional food sources, and this habitat may therefore be of significance in maintaining SPA bird populations, i.e. it is 'functionally linked.' A zone of 2.5km is therefore referenced within the current Core Strategy as a zone within which functionally linked land

could be present and needs to be checked for at the development project proposal stage.

Core Strategy Partial Review

1.38 The Core Strategy was adopted in 2017. The adopted Core Strategy set out a housing requirement of 2,476 dwellings for the period 2013-2030. The Core Strategy Partial Review was commenced following changes in how central Government calculated housing requirements in England. A scoping consultation took place in January 2019 and then consultation on the preferred options in the summer 2019. Both these consultations were accompanied by HRA reports, which set out the key considerations for HRA.

Planning Framework SPD

1.39 A strategic approach to mitigating for cumulative pressure arising from new growth is a means by which sustainable housing growth can be delivered, whilst adequately protecting European wildlife sites. By developing an approach at a plan wide level, a strategy can provide a solution through an integrated suite of avoidance and mitigation measures that are supported by comprehensive evidence. Alongside the HRA work on the Partial Review, a draft Planning Framework SPD has been produced to set out the mitigation requirements originally established in the Core Strategy HRA. This SPD provides detail on the zones and mitigation requirements in different areas.

2. European sites in and around Bradford

Initial list of European sites

2.1 European sites within or partly within 20km of the District boundary are listed below. 20km is considered a reasonable distance to use to initially check for measurable effects. Sites are also shown on Maps 1 (SPAs) and Map 2 (SACs).

SACs

- South Pennine Moors SAC
- North Pennine Moors SAC
- Craven Limestone Complex SAC
- North Pennine Dales Meadows SAC
- Denby Grange Colliery Ponds SAC
- Rochdale Canal SAC

SPAs

- Peak District Moors (South Pennine Moors Phase I) SPA
- South Pennine Moors Phase II SPA
- North Pennine Moors SPA

Ramsar

- Malham Tarn Ramsar

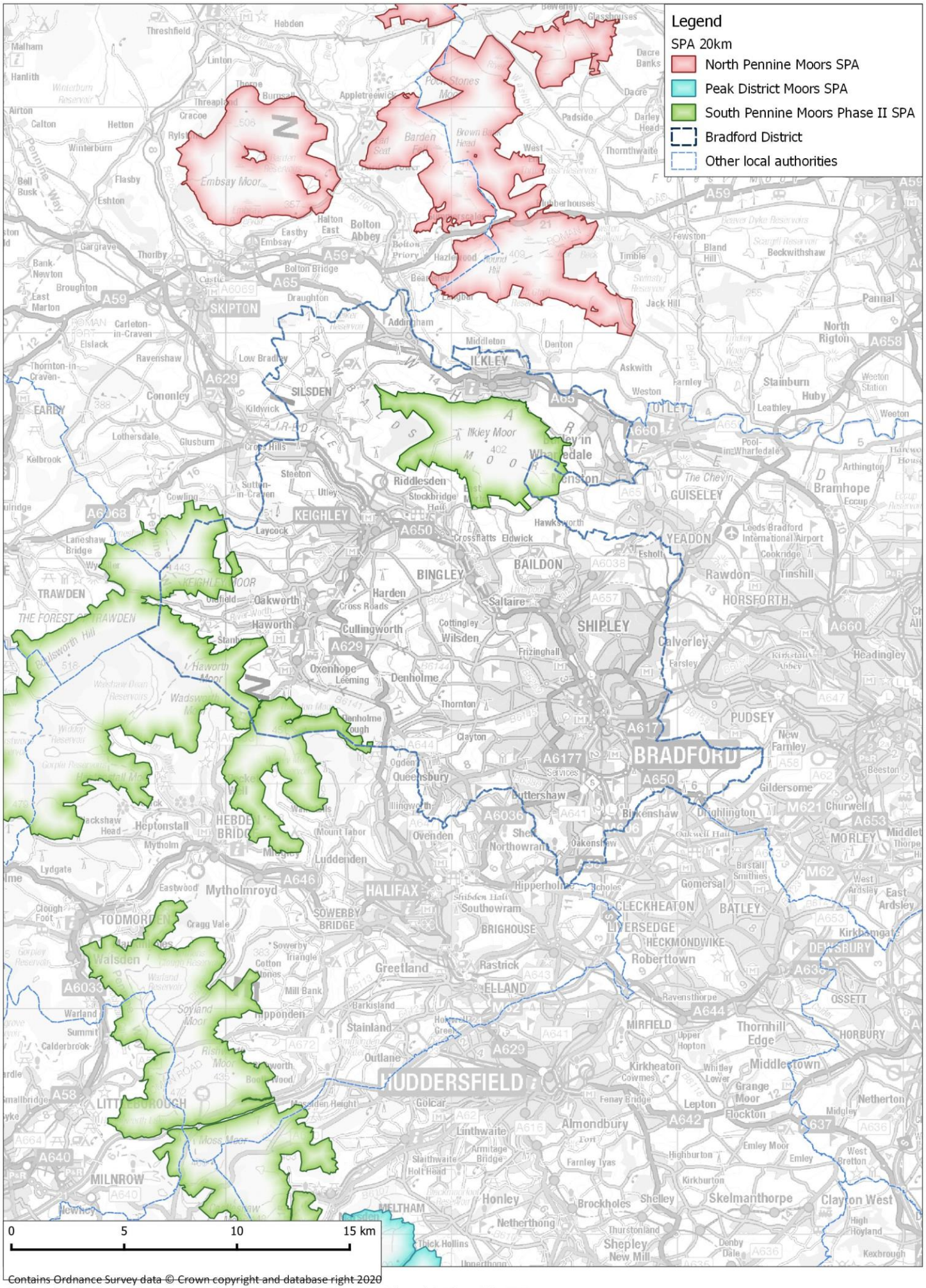
2.2 The South Pennine Moors European site comprises two SPA and one SAC. The latter encompasses the entire moorland block from Ilkley Moor in the north to the Peak District in the south. The SPAs cover the same landscape but are divided in two. Phase 1 incorporates the 'Dark Peak and South West Peak up to Leek and Matlock. Phase 2 extends north from here to Ilkley Moor.

2.3 This HRA is concerned primarily with the northern block of moorland and, for simplicity, refers to the northern half of the SAC and the Phase 2 SPA as the 'South Pennine Moors SPA/SAC'. Further information on the European sites is provided in Appendix 2, which summarises the qualifying features of the sites and provides links to the conservation objectives for each site.

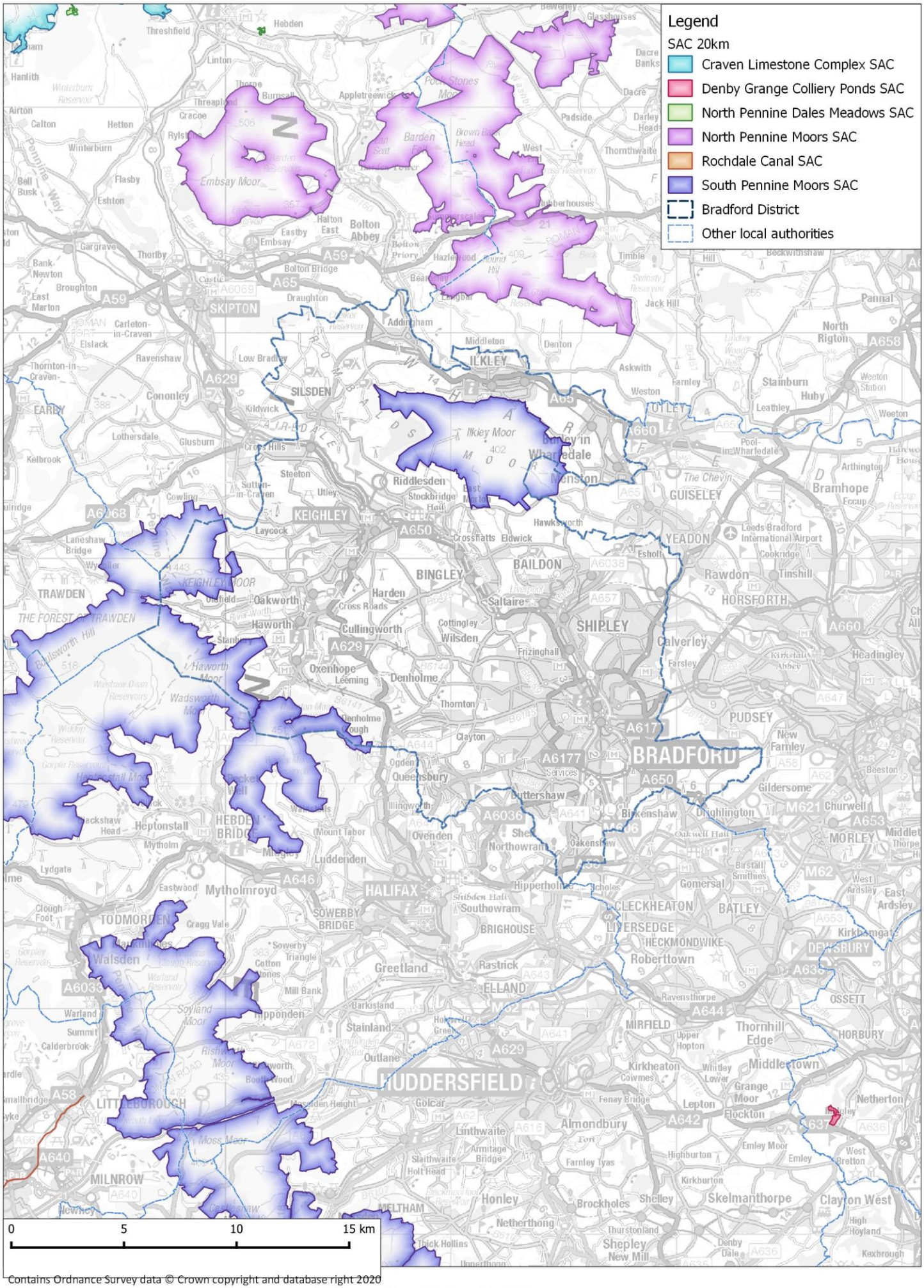
2.4 For qualifying features, Appendix 2 lists those given by Natural England on the relevant citation and provided on the Natural England website (designated sites view)[12].

[12] These do not necessarily reflect changes recommended in the SPA review (Stroud et al., 2016) and we note that for the South Pennine Moors Phase 2 SPA the Standard Data Form on the JNCC website includes Short-eared Owl as a qualifying feature while this is not included in the supplementary conservation advice for the site. Clarification will be sought with Natural England prior to the next iteration of the HRA as to the extent to which any additional species should be considered in the HRA.

Map 1: Special Protection Areas around Bradford



Map 2: Special Areas of Conservation around Bradford



European sites scoped out from further assessment

2.5 In considering the sites, their distance from the District and their sensitivities and interest features, the majority of European sites within 20km have been ruled out from further consideration. They are all well outside the Bradford District boundary, beyond the kinds of distances visitor will travel for recreation[13] or the distances at which traffic flows from the District might be relevant. Those with wetland or aquatic qualifying features have no apparent hydrological links to the District. Some sites have limited or no public access. These sites are as follows:

- Craven Limestone Complex SAC – around 15km from the District boundary;
- North Pennine Dales Meadows SAC – closest meadow is around 13km from the District boundary;
- Denby Grange Colliery Ponds SAC - around 15km from the District and private, with no public access;
- Rochdale Canal SAC – around 17km from the District boundary and the other side of the Pennines;
- Peak District Moors (South Pennine Moors Phase I) SPA – around 17km from the District boundary;
- Malham Tarn Ramsar site – around 19km outside the District.

[13] For example combined analysis of Footprint Ecology visitor data from multiple protected sites indicate that the majority of visitors tend to live within around 12.6km (Weitowitz et al., 2019)

3. Screening for likely significant effects

3.1 This section documents the screening stage of HRA (stage 1 of the 4-stage process), where the plan is screened for likely significant effects.

3.2 The screening for likely significant effects of a plan involves checking all aspects of the plan and identifying any areas of potential concern, which are then examined in more detail in the appropriate assessment (stage 2) of HRA. The check for likely significant effects provides a provisional screening of the plan. It is undertaken to enable the plan maker as competent authority to do two things: narrow down the elements of the plan that may pose a risk to European sites to highlight those options that are likely to be harmful; and, where an option poses a risk but is a desired element of the plan, the screening exercise identifies where further assessment is necessary in order to determine the nature and magnitude of potential impacts on European sites and what could be done to eliminate those risks. Further assessment and evidence gathering after early screening may include, for example, the commissioning of additional survey work, modelling, researching scientific literature or setting out justifications in accordance with expert opinion.

What constitutes a likely significant effect?

3.3 At the screening stage of HRA, there is the opportunity to identify changes to the plan that could be made to avoid risks to European sites, and this is particularly relevant at the draft stage in the plan making as issues can be identified up front and resolved with later iterations of the plan. It should also be noted that the preliminary work identifying impact pathways and issues has already been running parallel to the plan making and has informed the choice of location and options included in the plan at this stage.

3.4 Where the screening identifies risks that cannot be avoided with simple clarifications or corrections, a more detailed assessment is undertaken to gather more information about the likely significant effects and give the necessary scrutiny to potential mitigation measures. This is the appropriate assessment stage of HRA.

3.5 A likely significant effect could be concluded on the basis of clear evidence of risk to European site interest, or there could be a scientific and plausible justification for concluding that a risk is present, even in the absence of direct evidence. The latter is a precautionary approach, which is one of the foundations of the high-level of protection pursued by EU policy on the environment, in

accordance with the EU Treaty[14]. The precautionary principle should be applied at all stages in the HRA process and follows the principles established in case law relating to the use of such a principle in applying the European Directives and domestic Habitats Regulations. In particular, the European Court in the 'Waddenzee' case[15] refers to "*no reasonable scientific doubt*" and in the 'Sweetman' case[16] the Advocate General identified that a positive conclusion on screening for likely significant effects relates to where there "*is a possibility of there being a significant effect*".

3.6 The screening in this report looks at policies and site allocation options prior to any avoidance, reduction/mitigation measures in line with People Over Wind[17]. Mitigation potential can only be considered at Appropriate Assessment stage. People Over Wind clarified the need to carefully explain actions taken at each HRA stage, particularly at the screening for likely significant effects stage. The Judgment highlights the need for clear distinction between the stages of HRA, and good practice in recognising the function of each. The screening for likely significant effects stage should function as a screening or checking stage (regardless of avoidance, reduction/mitigation measures), to determine whether further assessment is required. Assessing the nature and extent of potential impacts on European site interest features, and the robustness of mitigation options, should be done at the appropriate assessment stage.

Identifying impact pathways

3.7 All aspects of the emerging plan that influence sustainable development for the Bradford District are checked through this assessment for risks to European sites. European sites are at risk if there are possible means by which any aspect of a plan can, when being taken forward for implementation, pose a potential threat to the wildlife interest of the sites. This is often referred to as the 'impact pathway' as it is an identifiable means by which the plan or project could potentially affect the European site.

3.8 Potential impact pathways are identified through reference to the relevant European site conservation objectives (particularly the supplementary advice, see Appendix 2 for links) and their site improvement plans. We have also

[14] Article 191 of the Treaty on the Functioning of the EU. Previously Article 174 of the Treaty of the EC.
[15] Waddenzee: European Court of Justice case C - 127/02
[16] Sweetman: European Court of Justice case C - 258/11
[17] People Over Wind: European Court Case C-323/17 People Over Wind & Peter Sweetman v Coillte Teoranta 12 April 2018

referred to previous HRA work, particularly the HRA work undertaken for the Core Strategy (Cox & Pincombe, 2014).

3.9 Potential impact pathways are:

- **Urban effects**: particular risks associated with development in very close proximity to European site boundaries, including cat predation, increased occurrence of predators associated with urban areas, increased fire risk, dumping of garden waste and the physical proximity of the built environment.
- **Impacts to supporting habitat**: a number of qualifying features of the two moorland SPA sites are relatively mobile species and will use areas outside the SPA boundary - this is particularly the case with some of the wading birds such as Golden Plover and Curlew which will forage in areas outside the SPA.
- **Recreation**: involving people walking, cycling or driving to the European site for recreational activity such as dog walking, jogging, walking etc. This can lead to impacts such as disturbance to birds, trampling damage and increased fire risk.
- **Air quality**: impacts relating to increased vehicle traffic on roads crossing or adjacent to European sites.

3.10 Table 1 provides an initial summary of the potentially relevant impact pathways, having regard to available information in relation to the European sites. These impact pathways are precautionary, i.e. they are assumed and used to inform the screening for likely significant effects.

Table 1: Summary of potential impact pathways – i.e. potential mechanisms whereby the different European sites could be impacted

Site	Urban effects	Impacts to supporting habitat	Recreation	Air quality
South Pennine Moors SAC	✓		✓	✓
North Pennine Moors SAC			✓	✓
South Pennine Moors Phase II SPA	✓	✓	✓	✓
North Pennine Moors SPA		✓	✓	✓

3.11 Water issues in terms of water quality or availability do not represent relevant impact pathways in terms of the qualifying features of the South Pennine Moors SAC/SPA or North Pennine Moors SAC/SPA European sites as they are upland sites, located above or upstream of locations where development is set out

within the Plan. Hydrological issues at these sites, as summarised in the site improvement plans, primarily relate to land management practices.

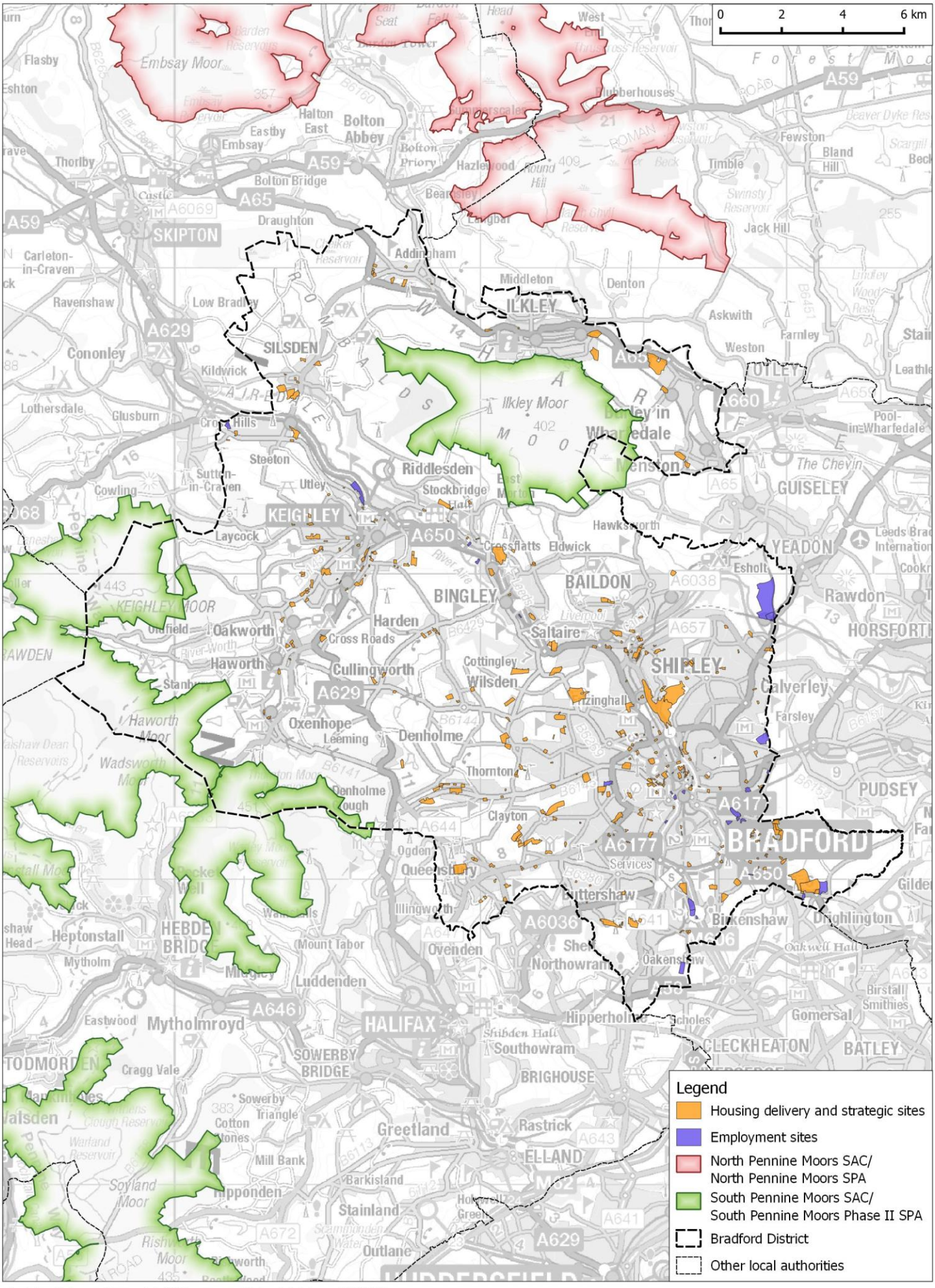
3.12 Similarly, even though waterways in the District discharge ultimately into the Humber Estuary European Site, given the scale and type of development proposed, and distance (the Estuary lies around 50km to the east as the crow flies) there is no plausible risk that harm would arise.

3.13 Furthermore, confidence in these outcomes can be drawn from the HRA of Yorkshire Water's 'Water Resource Management Plan'[18]. This found that there were unlikely to be any significant effects on European sites, either alone or in-combination with other plans or projects from anticipated development in the region for the foreseeable future. All policies are checked as part of HRA, but of particular relevance is the quantum and location of proposed growth.

3.14 Map 3 shows the housing and employment sites in relation to the European sites.

[18] Water Resource Management Plan 2014 Strategic Environmental Assessment Post Adoption Statement Cascade/Yorkshire Water

Map 3: Potential sites and allocations within the Plan



Screening

3.15 In Table 2 we provide an initial screening and site-by-site consideration of risks for the relevant European sites, based on the Regulation 18 version of the Plan.

Table 2: Screening for likely significant effects ('LSE') – at Preferred Options Regulation 18 stage. To be re-screened at Final Draft Local Plan (Regulation 19). Orange shaded rows with bold text indicates those policies where likely significant effects are triggered. Grey shaded rows indicate section breaks. Italicised text in the recommendations and actions indicates suggestions in relation to policy wording (clarifications or minor text changes) for consideration by the Council, potentially for the final version of the plan.

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
Welcome		No LSE – administrative text			
Introduction		No LSE – administrative text and context			
Strategic Policies					
SP1 - Delivering Sustainable Development	General policy setting principles for achieving sustainable development	No LSE – policy is high level, general and plan-wide.		No further recommendations.	
SP2 - Spatial Priorities	General policy setting spatial priorities	No LSE – policy is high level, broad and sets no quantum of growth.		No further recommendations.	Includes general protection for environmental resources and general protection for areas of international importance.
SP3 - Hierarchy of Settlements	General policy setting out the settlement hierarchy	No LSE – policy is high level and sets no quantum of growth.		No further recommendations.	
SP4 - Location of Development	General policy prioritising re-use of previously developed land. Includes limited release of green belt land.	No LSE – policy is high level and sets no quantum of growth.		No further recommendations.	
SP5 - Green Belt	Policy sets out the exceptional circumstances that justify release of green belt land and lists the relevant allocations.	No LSE – policy relates solely to release of green belt. Listed allocations are subject to individual screening.	Green belt sites pose particular risks in relation to impacts to supporting habitat and the South Pennine Moors Phase II SPA	No further recommendations.	

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
SP6 - Economic Growth	General policy outlining areas for economic growth. 90ha of employment land.	No LSE – general policy, sets overall level of growth for employment sites but no sites or locations specifically allocated.	Policy encourages economic enterprises which develop or enhance the viability of tourism, leisure activities and the natural environment. Potential links to management of access on European sites.	No further recommendations.	
SP7 - Planning for Sustainable Transport	Policy sets principles to: reduce demand for transport; for mode shifts; for access-controlled areas and for technological change. Policy also supports new railway station in Bradford City Centre and Powerhouse Rail Line.	No LSE – General policy that does not directly lead to development or other change. Powerhouse Rail Line and the new railway station are supported rather than allocated.	May bring benefits to European sites through changes in air quality and reduction in use of vehicles to access sites for recreation.	No further recommendations.	
SP8 - Housing Growth	**Policy sets overall quantum of growth: 30,672 new homes over the plan period 2020-2038. The draft Plan allocates sites for at least 27,672 homes (with the rest coming forward through windfall etc.)**	**LSE – policy sets overall level of growth with likely significant effects alone in relation to urban effects, impacts to supporting habitats, recreation and air quality.**		**Quantum of growth needs to be addressed at appropriate assessment.**	**Level of growth proposed would represent a significant boost in housing delivery over recent years**
SP9 - Climate Change, Environmental Sustainability and Resource Uses	Policy sets target to achieve net zero carbon emissions by 2038 and includes a range of positive measures relating to adaption, resilience and reducing emissions.	No LSE – general policy, environmentally positive	Policy likely to bring benefits to European sites through air quality improvements; provision of green infrastructure and facilitating the management, enhancement and expansion	No further recommendations – an environmentally positive policy.	

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
			of habitats such as blanket bog and through biodiversity net gain.		
SP10 - Green Infrastructure	Policy identifies the types of green infrastructure and requires development to make a positive contribution to provision.	No LSE – general policy, environmentally positive	Green infrastructure plays a role in European site mitigation by diverting recreation use away from moorland sites and mitigation role is set out in the planning framework SPD.	No further recommendations – an environmentally positive policy.	
SP11 - South Pennine Moors	**Protective policy for European sites setting out relevant zones and cross-referencing to SPD.**	**LSE – specific policy intended to avoid or reduce harmful effects on a European site.**		**Impacts relating to urban effects, impacts to supporting habitat and recreation need to be considered at appropriate assessment.**	**The policy provides strong protection of the South Pennine Moors SPA/SAC. Following *People Over Wind* this policy cannot be taken into account in the screening.**
SP12 - Strategic Planning for Minerals	Sets out need to maintain steady and adequate supply of minerals and sets general policy for safeguarding minerals sites, balancing minerals extraction with other issues and requirements for restoration.	No LSE – general policy that does not identify sites.		No further recommendations.	
SP13 - Waste Management Infrastructure	Sets broad strategies for waste management.	No LSE – general policy that does not identify sites.		No further recommendations.	
SP14 - Making Great Places	Sets expectations in terms of the overall quality of place	No LSE. General policy that does not directly lead to		No further recommendations.	

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
	and principles of good design.	development or other change.			
SP15 - Creating Healthy Places	Policy to maximise health and wellbeing consideration in new development.	No LSE. General policy that does not directly lead to development or other change.		No further recommendations.	
SP16 - Working Together	Policy promotes partnership working across authorities and with other partners and stakeholders.	No LSE. General policy that does not directly lead to development or other change.	European site mitigation, as set out in the SPD, will need to involve working with landowners and range of stakeholders to deliver the mitigation. Potential for mitigation approach to be extended across other authorities.	No further recommendations.	Includes ensuring effective landscape and environmental management and enhancement and also includes addressing climate change, so environmentally positive.
Thematic Policies					
EC1 - Employment Land Delivery and Strategic Sites	**Policy provides a framework for the allocation of employment land within the District – maximising urban employment options and setting out new strategic growth opportunities.**	**LSE - allocates a range of sites with likely significant effects in relation to impacts to/loss of supporting habitat and in relation to air quality.**		**Individual allocations need checking regarding loss of supporting habitat and likely significant effects alone. Air quality impacts will be in-combination.**	
EC2 - Enterprise, Business and Employment Zones	The policy designates and protects employment orientated zones across the district and introduces thresholds for alternative redevelopment or change of uses.	No LSE – policy maps zones but does not allocate levels of growth or particular development. Sites are all in urban areas well beyond European site boundaries			

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
EC3 - Employment and Skills Delivery	Policy improves local employment and skills delivery, e.g. through employment and skills plans	No LSE. General policy that does not directly lead to development or other change.		No further recommendations.	
EC4 - City, Town, District and Local Centres	Establishes a hierarchy of city and town centres.	No LSE – general policy setting criteria for retail developments		No further recommendations.	
TR1 - Strategic Transport Delivery	Sets out a programme of strategic transport improvements and investment priorities	No LSE – referenced projects will proceed through their own plan level and project level HRA and are well beyond European site boundaries.	Policy contains a range of general measures as well as specific mention of major projects and strategic transport delivery.	No further recommendations.	Includes other proposals such as Northern Powerhouse Rail and other major infrastructure projects subject to separate proposals.
TR2 - Transport and Environment	Policy minimises impacts of transport growth and identifies opportunities for improving environmental outcomes	No LSE – environmentally positive policy with general criteria		No further recommendations.	Includes achieving net gain in biodiversity.
TR3- Integrating Sustainable Transport and Development	Sets out mechanisms to promote sustainable travel	No LSE – environmentally positive policy with general criteria		No further recommendations	
TR4 - Transport and Tourism	Policy supports sustainable access to tourist destinations, heritage and cultural assets and leisure uses	No LSE – environmentally positive policy with general criteria	Opportunities to create 'transport based' leisure attractions (e.g. cycle trails, walking trails and bridleways) could help to deflect access away from European sites.	No further recommendations	
TR5 - Parking	Policy promoting shifts to more sustainable transport modes through a range of mechanisms.	No LSE. General policy that does not directly lead to development or other	Policy may have incidental benefit in reducing air quality impacts.	No further recommendations	

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
		change. Environmentally positive policy.			
TR6 - Freight	Sets out a programme of facilitating freight movement.	No LSE – referenced projects are focussed within Bradford and away from the European sites. These will proceed through their own plan level and project level HRA		No further recommendations.	
TR7 - Aircraft Safety	General policy setting out need to limit development where it might impact on aircraft safety and to safeguard areas around aerodromes for safety reasons.	No LSE. General policy that does not directly lead to development or other change.		No further recommendations	
HO1 - Housing Delivery, Strategic Site and Managing Growth	**Policy provides details on phasing and housing delivery, as well as the split between small and large sites (with sites identified in the supporting text).**	**LSE – alone in relation to the overall housing numbers and risks relating to urban effects, impacts to supporting habitat, recreation and air quality.**		**Policy relates to housing delivery and the Appropriate assessment needs to cover urban effects, impacts to supporting habitat, recreation and air quality. Individual sites are subject to screening and also considered within the appropriate assessment section.**	
HO2- Housing Density	Policy sets minimums for residential development density, i.e. number of houses per ha.	No LSE – the policy is a requirement for development but does not alter the overall number of		No further recommendations.	

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
		houses being promoted by the plan.			
HO3 - Urban Housing	Policy encourages delivery of a range of high quality urban housing schemes, allowing for a range of house types while ensuring focus on urban intensification.	No LSE – the policy is a general policy and does not set a quantum of growth or particular locations.	Urban intensification does ensure risks for European sites are minimised.	No further recommendations	
HO4 - Housing Mix	Qualitative policy in relation to the mix of housing types.	No LSE – qualitative policy.		No further recommendations	
HO5 - Affordable Housing	Qualitative policy in relation to the levels of affordable housing within developments.	No LSE – qualitative policy.		No further recommendations	
HO6 – Self-build and Custom Housebuilding	Policy generates land for Self-Build and Custom Housebuilding (SBCH) plots throughout the District during the period of the plan.	No LSE – qualitative policy.		No further recommendations	
HO7 - Specialist Housing and Accommodation	Policy delivers housing to meet identified housing needs in the District, including the provision of housing for older people and groups with specialist needs	No LSE – qualitative policy.		No further recommendations	Policy is general and does not allocate sites or levels of growth. The zones set out in SP11 are relevant and their application/relevance to specialist housing developments is set out in the Planning Framework SPD.
HO8 – Sites for Gypsies, Travellers and Travelling Showpeople	General policy setting a minimum total need of 26 pitches for gypsy and	No LSE – policy sets a quantum of growth but no	Depending on the sites that come forward, there could be impacts to European sites	A call for sites will be undertaken alongside the draft Plan consultation and	

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
	traveller communities and other requirements to meet the accommodation needs.	specific locations are identified	and sites included in the final plan will need checking for European site issues.	these will require checks prior to submission. *Part D states that all sites proposed for allocation and planning applications will be assessed against criteria relating to the avoidance of significant adverse effects on the environment – this wording could be strengthened in relation to European sites or deleted (as Policy EN2 provides protection for European sites).*	
HO9 - Housing Standards	Qualitative policy in relation to the mix of housing accessibility.	No LSE – qualitative policy		No further recommendations	
HO10 - Overcrowding and Empty Homes	Policy commits the Council to use its plans, programmes and strategies to make best use of and improve the quality of housing stock. Policy interventions set out in separate Housing Strategy and other plans/strategies.	No LSE – general policy		No further recommendations	
EN1 - Green Infrastructure Standards	Discusses option for policy on green infrastructure standards	No LSE – general criteria likely to be positive for the environment	Enhanced local green infrastructure may have incidental benefits in reducing recreation pressure on European sites and play a role as mitigation		

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
EN2 - Biodiversity and Geo-diversity	Policy sets out Bradford's biodiversity assets and the relevant protections in place with respect to biodiversity and geology. Includes requirements of new development in terms of delivery of net gains for biodiversity.	No LSE – general plan-wide policy for environmental protection and biodiversity net gain. Environmentally positive.		This is an important policy for European sites and the wider biodiversity that underpins them.	
EN3 - Trees and Woodlands	Policy provides protection for trees and woodland	No LSE – general plan-wide policy for environmental protection		No further recommendations	
EN4 - Historic Environment	Protective policy relating to heritage assets	No LSE – general plan-wide policy for protection of the historic environment		No further recommendations	
EN5 - Landscape	Protective policy protecting and enhancing landscapes	No LSE – general plan-wide policy for protection of the environment		No further recommendations	
EN6 - Countryside and Development	Policy restricts and limits development within the countryside and protects the rights of way network	No LSE – general plan-wide policy		No further recommendations	
EN7 - Flood Risk	Policy makes a range of provisions to reduce flood risk and restricts development in floodplain areas	No LSE – general plan-wide and environmentally positive policy		No further recommendations	
EN8 - Air Quality	Policy addresses air quality, covering human health and wellbeing impacts and also environmental impacts	No LSE – policy does not include specific mitigation for European sites and relates to general measures	Air quality is an issue for European sites and the impacts relate to the quantum of growth and	Air quality is taken to appropriate assessment. Measures in this policy will be incidental to HRA findings but may influence modelling	.

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
		relating to improving air quality	other factors such as location.	and scale of impact. Supporting text refers to need for further modelling and work to inform HRA work for the final plan, *Reference to European site mitigation and HRA issues may be best focussed in Policy EN2 in final plan*	
EN9 - Environmental Protection	General policy with a range of measures relating to land and water	No LSE – general plan-wide and environmentally positive policy		No further recommendations	
EN10- Energy	Policy applies the 'energy hierarchy' to promote reduced energy use, efficiency as well as use of renewable and low carbon energy sources.	No LSE – general plan wide policy that does not allocate specific sites. Does include plan wide safeguarding policy highlighting requirements of the Habitats Regulations but this is general and LSE can be ruled out.	Wind turbines can pose collision risks for SPA qualifying features	Policy wording re checked at next iteration of Plan. Should sites be promoted or any zone policy or similar be established in relation to wind turbines, appropriate assessment will be necessary. *Other site protective policies (EN2) could be relied on to provide protection for European sites, simplifying the Energy policy and reducing any risks of confusion in relation to People vs Wind.*	
EN11 - Mineral Supply and Landbanks	Policy secures adequate supply of minerals, particularly high quality building, roofing and paving stones	No LSE – policy EN12 allocates sites EN11 simply sets general criteria		No further recommendations.	

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
EN12 - Mineral Allocations	Policy identifies 9 sites with existing permissions and 1 new allocation.	No LSE – for existing sites all relevant issues addressed through existing planning permission. The one new site at Wilsden lies adjacent to an existing quarry and is located at least 5km from the nearest European site. At such distances, there is no plausible risk that significant effects would occur from dust pollution or changes to the hydrological regime. In terms of nitrogen deposition from vehicles associated with new development, any increase in traffic is anticipated to be modest but will be captured by the proposed traffic modelling exercise and evaluated in-combination with other industrial and residential sources as part of the air quality analysis.		Re-check conclusions at next iteration of HRA in light of air quality modelling in case any risks identified.	
EN13 - Mineral Safeguarding	Policy safeguards sandstone, coal and sand and gravel resources within the District	No LSE – policy simply safeguards sites rather than allocating them for mineral extraction.		No further recommendations.	
EN14 - Mineral Areas of Search	Identifies areas of search for stone quarries (sandstone), and sand and gravel extraction	No LSE – policy simply identifies areas of search and specifies that these will be outside European sites.		No further recommendations.	

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
EN15 - Managing Development of Mineral Sites	**Overarching policy against which all proposals for development for mineral extraction will be tested. Includes quarries, pits, opencast mines, underground mines and all forms of underground hydrocarbon exploitation**	**LSE – includes specific details intended to avoid or reduce harmful effects on a European site**		**Take to appropriate assessment in relation to impacts to supporting habitat**	
EN16 - Mineral Site Restoration and Aftercare	Ensures proper restoration of mineral sites in a timely manner.	No LSE – general policy with potential for environmental benefits. No links to European sites.	Policy identifies potential for sites to provide for public access, and as such there could be opportunities to reduce recreation pressure on European sites.	No further recommendations.	
EN17 - Energy Minerals	General policy applying to energy minerals addressing exploration, appraising and production.	No LSE – general policy that does not identify sites.		No further recommendations.	There are no proven oil or gas resources within the District and to date no interest in exploratory works. Other site protective policies (EN2 provide protection)
EN18 - Waste Management Development	Policy provides guidance on where potential facilities may be acceptable and addressing impacts	No LSE – general policy with range of criteria.		No further recommendations.	
EN19 - Waste Management Allocations	Allocates sites for potential waste management facilities.	No LSE – the three sites are around 10km or further from European sites.	A call for sites accompanies the consultation and later iterations of the plan may well include additional sites	No further recommendations. Re-check necessary to consider any additional sites at final plan stage for any risks	Other site protective policies (EN2 provide protection)

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
EN20 - Safeguarding Waste Management Facilities	Policy safeguards existing waste management facilities and allocated waste sites which are important to the delivery of Bradford's waste management hierarchy	No LSE – policy simply safeguards sites. All locations well outside European sites.		No further recommendations.	
EN21 - Waste Management in Development	Policy sets out the objectives for the construction and operation of development, principally relating to waste management	No LSE – general policy with criteria with no potential links to European sites.		No further recommendations.	
CO1 - Open Space, Sport and Recreation	**Policy protects open space and sets requirements covering allotments, amenity greenspaces, cemeteries, civic spaces, green and blue corridors, natural and semi-natural greenspaces, outdoor sports facilities, parks and gardens, provision for children, and areas of water which offer opportunities for sport and recreation**	**LSE – specific policy intended to avoid or reduce harmful effects on a European site.**		**Impacts relating to recreation need to be considered at appropriate assessment.**	**Following People Over Wind this policy cannot be taken into account in the screening.**
CO2 - Community and Health Facilities	Sets out the Council's approach to support the new or enhanced community infrastructure within the district as well as seeking to ensure that such facilities are not un-necessarily lost. It also seeks	No LSE – general policy with range of criteria with no potential links to European sites		No further recommendations.	

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
	to provide guidance for new or enhanced facilities.				
CO3 - Health Impact Assessments	Policy requires major developments to design for healthy places and where relevant undertake a Health Impact Assessment	No LSE – general policy with range of criteria with no potential links to European sites		No further recommendations.	
DS1 - Achieving Good Design	General policy encouraging good design and achieving high quality places	No LSE – general policy with range of criteria with no potential links to European sites		No further recommendations.	
DS2 - Working with the Landscape	General policy requiring retention of existing landscape and ecological features and working with the landscape.	No LSE – general environmentally positive policy with range of criteria with no potential links to European sites	Extending local green and blue infrastructure networks into sites could bring incidental benefits in terms of deflecting recreation use away from European sites.	No further recommendations.	
DS3 - Urban Character	General policy with range of criteria for retaining urban character and creating a sense of place	No LSE – general policy with range of criteria with no potential links to European sites		No further recommendations.	
DS4 - Streets and Movement	Policy ensures new developments create a network of routes to connect where people want to go and encourages people to walk, cycle and use public transport	No LSE – general policy with range of criteria with no potential links to European sites	Integrating local footpaths and cycle routes into development could bring incidental benefits in terms of deflecting recreation use away from European sites	No further recommendations	Criteria based policy with no specific allocations, therefore no risk of increasing access to European sites through direct connections (e.g. cycle routes)
DS5 - Safe and Inclusive Places	Policy includes a range of criteria to encourage safe spaces.	No LSE – general policy with range of criteria with no potential links to European sites		No further recommendations.	

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
Local Areas and Preferred Site Allocations					
Preferred site allocations		**LSE alone for a range of individual allocations in relation to urban effects, impacts to supporting habitats and recreation. Likely significant effects in combination in relation to air quality.**		**Take to appropriate assessment**	**Site by site screening is summarised in separate table – see Table 3**
Implementation, Delivery and Monitoring					
ID1 - Infrastructure Delivery	Policy sets out the Council's approach to delivering infrastructure to support the development requirements set out in the Local Plan in a timely manner	No LSE – general policy with range of criteria with no potential links to European sites		No further recommendations.	
ID2 - Developer Contributions	**Policy sets out the Council's approach to securing developer contributions (i.e. through the Community Infrastructure Levy and planning obligations) to provide infrastructure to support development and mitigate the impact of development**	**LSE – specific policy intended to avoid or reduce harmful effects on a European site.**		**Policy relates to mitigation delivery and appropriate assessment for recreation.**	**Following People Over Wind this policy cannot be taken into account in the screening.**
ID3 - Viability	Policy ensures the Local Plan is viable and deliverable by establishing the principles for considering financial	No LSE – general policy with range of criteria with no potential links to European sites		No further recommendations.	

Plan section or policy	Description	LSE screening	Potential risks or opportunities	Recommendations and actions	Comments
	viability through the plan making and development management processes				

Table 3: Screening for likely significant effects (allocations). Likely significant effects alone are triggered for urban effects where development is within close proximity of the European sites (400m or less), risks to supporting habitat relate to sites within 2.5km of European sites (and where initial check of habitat using Corine landcover GIS data[19] indicates grassland or other (non-urban) habitats may be present) and likely significant effects from recreation relate to allocations within 7km of the European sites. Ticks indicate where likely significant effects are triggered alone (i.e. allocation site boundary at least intersects the relevant distance band). Air quality is not included in the table, likely significant effects are triggered by the overall quantum of growth and therefore relate to all sites in combination.

Site Ref	Proposed allocation	Indicative number of dwellings	Distance (km) to S. Pennine Moors SAC/SPA	Distance (km) to N. Pennine Moors SAC/SPA	South Pennine Moors SAC/SPA			North Pennine Moors SAC/SPA		
					Urban effects	Impacts to supporting habitat	Recreation	Urban effects	Impacts to supporting habitat	Recreation
AD1/H	Housing	20	2.07	3.45		✓	✓			✓
AD2/H	Housing	14	2.20	3.41		✓	✓			✓
AD3/H	Housing	49	1.85	2.84		✓	✓			✓
AD4/H	Housing	38	1.83	3.07		✓	✓			✓
AD5/H	Housing	5	2.46	2.52		✓	✓			✓
AD6/H	Housing	24	2.31	3.26		✓	✓			✓
AD7/H	Housing	23	2.00	3.46		✓	✓			✓
AD8/H	Housing	8	2.11	2.48			✓			✓
BA1/H	Housing	5	3.30	11.66			✓			
BA2/H	Housing	46	3.03	11.27			✓			
BA3/H	Housing	20	3.96	11.54			✓			
BA4/H	Housing	30	4.22	12.06			✓			
BA5/H	Housing	40	3.12	9.88			✓			
BA6/H	Housing	76	2.95	11.26			✓			
BI1/H	Housing	135	2.09	11.28		✓	✓			

[19] Based on the 2018 data. https://land.copernicus.eu/pan-european/corine-land-cover

Site Ref	Proposed allocation	Indicative number of dwellings	Distance (km) to S. Pennine Moors SAC/SPA	Distance (km) to N. Pennine Moors SAC/SPA	South Pennine Moors SAC/SPA			North Pennine Moors SAC/SPA		
					Urban effects	Impacts to supporting habitat	Recreation	Urban effects	Impacts to supporting habitat	Recreation
BI10/E	Employment	0	3.52	12.66						
BI2/HC	Housing	440	1.32	10.52		✓	✓			
BI3/H	Housing	25	1.39	10.56			✓			
BI4/H	Housing	21	1.92	11.00		✓	✓			
BI5/H	Housing	93	3.52	12.57			✓			
BI6/H	Housing	19	1.39	10.34			✓			
BI7/H	Housing	30	2.83	12.01			✓			
BI8/H	Housing	18	1.86	10.94		✓	✓			
BI9/E	Employment	0	1.96	11.02						
BU1/H	Housing	500	1.48	3.23		✓	✓			✓
BU2/H	Housing	110	1.06	4.09		✓	✓			✓
CC1/H	Housing	100	9.33	16.83						
CC10/H	Housing	75	9.28	16.82						
CC11/H	Housing	120	9.00	16.54						
CC12/H	Housing	500	8.97	16.41						
CC13/H	Mixed Use	200	9.71	16.87						
CC14/H	Housing	40	9.06	16.71						
CC15/H	Mixed Use	300	9.15	16.41						
CC16/H	Housing	300	8.95	16.21						
CC17/H	Housing	87	9.19	16.67						
CC18/H	Housing	154	9.15	16.33						
CC19/H	Housing	27	9.16	16.39						
CC2/H	Housing	200	9.15	16.87						
CC20/H	Housing	80	9.27	16.84						

Site Ref	Proposed allocation	Indicative number of dwellings	Distance (km) to S. Pennine Moors SAC/SPA	Distance (km) to N. Pennine Moors SAC/SPA	South Pennine Moors SAC/SPA			North Pennine Moors SAC/SPA		
					Urban effects	Impacts to supporting habitat	Recreation	Urban effects	Impacts to supporting habitat	Recreation
CC21/H	Housing	60	9.41	16.50						
CC22/H	Housing	50	9.65	16.77						
CC23/H	Housing	100	8.98	16.16						
CC24/H	Housing	90	9.21	16.38						
CC25/H	Housing	20	9.46	16.62						
CC26/H	Housing	20	9.69	16.80						
CC27/H	Housing	20	9.07	16.42						
CC28/H	Housing	80	9.21	16.79						
CC29/H	Housing	190	9.22	17.08						
CC3/H	Mixed Use	250	8.98	16.86						
CC30/H	Housing	70	10.01	16.91						
CC31/E	Mixed Use	0	9.65	17.05						
CC32/E	Mixed Use	0	9.79	17.16						
CC33/E	Mixed Use	0	9.75	16.99						
CC4/H	Housing	50	9.27	16.46						
CC5/H	Housing	60	9.19	16.32						
CC6/H	Housing	200	8.81	16.04						
CC7/H	Mixed Use	300	9.00	16.72						
CC8/H	Housing	50	9.10	16.70						
CC9/H	Housing	100	9.26	16.75						
CO1/H	Housing	155	5.27	14.28			✓			
CR1/H	Housing	16	8.36	15.58						
CR2/H	Housing	762	6.44	13.44			✓			
CR3/H	Housing	23	8.55	15.74						

Site Ref	Proposed allocation	Indicative number of dwellings	Distance (km) to S. Pennine Moors SAC/SPA	Distance (km) to N. Pennine Moors SAC/SPA	South Pennine Moors SAC/SPA			North Pennine Moors SAC/SPA		
					Urban effects	Impacts to supporting habitat	Recreation	Urban effects	Impacts to supporting habitat	Recreation
CR4/H	Housing	30	7.64	15.13						
CR5/H	Housing	42	6.37	14.07			✓			
CR6/H	Housing	35	6.38	13.75			✓			
CR7/H	Housing	19	6.35	13.65			✓			
CR8/HC	Mixed Use	923	5.88	13.56			✓			
CU1/H	Housing	53	3.44	15.30			✓			
CU2/H	Housing	48	3.76	15.07			✓			
CU3/H	Housing	34	3.57	15.58			✓			
DH1/H	Housing	72	1.99	17.76		✓	✓			
EM1/H	Housing	7	1.18	9.12			✓			
HA1/H	Housing	70	3.36	14.47			✓			
HA2/H	Housing	27	2.44	15.08		✓	✓			
HA3/H	Housing	30	2.43	14.98		✓	✓			
HA4/H	Housing	38	2.24	15.17		✓	✓			
HA5/H	Housing	5	2.15	15.58			✓			
HA6/H	Housing	34	1.64	16.00			✓			
HR1/H	Housing	15	4.68	13.46			✓			
HR2/H	Housing	5	4.80	13.48			✓			
HR3/H	Housing	40	4.99	13.58			✓			
HR4/HC	Housing	4	4.64	13.36			✓			
IL1/H	Housing	130	0.39	3.82	✓	✓	✓			1
IL2/H	Housing	20	0.93	3.51		✓	✓			1
IL3/H	Housing	155	0.85	3.25		✓	✓			1
IL4/H	Housing	9	0.96	3.35			✓			1

Site Ref	Proposed allocation	Indicative number of dwellings	Distance (km) to S. Pennine Moors SAC/SPA	Distance (km) to N. Pennine Moors SAC/SPA	South Pennine Moors SAC/SPA			North Pennine Moors SAC/SPA		
					Urban effects	Impacts to supporting habitat	Recreation	Urban effects	Impacts to supporting habitat	Recreation
KY1/H	Housing	16	2.94	10.12			✓			
KY10/H	Housing	125	4.09	12.37			✓			
KY11/H	Housing	48	3.45	11.17			✓			
KY12/H	Housing	61	3.68	12.91			✓			
KY13/H	Housing	80	3.34	13.22			✓			
KY14/H	Housing	22	1.72	9.57		✓	✓			
KY15/H	Housing	139	1.45	9.16		✓	✓			
KY16/H	Housing	16	1.77	9.37		✓	✓			
KY17/H	Housing	14	1.64	10.30			✓			
KY18/H	Housing	103	3.25	11.13			✓			
KY19/H	Housing	39	3.51	11.42			✓			
KY2/H	Housing	28	3.84	11.02			✓			
KY20/HC	Housing	45	3.46	11.40			✓			
KY21/HC	Housing	28	3.67	11.58			✓			
KY22/H	Housing	33	3.39	11.31			✓			
KY23/H	Housing	55	3.35	11.25			✓			
KY24/H	Housing	30	3.71	11.59			✓			
KY25/H	Housing	6	4.24	12.16			✓			
KY26/H	Housing	75	4.36	12.27			✓			
KY27/H	Housing	11	4.83	12.74			✓			
KY28/H	Housing	10	4.63	12.59			✓			
KY29/H	Housing	24	3.99	11.89			✓			
KY3/H	Housing	39	3.95	11.22			✓			
KY30/H	Housing	39	3.44	11.27			✓			

Site Ref	Proposed allocation	Indicative number of dwellings	Distance (km) to S. Pennine Moors SAC/SPA	Distance (km) to N. Pennine Moors SAC/SPA	South Pennine Moors SAC/SPA			North Pennine Moors SAC/SPA		
					Urban effects	Impacts to supporting habitat	Recreation	Urban effects	Impacts to supporting habitat	Recreation
KY31/H	Housing	11	2.40	10.09			✓			
KY32/H	Housing	10	3.60	11.50			✓			
KY33/H	Housing	7	3.44	11.36			✓			
KY34/H	Housing	30	3.90	11.61			✓			
KY35/H	Housing	30	3.11	11.00			✓			
KY36/H	Housing	13	3.64	11.58			✓			
KY37/HC	Housing	9	4.55	12.57			✓			
KY38/H	Housing	10	3.88	11.80			✓			
KY39/H	Housing	16	2.30	10.21			✓			
KY4/H	Housing	173	3.96	11.47			✓			
KY40/H	Housing	6	3.67	11.60			✓			
KY42/HC	Housing	6	3.70	11.54			✓			
KY43/H	Housing	25	2.54	10.40			✓			
KY44/H	Housing	35	2.45	10.31			✓			
KY45/HC	Housing	5	2.42	9.73			✓			
KY46/H	Housing	7	2.86	10.48			✓			
KY47/H	Housing	8	2.00	9.83			✓			
KY49/E	Employment	0	2.03	9.41						
KY5/H	Housing	12	4.00	11.55			✓			
KY50/E	Employment	0	1.69	10.48						
KY6/H	Housing	102	4.02	11.78			✓			
KY7/H	Housing	22	3.43	12.84			✓			
KY8/H	Housing	29	3.40	12.79			✓			
KY9/H	Housing	41	3.52	13.53			✓			

Site Ref	Proposed allocation	Indicative number of dwellings	Distance (km) to S. Pennine Moors SAC/SPA	Distance (km) to N. Pennine Moors SAC/SPA	South Pennine Moors SAC/SPA			North Pennine Moors SAC/SPA		
					Urban effects	Impacts to supporting habitat	Recreation	Urban effects	Impacts to supporting habitat	Recreation
ME1/H	Housing	40	1.48	6.26		✓	✓			✓
ME2/H	Housing	161	1.17	6.05		✓	✓			✓
NE1/H	Housing	14	7.81	13.63						
NE10/H	Housing	24	8.21	14.06						
NE11/H	Housing	48	6.98	12.35			✓			
NE12/HC	Housing	23	6.40	13.27			✓			
NE13/H	Housing	46	9.62	15.67						
NE14/H	Housing	35	9.79	16.81						
NE15/H	Housing	6	9.16	15.85						
NE16/H	Housing (Mixed)	60	10.30	16.60						
NE17/H	Housing	16	10.09	16.83						
NE18/H	Housing	6	7.69	13.32						
NE19/H	Housing	32	7.08	12.37						
NE2/H	Housing	69	6.03	12.71			✓			
NE20/HC	Housing	35	5.56	11.54			✓			
NE21/H	Housing	14	6.73	13.05			✓			
NE22/E	Employment	0	6.20	11.22						
NE23/E	Employment	0	5.35	10.09						
NE24/E	Employment	0	9.25	15.10						
NE3/H	Housing	30	5.98	12.78			✓			
NE4/H	Housing	25	6.20	11.75			✓			
NE5/H	Housing	15	8.83	15.92						
NE6/H	Housing	75	8.28	15.38						
NE7/H	Housing	150	9.55	16.43						

Site Ref	Proposed allocation	Indicative number of dwellings	Distance (km) to S. Pennine Moors SAC/SPA	Distance (km) to N. Pennine Moors SAC/SPA	South Pennine Moors SAC/SPA			North Pennine Moors SAC/SPA		
					Urban effects	Impacts to supporting habitat	Recreation	Urban effects	Impacts to supporting habitat	Recreation
NE8/H	Housing	16	6.46	12.35			✓			
NE9/H	Housing	40	6.66	12.91			✓			
NW1/HC	Housing	229	8.81	16.21						
NW10/H	Housing	160	4.92	16.49			✓			
NW11/H	Housing	45	5.55	16.40			✓			
NW12/H	Housing	12	6.91	15.65			✓			
NW13/H	Housing	58	6.76	15.72			✓			
NW14/HC	Housing	6	6.43	16.03			✓			
NW15/H	Housing	54	5.05	17.31			✓			
NW16/H	Housing	28	4.84	17.51			✓			
NW17/H	Housing	24	4.81	17.67			✓			
NW18/H	Housing	80	6.67	15.25			✓			
NW19/H	Housing	300	5.84	14.30			✓			
NW2/H	Housing	129	8.44	16.04						
NW20/H	Housing	43	7.91	15.82						
NW21/H	Housing	250	8.27	16.33						
NW22/H	Housing	5	5.76	13.70			✓			
NW23/H	Housing	10	7.76	15.51						
NW24/H	Housing	6	5.16	17.42			✓			
NW25/H	Housing	15	8.27	16.16						
NW26/H	Housing	5	6.77	17.04			✓			
NW27/H	Housing	6	6.44	14.21			✓			
NW28/H	Housing	75	7.31	15.38						
NW29/H	Housing	5	6.07	16.89			✓			

Site Ref	Proposed allocation	Indicative number of dwellings	Distance (km) to S. Pennine Moors SAC/SPA	Distance (km) to N. Pennine Moors SAC/SPA	South Pennine Moors SAC/SPA			North Pennine Moors SAC/SPA		
					Urban effects	Impacts to supporting habitat	Recreation	Urban effects	Impacts to supporting habitat	Recreation
NW3/HC	Housing	14	7.87	15.40						
NW30/H	Housing	12	7.46	15.03						
NW31/H	Housing	30	8.26	15.81						
NW32/H	Housing	200	5.97	16.57			✓			
NW33/H	Housing	30	7.82	15.69						
NW34/H	Housing	50	7.32	15.31						
NW35/H	Housing	5	8.48	15.89						
NW36/H	Housing	195	6.50	14.38			✓			
NW4/H	Housing	16	7.61	15.32						
NW5/H	Housing	10	7.55	15.36						
NW6/H	Housing	60	8.07	15.87						
NW7/H	Housing	100	5.73	15.34			✓			
NW8/H	Housing	68	4.93	16.82			✓			
NW9/H	Housing	22	5.50	16.01			✓			
OA1/H	Housing	34	2.62	14.41			✓			
OA2/H	Housing	61	3.02	13.83			✓			
OX1/H	Housing	20	1.17	17.45		✓	✓			
OX2/H	Housing	24	1.40	17.56		✓	✓			
QB1/H	Housing	22	3.32	20.69			✓			
QB2/H	Housing	31	3.42	20.70			✓			
QB3/H	Housing	15	4.25	21.10			✓			
QB4/H	Housing	40	4.60	21.14			✓			
QB5/H	Housing	41	4.76	21.56			✓			
QB6/H	Housing	30	3.95	20.66			✓			

Site Ref	Proposed allocation	Indicative number of dwellings	Distance (km) to S. Pennine Moors SAC/SPA	Distance (km) to N. Pennine Moors SAC/SPA	South Pennine Moors SAC/SPA			North Pennine Moors SAC/SPA		
					Urban effects	Impacts to supporting habitat	Recreation	Urban effects	Impacts to supporting habitat	Recreation
QB7/H	Housing	260	2.85	20.95			✓			
QB8/H	Housing	22	4.15	21.73			✓			
QB9/H	Housing	20	4.09	21.89			✓			
SE1/H	Housing	30	10.29	19.32						
SE10/H	Housing	19	12.73	19.05						
SE11/H	Housing	18	11.24	18.98						
SE12/H	Housing	36	12.76	19.49						
SE13/H	Housing	77	12.30	18.33						
SE14/H	Housing	25	10.77	21.54						
SE15/H	Housing	29	12.27	19.24						
SE16/H	Housing	40	13.17	19.27						
SE17/HC	Housing	11	12.64	18.89						
SE18/H	Housing	98	11.99	18.10						
SE19/H	Housing	7	14.09	20.39						
SE2/H	Housing	12	12.33	18.50						
SE20/H	Housing	145	10.12	20.00						
SE21/H	Housing	28	10.67	16.80						
SE22/H	Housing	14	10.71	21.55						
SE23/HC	Housing	11	12.60	19.46						
SE24/HC	Housing	9	10.01	18.33						
SE25/H	Housing	13	11.99	18.43						
SE26/HC	Housing	106	11.87	19.82						
SE27/HC	Housing	41	12.20	18.59						
SE28/H	Housing	5	12.53	19.17						

Site Ref	Proposed allocation	Indicative number of dwellings	Distance (km) to S. Pennine Moors SAC/SPA	Distance (km) to N. Pennine Moors SAC/SPA	South Pennine Moors SAC/SPA			North Pennine Moors SAC/SPA		
					Urban effects	Impacts to supporting habitat	Recreation	Urban effects	Impacts to supporting habitat	Recreation
SE29/H	Housing	23	11.35	19.21						
SE3/H	Housing	16	10.53	21.54						
SE30/H	Housing	88	11.09	20.01						
SE31/H	Housing	53	12.03	18.11						
SE32/E	Employment	0	10.89	21.05						
SE33/E	Employment	0	10.53	16.85						
SE34/E	Employment	0	11.35	17.86						
SE35/E	Employment	0	11.25	17.83						
SE36/E	Employment	0	10.87	17.50						
SE37/E	Employment	0	14.36	20.16						
SE38/E	Employment	0	10.91	22.60						
SE39/E	Employment	0	11.19	17.93						
SE4/H	Housing	100	11.55	20.30						
SE40/E	Employment	0	10.51	20.49						
SE41/E	Employment	0	14.15	20.48						
SE42/E	Employment	0	10.66	20.85						
SE43/E	Employment	0	10.36	16.34						
SE44/E	Employment	0	12.31	19.69						
SE45/H	Housing	68	11.91	17.98						
SE46/H	Housing	582	13.59	19.68						
SE47/H	Housing	542	14.02	20.07						
SE48/H	Housing	27	14.54	20.41						
SE5/H	Housing	17	9.98	18.13						
SE6/H	Housing	10	11.32	18.73						

Site Ref	Proposed allocation	Indicative number of dwellings	Distance (km) to S. Pennine Moors SAC/SPA	Distance (km) to N. Pennine Moors SAC/SPA	South Pennine Moors SAC/SPA			North Pennine Moors SAC/SPA		
					Urban effects	Impacts to supporting habitat	Recreation	Urban effects	Impacts to supporting habitat	Recreation
SE7/H	Housing	20	13.02	19.18						
SE8/H	Housing	32	11.83	18.22						
SE9/H	Housing	10	12.04	18.38						
SH1/H	Housing	27	4.47	12.49			✓			
SH10/H	Mixed Use	50	4.50	12.21			✓			
SH11/H	Housing	30	5.04	12.74			✓			
SH12/H	Housing	78	4.84	12.55			✓			
SH13/H	Housing	93	4.60	12.26			✓			
SH14/H	Housing	20	4.72	12.67			✓			
SH15/H	Housing	20	4.68	12.51			✓			
SH16/H	Housing	25	4.76	12.70			✓			
SH17/H	Housing	50	4.88	12.79			✓			
SH19/H	Housing	60	4.80	12.43			✓			
SH2/H	Housing	51	5.05	12.63			✓			
SH20/H	Housing	50	4.88	12.72			✓			
SH21/H	Housing	50	5.17	12.49			✓			
SH22/H	Housing	15	5.25	12.47			✓			
SH3/H	Housing	44	4.47	12.72			✓			
SH4/H	Housing	164	5.20	13.84			✓			
SH5/H	Housing	140	4.39	13.12			✓			
SH6/H	Housing	49	4.47	13.21			✓			
SH7/H	Housing	30	4.46	12.86			✓			
SH8/H	Housing	10	4.99	12.38			✓			
SH9/H	Housing	266	4.06	12.19			✓			

Site Ref	Proposed allocation	Indicative number of dwellings	Distance (km) to S. Pennine Moors SAC/SPA	Distance (km) to N. Pennine Moors SAC/SPA	South Pennine Moors SAC/SPA			North Pennine Moors SAC/SPA		
					Urban effects	Impacts to supporting habitat	Recreation	Urban effects	Impacts to supporting habitat	Recreation
SI1/H	Housing	43	2.38	7.01		✓	✓			
SI2/H	Housing	40	1.97	6.74		✓	✓			✓
SI3/H	Housing	146	3.28	8.09			✓			
SI4/H	Housing	145	3.01	7.95			✓			
SI5/HC	Housing	156	2.88	7.90			✓			
SI6/H	Housing	21	2.83	7.68			✓			
SI7/H	Housing	22	2.89	7.65			✓			
SI8/H	Housing	7	3.12	7.80			✓			
ST1/H	Housing	120	3.42	8.94			✓			
ST2/H	Housing	22	3.68	9.24			✓			
ST3/HC	Housing	35	3.26	10.23			✓			
ST4/H	Housing	11	2.98	10.46			✓			
ST5/E	Employment	0	3.27	9.86						
SW1/H	Housing	30	5.43	18.47			✓			
SW10/H	Housing	26	5.36	20.28			✓			
SW11/H	Housing	50	8.64	17.72						
SW12/H	Housing	24	8.91	18.04						
SW13/H	Housing	281	7.72	17.97						
SW14/H	Housing	200	7.96	21.50						
SW15/H	Housing	175	6.94	16.92			✓			
SW16/H	Housing	57	8.30	17.28						
SW17/H	Housing	200	8.94	18.45						
SW18/H	Housing	120	4.49	19.37			✓			
SW19/H	Housing	22	9.76	17.54						

Site Ref	Proposed allocation	Indicative number of dwellings	Distance (km) to S. Pennine Moors SAC/SPA	Distance (km) to N. Pennine Moors SAC/SPA	South Pennine Moors SAC/SPA			North Pennine Moors SAC/SPA		
					Urban effects	Impacts to supporting habitat	Recreation	Urban effects	Impacts to supporting habitat	Recreation
SW2/H	Housing	60	4.66	19.17			✓			
SW20/H	Housing	18	8.23	18.87						
SW21/H	Housing	51	5.86	17.60			✓			
SW22/H	Housing	57	4.75	19.69			✓			
SW23/H	Housing	60	7.63	17.38						
SW24/H	Housing	151	7.37	17.23						
SW25/H	Housing	19	8.59	21.49						
SW26/H	Housing	60	8.81	21.30						
SW27/H	Housing	7	6.69	18.57			✓			
SW28/H	Housing	30	9.14	21.30						
SW29/H	Housing	39	7.61	18.72						
SW3/H	Housing	56	4.64	19.43			✓			
SW30/H	Housing	14	6.80	20.46			✓			
SW31/H	Housing	5	9.18	20.03						
SW32/H	Housing	10	7.34	21.05						
SW33/H	Housing	175	5.60	18.02			✓			
SW34/H	Housing	7	7.93	21.53						
SW35/H	Housing	50	8.59	17.85						
SW36/HC	Housing	5	4.94	20.44			✓			
SW37/H	Housing	11	8.18	18.50						
SW38/HC	Housing	9	9.13	19.30						
SW39/H	Housing	44	8.36	20.46						
SW4/H	Housing	35	4.73	19.63			✓			
SW40/H	Housing	19	7.48	17.44						

Site Ref	Proposed allocation	Indicative number of dwellings	Distance (km) to S. Pennine Moors SAC/SPA	Distance (km) to N. Pennine Moors SAC/SPA	South Pennine Moors SAC/SPA			North Pennine Moors SAC/SPA		
					Urban effects	Impacts to supporting habitat	Recreation	Urban effects	Impacts to supporting habitat	Recreation
SW41/HC	Housing	9	7.23	19.04						
SW42/HC	Housing	14	7.26	20.48						
SW43/H	Housing	9	7.80	18.71						
SW47/E	Employment	0	9.47	18.02						
SW48/E	Employment	0	7.58	17.03						
SW5/H	Housing	150	4.94	19.43			✓			
SW6/H	Housing	50	5.65	19.71			✓			
SW7/H	Housing	34	5.82	18.60			✓			
SW8/H	Housing	26	6.24	19.31			✓			
SW9/H	Housing	14	4.99	20.48			✓			
TH1/HC	Housing	11	2.42	18.49		✓	✓			
TH10/H	Housing	27	2.57	18.40			✓			
TH11/H	Housing	30	2.43	18.42		✓	✓			
TH2/H	Housing	150	2.65	18.52			✓			
TH3/H	Housing	15	4.21	18.47			✓			
TH4/H	Housing	10	2.86	18.39			✓			
TH5/H	Housing	12	3.06	18.39			✓			
TH6/H	Housing	50	3.62	18.72			✓			
TH7/H	Housing	13	4.39	18.21			✓			
TH8/HC	Housing	250	1.62	18.91		✓	✓			
TH9/H	Housing	50	2.20	18.52		✓	✓			
WI1/H	Housing	10	4.76	15.66			✓			
WI2/H	Housing	40	5.33	15.18			✓			
WI3/H	Housing	80	4.64	15.47			✓			

4. Stage 2 Appropriate assessment: Urban effects

Screening results

4.1 Likely significant effects were identified for the overall quantum of growth (Policies SP8, HO1). Mitigation is set out in Policy SP11 which provides strong protection of the South Pennine Moors SPA/SAC. Following People Over Wind this policy was not taken into account in the screening.

4.2 Likely significant effects were identified for just one allocation site: IL1/H which (at its closest point) is 390m from the South Pennine Moors SAC/SPA.

Urban effects

4.3 There are particular risks associated with development in close proximity to European site boundaries. These risks relate to increased fragmentation, recreation use, cat predation, increased occurrence of predators, increased fire risk (garden bonfires, Chinese lanterns, barbeques), dumping of garden waste and the physical proximity of the built environment. The nature conservation impacts of urbanisation and the synergistic effects of development have been the subject of a range of reviews (Chace & Walsh, 2006; Mcdonald et al., 2008; McDonald & Boucher, 2011; Underhill-Day, 2005).

4.4 These issues are relevant where the housing is in direct proximity to the edge of the European site and creates particular pressures around the periphery of the site. In general, more houses are likely to result in greater levels of impact and the impacts relate to wherever there is development close to the boundary. Housing can create a 'hard' edge to the moor and result in fragmentation and create barriers between supporting habitat.

4.5 Studies of fire incidence have shown that heathland sites with high levels of housing within 500m of the site boundary have a higher fire incidence (Kirby & Tantram, 1999). Fires can start in a range of ways, including deliberate arson, children playing, campfires, barbeques, sparks from vehicles, discarded cigarettes etc.

4.6 Where housing is directly adjacent to sites, access can occur directly from gardens and informal access points, essentially spilling over from adjacent housing. Such use is likely to be different to recreation use from further afield, where people will make a conscious decision to visit a European site and travel

some distance to undertake a particular activity. We therefore treat recreation as a separate section of the appropriate assessment and under urban effects focus on types of use that spill over from adjacent gardens and is different to other recreation use. Adjacent green space next to urban areas is often subject to a range of activities that are not necessarily compatible with nature conservation.

4.7 Local housing can result in an increase in pet cats, which are known to predate a range of bird species (Floyd & Underhill-Day, 2013; Underhill-Day, 2005; Woods et al., 2003), and other predators (e.g. Fox *Vulpes vulpes*, Magpie *Pica pica*, Brown Rat *Rattus norvegicus*). Fly-tipping and dumping of garden waste can be more common close to urban areas and invasive plant species can spread from gardens and edge habitats. As such, managing and looking after semi-natural habitats in close proximity to urban areas can be more challenging.

Site improvement plan and supplementary conservation advice

4.8 The site improvement plan for the South Pennine Moors SAC/SPA identifies planning permissions as a current pressure and future threat. The plan states that local development frameworks, infrastructure programs and planning permissions need to be evaluated on a whole site basis, for example wind turbines and housing developments. The site improvement plan states that "*the 'in combination' and cumulative effects of numerous applications are, potentially, fragmenting the site and slowing the chances of a joined-up landscape scale delivery resilient site.*"

4.9 The supplementary conservation advice for the South Pennine Moors SAC set targets for functional connectivity with the wider landscape (e.g. for wet heathland). These targets are included due to the potential need at the site to maintain or restore the connectivity of the site to its wider landscape in order to meet the conservation objectives. These connections may take the form of landscape features, such as habitat patches, hedges, watercourses and verges, outside of the designated site boundary which are either important for the migration, dispersal and genetic exchange of those typical species closely associated with qualifying Annex I habitat features of the site.

4.10 For the South Pennine Moors SPA, the supplementary conservation advice identifies for Merlin and Golden Plover that open landscape may be required to facilitate movement of birds between the SPA and any off-site supporting habitat.

Mitigation

4.11 A development exclusion zone has been established around many European sites in England to reflect the particular risks with development directly adjacent to the boundary. Local plans and strategic mitigation schemes include a presumption against development within these areas and such zones have become an established policy approach.

4.12 Examples of areas where a zone is established in planning policy include:

- Across the Thames Basin Heaths (11 local planning authorities)
- Around the Dorset Heaths (five local planning authorities)
- In the Brecks (e.g. Breckland District)
- Around the East Devon Pebblebed Heaths (East Devon District Council)
- Around Cannock Chase SAC (e.g. Cannock Chase Council Local Plan)
- At Ashdown Forest SPA/SAC (e.g. Wealden District's Core Strategy Local Plan)
- Burnham Beeches (e.g. Chilterns and South Bucks).

4.13 Most of the above examples are heathland sites and a 400m zone is used, however Burnham Beeches is a woodland site and the zone is 500m. The approach is widely accepted and reduces the risks from increasing urbanisation. It provides greater certainty that mitigation measures (such as access management) for cumulative levels of urban growth will be successful as such measures can be targeted to those travelling some distance.

4.14 The choice of 400m is based on the literature (summarised in Underhill-Day, 2005) and to some extent is a pragmatic choice. For example, 400m reflects distances at which sites will be 'local' and easily accessible from nearby housing and fits with the fire research outlined above. Studies of cat roaming behaviour have shown 400m to be an appropriate buffer width to limit cats in very urban environments (Thomas, Baker, & Fellowes, 2014), however in more rural areas cats can roam considerably further and some studies have suggested ranges over 2km for more rural situations (Hall et al., 2016; Metsers, Seddon, & van Heezik, 2010).

4.15 Avoiding growth within 400m of the European site boundary reduces the pressure on the site from recreation and risks to the South Pennine Moors Phase II SPA from loss/impacts to supporting habitats. It therefore is integral to mitigation. The policy SP11 follows from the Core Strategy and applies the 400m zone, ensuring allocations and windfall development around the immediate periphery of European sites will be restricted. A draft planning

framework SPD provides further detail and the types of development that the zone applies to. This helps provide clarity to developers and planners and ensures the policy is deliverable.

4.16 Checks of allocations within 400m of any European site boundary identified just one site, IL1/H, which (at its closest) is 390m from the South Pennine Moors SAC/SPA boundary. The majority of the site is beyond 400m. The site is to the east of Ilkley and has housing on 3 sides, with a golf course to the south. Given the distance the site lies from the European site boundary, the site is likely to be deliverable, however further checks should be undertaken prior to the next iteration of the HRA.

Conclusions

4.17 Screening identified likely significant effects from urban effects and the South Pennine Moors SAC/SPA. Policy SP11 identifies the risks and sets out clear zoning ('Zone A') to eliminate the risks. Checks of the allocations in the draft Plan highlight one site that just clips the zone, site IL1/H.

4.18 Prior to submission and to inform the next iteration of the HRA, checks should be made of urban effects specific to this location and the scope for mitigation. There may therefore be specific mitigation requirements for this site that need to be included within the plan at the next version. It may also be that site-specific details will only be finalised following project level HRA when site-specific design (such as layout and access details) is known. If this is the case, the submission version of the HRA will need to set out the details required in the project-level assessment.

4.19 At the next iteration of the HRA there should be checks to ensure no changes to allocated site boundaries or additional sites within 400m of the European site. The SPD should be finalised to provide further detail and ensure the zone approach is communicated to developers and others. With these steps in place it will be possible to rule out adverse effects on integrity on the South Pennine Moors SAC/SPA and urban effects, alone or in-combination.

5. Stage 2: Appropriate assessment: Impacts to supporting habitat

Screening results

5.1 Likely significant effects were identified for the overall quantum of growth (Policies SP8, HO1,EC1). Mitigation is set out in Policy SP11 which provides strong protection of the South Pennine Moors SPA/SAC and also Policy EN15 which aligns with SP11 and highlights the importance of supporting habitat within 2.5km of the SAC/SPA. Following People Over Wind SP11 and EN15 were not taken into account in the screening.

5.2 Screening identified likely significant effects for 33 individual site allocations (2,715 potential dwellings) alone in relation to impacts to supporting habitat/functionally-linked land and the South Pennine Moors Phase II SPA. The sites are listed in Table 3. No allocation sites triggered likely significant effects for the North Pennine Moors SPA. The screening of site allocations was precautionary and all sites that were within 2.5km of the SPA and, using Corine landcover data, were identified as having some component of grassland or other habitat (not urban or woodland) were screened in.

Introduction

5.3 For a number of sites and species there are areas outside the boundary of the European site that are likely to be important and at risk from development. There are therefore risks through the loss, deterioration, or compromise of habitat outside a European site boundary that serves a supporting role for the European site, for example as roosting or foraging sites. The general issue and examples are discussed and reviewed by Chapman and Tyldesley (2016).

Relevant species and potential supporting habitat

5.4 The issues for the South Pennine Moorland SAC/SPA and North Pennine Moors SPA/SAC sites relate to the bird interest of the SPAs. Some data for relevant species are summarised in Table 4.

Table 4: Examples from the literature on the relevant species and use of wider areas during the breeding season.

Species	Distance measures relating to likely use outside European site boundaries	Reference	Habitat use and other additional information
Golden Plover	Foraging birds 1.1-3.7km from nest. Fields used by foraging birds were 0.43km-2.02km from the moorland edge.	Whittingham *et al.* (2000)	Birds breeding on moorland radio-tracked and shown to use limited number of enclosed pasture fields, selecting calcareous grassland with high earthworm density (lots of molehills), particularly large fields, away from roads.
Curlew	Foraging birds using fields around 500m from moor	Robson (1998)	Larger fields preferred for foraging and those closest to the nest
Twite		Brown et al (1995)	1km squares around moorland edge with high percentage cover of vegetation above 5cm and where length of river or reservoir shore is large
Twite	Usually feed up to "several kilometres" from the nest	Langston *et al.* (2006)	
Lapwing		Baines (1988)	Much lower density and levels of use on improved fields (i.e. those that were drained/fertilised/reseeded).
Ring Ouzel	Up to 500m from nest sites to feed	Burfield (2002)	Breeding birds feed in short grass swards or heather/grass mosaics with high earthworm abundance

5.5 As Table 4 shows, the issues are particularly relevant for Golden Plover. The supplementary conservation advice for the South Pennine Moors Phase II SPA highlights the issues. The advice states that: "*breeding occurs on upland blanket bogs, wet heaths and acid grassland. Marginal pasture land adjacent to SPA are known to be important feeding grounds. This off site, supporting habitat, feeding ground is functionally linked to the SPA and key to success of breeding on the moorland. Golden plover usually feed on short grazed pastures and molehill abundance can be a good surrogate measure for food availability (i.e. earthworm density). Wetter, undrained pastures are also preferred for feeding as this can increase Tipulid abundance (May-June main food supply). Additionally larger, more level fields are preferred compared to steep slopes*."

5.6 There is a target to restore the extent, distribution and availability of suitable breeding habitat which supports breeding Golden Plover for all necessary stages of its breeding cycle. The notes for this target identify that Golden Plover may

travel up to 4km from their nesting sites to feed. In addition, there are also further targets relating to the safe passage of Golden Plovers moving between nesting, feeding and/or roosting areas during the breeding season and also to maintain food availability within supporting habitat.

5.7 Detailed modelling for this species was undertaken by Bertinussen (2018), for Natural England, in order to identify habitat patches around the South Pennine Moors that were likely to be important day-time foraging sites for the species. The modelling showed that building density and woodland were negative features while grassland cover was a positive factor in determining where Golden Plover chose to feed. Soil moisture and topographic wetness were also important factors, with wet grassland preferred. The most suitable sites were also those on flatter ground and those with a west or south-westerly aspect.

5.8 It is clear that supporting habitat is likely to be patchy and relate to specific fields or particular locations.

Policy approach

5.9 Policy SP11 clearly identifies the risks relating to supporting habitat. Zone A relates to land within 400m of the SPA and no new residential development is permitted. Zone B relates to land out to 2.5km from the European site boundary and SP11 highlights that in this zone it will be considered, based on such evidence as may be reasonably required, whether land proposed for development affects foraging habitat for qualifying species of the SPA. In other words, case-by-case checks will be required.

5.10 The policy follows the advice of the Core Strategy HRA and the zones set out in that original evidence. There is no new evidence to indicate different distances should be used and the new evidence (Bertinussen, 2018) supports their continued use. The restrictions on development within Zone A mean that risks are greatly reduced, as proximity to the SPA will influence the likely importance of supporting habitat (e.g. Bertinussen, 2018; Robson, 1998). Zone B encompasses the maximum distance from the edge of the moorland recorded in Whittinham's (2000) radio-tracking study of Golden Plover.

5.11 Alongside the policy, the approach to identifying supporting habitat is set out in detail in the planning framework draft SPD. This contains a section on how to identify supporting habitat, ensuring that any future development undertakes the necessary checks. The following types of site are identified as not posing a credible risk and therefore likely significant effects could be ruled out if the entire site was comprised of one or more of the following:

- Brownfield sites;

- Within an existing farm or house curtilage;
- Within a settlement boundary or within 25m of a settlement boundary;
- Within 25m of a main road;
- Woodland;
- Arable[20].

5.12 If the site does not fall into the above categories, the draft SPD states that habitat checks by a suitably qualified ecologist with experience of the relevant bird species will be necessary to identify whether a site is likely to provide suitable habitat.

5.13 The draft SPD highlights the following habitats, if present within the red line boundary or adjacent to it, would be indicators of credible risk:

- Grassland with abundant molehills;
- Semi-improved pasture or rough grazing;
- Hay-meadows;
- Floodplain grassland or wet grassland habitat.

5.14 The habitat checks will need to be site specific and extend to take into account any supporting infrastructure such as roads or power lines that may be required for the proposed development and the land directly adjacent to the site.

5.15 The above will be sufficient to identify where likely significant effects will be triggered and therefore a need for further evidence (including species surveys) to inform appropriate assessment. In some circumstances, where sites outside of the SPA are identified as functionally linked but the level of use by SPA birds is sufficiently light, it may be that a conclusion of no significant impact on the populations for which the site had been classified can be reached. As a rule of thumb, if it can be shown that less than 1% of the population of the SPA are impacted by the proposal it may be possible to rule out a likely significant effect.

Allocations within the draft Plan

5.16 It is understood that Natural England intend to be able to release the modelled outputs produced by Bertinussen as GIS data to potentially help identify sites that may be of particular importance for day-time foraging Golden Plover. When possible, this will allow a check of the allocations in the draft Plan and allow more detailed considerations of any that pose particular risks. In the meantime,

[20] Note that there is limited arable land within the District and also that arable land can be used by the SPA qualifying features for foraging, but in the Bradford area is considered of limited importance beyond 400m from the SPA boundary

a visual check of the outputs (Figure 5 in Bertinussen, 2018) suggests that the allocations in the Plan are generally well away from locations predicted to be of high importance as day-time foraging sites for Golden Plover. As such the risks are relatively low. It is, however, important to note that the Bertinussen work relates to day-time use by Golden Plovers only, and the issues around supporting habitat can also relate to use by Golden Plovers during the night and also for a wider range of species.

5.17 Bird surveys of some potential allocation sites within 2.5km of the SPA were undertaken in 2019 (Avian Ecology, 2019; SLR, 2019). The only SPA qualifying feature recorded in these surveys was Curlew, and there were few records. These surveys would further suggest that the risks are low.

5.18 The policy approach and restriction on development within 400m of the SPA boundary provide further reassurance that impacts to supporting habitat will be minimal. There are three employment sites that fall within 2.5km (at Keighley and Bingley) and are not in existing urban areas. These have been checked using aerial imagery. They are all located close to or alongside the A650 and have buildings etc adjacent to them too, suggesting they are unlikely to be used by SPA qualifying features.

5.19 Prior to submission, further GIS analysis and possibly site-based checks will be necessary to rule out adverse effects on integrity for the allocations where likely significant effects have been identified. It is anticipated this will be informed at least in part through discussion with Natural England and use of the Bertinussen modelling results.

Conclusions

5.20 Screening identified 33 site allocations (2,715 potential dwellings) where likely significant effects, in relation to impacts to supporting habitat/functionally-linked land and the South Pennine Moors Phase II SPA, could not be ruled out alone. The screening was precautionary and all the sites are within 2.5km of the SPA and, using Corine landcover data, are identified as having some component of grassland or other habitat (not urban or woodland). Visual checks against habitat suitability models produced for Golden Plover suggest risks for the 33 sites are low.

5.21 Policy SP11 provides strong protection and clearly sets out a zonal approach that is set out in more detail within a separate planning framework draft SPD. The draft SPD will be finalised prior to submission of the Plan. The next iteration of the HRA will need to undertake more detailed GIS analysis and possibly some more detailed checks of some of the allocations. Should these identify any

remaining concerns, the submission version of the Plan will need to remove those sites or ensure further checks (such as permission only being granted subject to targeted bird survey results) in order for a conclusion of no adverse effects on integrity at plan-level to be made.

6. Stage 2 Appropriate assessment: Recreation

Screening results

6.1 Likely significant effects were identified for the overall quantum of growth (Policies SP8, HO1). Mitigation is set out in Policy SP11 which provides strong protection of the South Pennine Moors SPA/SAC and also Policy CO1 and ID2. Following People Over Wind mitigation was not taken into account in the screening.

6.2 Likely significant effects alone were identified for 211 allocation sites (with an indicative total of 12,641 dwellings) for the South Pennine Moors SAC/SPA. These allocation sites were those where all or some of the site fell within 7km of the European site boundary.

6.3 For the North Pennine Moors SAC/SPA, likely significant effects alone were identified for 15 allocation sites (with an indicative total of 1,329 dwellings). These allocation sites were those where all or some of the site fell within 7km of the European site boundary.

Introduction

6.4 In the UK there is considerable overlap between nature conservation and recreation. Many of our most important nature conservation sites have legal rights of access, for example through Public Rights of Way or Open Access through the Countryside and Rights of Way Act (CRoW) 2000. People are often drawn to sites that are important for nature conservation as they are large, scenic and often few other alternatives exist. Recreation use can include a variety of activities, ranging from daily dog walks to competitive adventure and endurance sports. There can be a difficult balancing act between providing for an increasing demand for access without compromising the integrity of protected wildlife sites.

6.5 There is a strong body of evidence showing how increasing levels of access can have negative impacts on wildlife. Visits to the natural environment have shown a significant increase in England as a result of the increase in population and a trend to visit more (O'Neill, 2019). The issues are particularly acute in southern England, where population density is highest. Issues are varied and include disturbance, increased fire risk, contamination and damage (for general reviews see: Liley et al., 2010; Lowen et al., 2008; Ross et al., 2014; Saunders et al., 2000; Underhill-Day, 2005).

6.6 The issues are not however straightforward. It is now increasingly recognised that access to the countryside is crucial to the long term success of nature conservation projects, for example through enforcing pro-environmental behaviours and a greater respect for the world around us (Richardson et al., 2016). Access also brings wider benefits to society that include benefits to mental/physical health (Keniger et al., 2013; Lee & Maheswaran, 2011; Pretty et al., 2005) and economic benefits (ICF GHK, 2013; ICRT, 2011; Keniger et al., 2013; The Land Trust, 2018). Nature conservation bodies are trying to encourage people to spend more time outside and government policy is also promoting countryside access in general (e.g. through enhancing coastal access).

Recreation impacts in the site improvement plans and supplementary conservation advice

6.7 The site improvement plan for the South Pennine Moors identifies public access/disturbance as a current pressure and future threat. It states that disturbances/activities located in sensitive site areas or at sensitive times of the year (e.g. bird breeding season or during heavily waterlogged periods) can have a negative impact upon notified features. Particular activities which impact include rock climbing, walking (including dog walkers), legal activities (byway usage), hang-gliding and the flying of model aircraft.

6.8 The supplementary conservation advice provides further detail. Specific on-site erosion through walkers, off road bikers and estate vehicles is identified as a concern for dry heathland, reducing connectivity across the SAC. For blanket bogs, the advice states that erosion, fire damage (intentional burn and wildfire), historic air pollution, overgrazing, public access routes and vehicle access are the main concerns on this site.

6.9 The supplementary conservation advice for the SPA interest sets targets relating to disturbance. For example, for the South Pennine Moors Phase II SPA there are targets for Merlin and Golden Plover to restrict and reduce the frequency, duration and/or intensity of disturbance.

6.10 Impacts from recreation are summarised in Table 5.

Table 5: Summary of ways in which recreation can impact the qualifying features (focus on the South Pennine Moors SAC/SPA) potentially vulnerable to recreational pressure. Relevant months describe when the impact can occur. In source/evidence column "SIP" refers to relevant site improvement plan[21] produced by Natural England.

Pathway	Interest feature	Relevant months	Source/evidence	Notes
Disturbance to breeding birds	Short-eared Owl, Eurasian Curlew, Common Redshank, Whinchat, Northern Wheatear, Ring Ouzel, Twite, Dunlin, Common Sandpiper, Common Snipe, Merlin, Golden Plover, Northern Lapwing.	March-August	SIP; Lowen *et al.* (2008); Finney *et al.* (2005); Yalden (1992)	Disturbance may result in otherwise suitable habitat being unused or reduced breeding success. Impacts may extend to functionally linked land outside the SPA boundary. Damaging activities varied and potentially include dog walking, mountain biking, paragliding, model aircraft, walking etc.
Increased risk of wild-fire	H4010 Northern Atlantic wet heaths with *Erica tetralix;* H4030 European dry heaths; H7130# Blanket bogs. Breeding bird assemblage.	All year, but particularly during dry weather	SIP; Lowen *et al.* (2008); Underhill-day (2005).	Results in long term damage to peat and vegetation. Fires during bird breeding season will result in loss of eggs and chicks as well as loss of breeding habitat. Linked to access through BBQs, discarded cigarettes, matches, campfires etc. Parked vehicles can make access difficult for emergency services.
Trampling damage	H4010 Northern Atlantic wet heaths with *Erica tetralix;* H4030 European dry heaths; H7130# Blanket bogs.	All year	SIP; Lowen *et al.* (2008).	Damage from footfall, bicycles and also motorbikes/illegal vehicles. Results in vegetation wear, ground compaction and erosion.
Challenges achieving suitable management	H4010 Northern Atlantic wet heaths with *Erica tetralix;* H4030 European dry heaths; H7130# Blanket bogs.	All year	SIP.	Sheep worrying, disturbance to livestock, damage to infrastructure and gates left open etc. may lead to challenges in achieving suitable grazing levels with high levels of public access.
Dog fouling	H4010 Northern Atlantic wet heaths with *Erica tetralix;* H4030 European dry heaths; H7130# Blanket bogs.	All year	SIP; Lowen *et al.* (2008).	Dog fouling leads to eutrophication.

[21] See relevant part of the Natural England website

Where visitors originate from: the 7km zone of influence

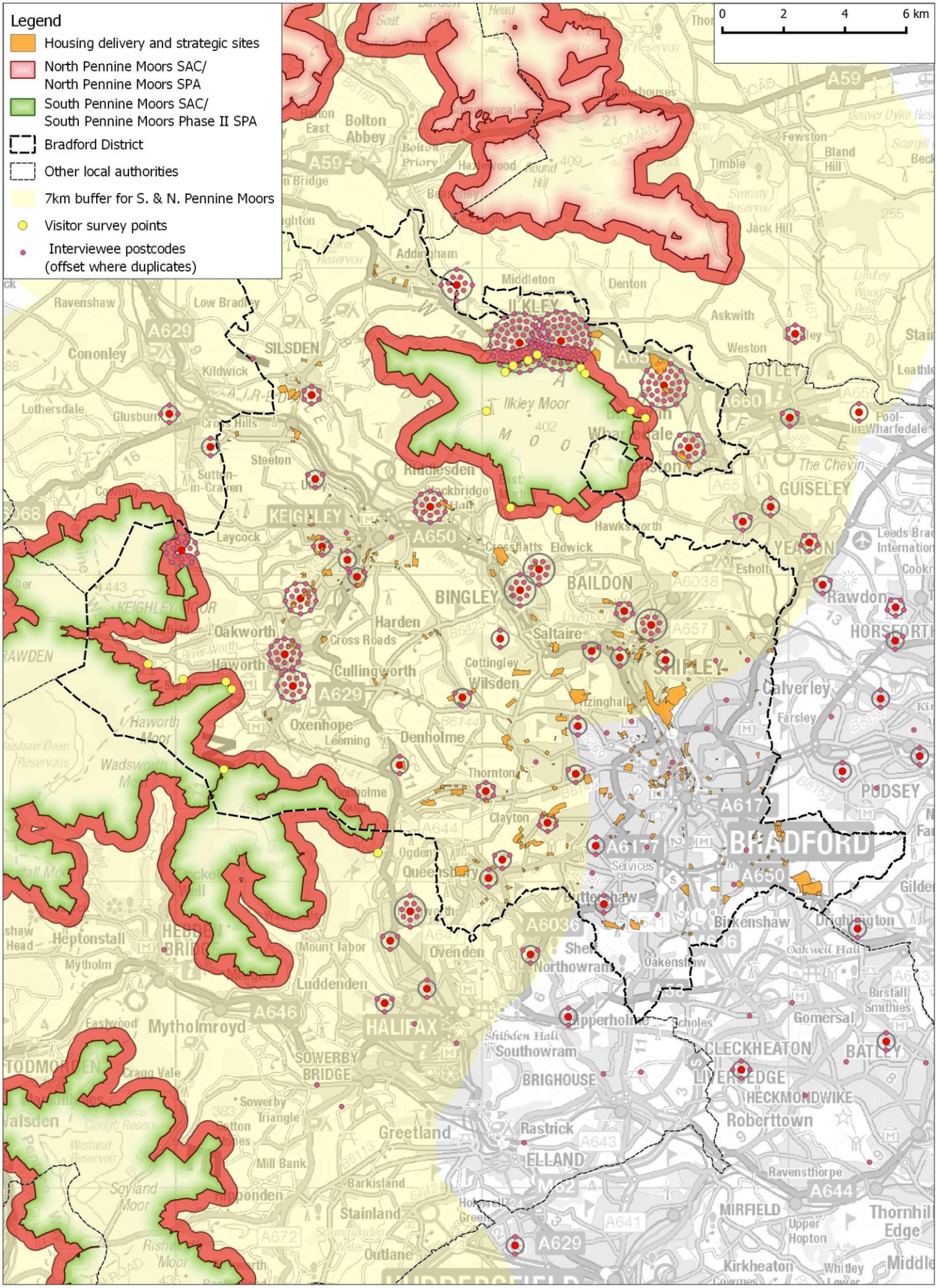
6.11 The Core Strategy HRA (Cox & Pincombe, 2014) presented data collected during visitor surveys conducted on the South Pennine Moors in 2013. These data were used to establish a zone of influence of 7km, within which increased housing would be likely to be linked to increased recreation use.

6.12 Recognising the need to regularly review and update the visitor survey work, Bradford Council commissioned new visitor surveys which were undertaken in 2019 (Watermelon, 2019). This survey found that the greatest numbers of visitors to the South Pennine Moors SPA/SAC live in close proximity to the moors, particularly those visiting from postcodes around Ilkley, Addingham, Oxenhope, Haworth and the Airedale area. 21% of visitors were walking to the moors rather than travelling by car. Postcode data were collected to postcode sector level, allowing interviewee home postcodes to be attributed to areas. The data are shown in Map 4. On the map the yellow points represent the survey points and postcodes are plotted as point data relating to the central point within the postcode sector. For those postcode sectors with multiple interviewees, the data are offset with concentric rings to provide a visual representation of the distribution of visitors. The map also shows the 7km zone (represented with a yellow wash on the map). In total, the Watermelon study collected information on the postcode sector for 574 interviewees[22], of these the central point for some 413 (72%) was within the 7km zone.

6.13 These visitor data indicate that the continued use of the 7km is justified and appropriate. Reviewing the housing sites in the Plan, there are 211 sites where the allocation boundary is all or partly within 7km of the South Pennine Moors SAC/SPA or the North Pennine Moors SAC/SPA. The indicative housing totals for these sites are 12,641.

[22] 680 interviews were conducted and postcode sectors were obtained for 574 of these

Map 4: 2019 postcode data and 7km zone of influence



Scale of change set out in the draft Plan

6.14 Based on 2020 postcode data in GIS, there are around 797,265 residential properties within 7km of either the South Pennine Moors SAC/SPA or the North Pennine Moors SAC/SPA (across all authority areas). Reviewing the sites within the draft Plan, the sites represent an indicative total of around 12,641 dwellings. This is therefore an increase of around 2% (across all authority areas).

6.15 Looking solely within the Bradford District, the GIS data indicates there are around 218,930 residential properties (as of 2020), and the 30,362 new dwellings proposed within the draft Plan would therefore represent an uplift of around 14%. This a marked uplift.

6.16 Within 7km of either the South Pennine Moors SAC/SPA or the North Pennine Moors SAC/SPA and within Bradford District there are around 127,733 current residential properties (as of 2020) and the allocation sites within the draft Plan, represent an indicative total of around 12,641 dwellings (within 7km). This would be equivalent to around a 10% increase in housing.

6.17 From these figures it can be seen that the quantum of growth proposed for Bradford District is around a 14% increase, and within 7km of the two moorland SPAs the increase could be around 10%. While housing growth will not necessarily equate to recreation change, the figures provide a broad indication of the scale of potential impact.

Mitigation

6.18 The Core Strategy HRA concluded that measures would be required to mitigate for the recreational impact of new residential development coming forward within the 7km zone. The HRA recommended that a range of measures should be developed, the provision of alternative natural greenspace for recreation and visitor management at the European sites. These recommendations were set out within the Core Strategy Policy SC8, and the draft Plan has included SP11 which clearly sets the zones and mitigation approach in policy. The mitigation approach has been developed in more detail within a separate draft SPD, which has been published for consultation alongside the Local Plan.

6.19 The mitigation strategy sets out the relevant zones and a strategic approach whereby developer contributions are used to fund mitigation that includes:

- Increased ranger provision and staff time to engage with visitors and oversee mitigation delivery
- Education and awareness raising measures including an awareness raising strategy, targeted work on barbeques

- Infrastructure improvements including enhancements to local greenspace (outside the European sites) to deflect recreation
- A review of parking provision and changes to parking within the European site boundary
- Monitoring

6.20 The measures are targeted towards the South Pennines SAC/SPA (and thereby relevant to the locations where development in the plan is focussed) however it could be possible for them to extend to the very southern fringe of the North Pennines (e.g. through ranger time). The costings for the mitigation in the draft SPD reflect the need to fund measures in-perpetuity and ensures long-term funding.

Conclusions

6.21 By submission of the Plan, it will be possible to have the SPD finalised and adopted, and therefore a mitigation approach fully secured. The mitigation approach will need to cover both the South Pennine Moors SAC/SPA and the North Pennine Moors SAC/SPA. For the next iteration of the HRA, prior to submission, it will be necessary to check any changes to the Plan (e.g. levels of housing and locations) and any changes to the SPD to ensure the mitigation is adequate and will allow a conclusion of no adverse effects on integrity (on the South Pennine Moors SAC/SPA or the North Pennine Moors SAC/SPA) from recreation, alone or in-combination, to be reached.

7. Stage 2 Appropriate assessment: Air Quality

Screening results

7.1 Likely significant effects were identified from the quantum of growth (Policies SP8, HO1 and EC1) alone. The Plan provides for a total of 30,672 homes over the 18 years of the plan (2020-2038) across 325 housing sites and includes over 80ha of employment land.

Introduction

7.2 Increased growth within Local Plans is of relevance to HRAs where increased traffic volumes - as a result of new growth - will occur in close proximity to European sites hosting habitats that are sensitive to reduced air quality.

Summary of atmospheric pollution

7.3 Atmospheric pollutants of concern to sensitive habitats that are derived from vehicles include oxides of nitrogen (NO_x), ammonia (NH_3) and the consequential deposition of nitrogen (N) and acid, which can then lead to changes in species composition and mortality.

7.4 It is known that traffic emissions lead to an increase in N, and that this presents a major concern for sensitive habitats. Critical thresholds, beyond which plant communities may change in response to pollutants, have been developed for a range of habitat types, and are available from the Air Pollution Information Service (APIS). This database is funded and provided by the Centre for Ecology and Hydrology and the UK pollution and conservation agencies including Natural Resources Wales (NRW), the Environment Agency, Northern Ireland Environment Agency, Natural England, the Joint Nature Conservation Committee (JNCC), Scotland and Northern Ireland Forum for Environmental Research (SNIFFER), the Scottish Environment Protection Agency (SEPA), and Scottish Natural Heritage (SNH).

7.5 APIS holds data and threshold information specifically in relation to habitat sensitivity rather than human health. Summary information of relevance is given in Table 6.

Table 6: Summary of key air pollutants

Pollutant	Source	National trend	Impact
NO_x	Combustion, mainly vehicles and power stations	Decline (55% since 1986)	Mainly through N deposition, but also gaseous NO_x close to source. Synergy with SO_2
NH_3	Natural and anthropogenic; main source is agriculture	Smaller decline which has now flattened	Direct toxicity and N-accumulation

7.6 The main impacts of NOx and NH_3 are through N deposition and acidification. N deposition can lead to an increase in N loving species at the expense of other species; an increased risk of frost damage in spring, increased sensitivity to drought; increased incidence of pest and pathogen attack and direct damage to sensitive species. The impacts of acid deposition are often indirect, resulting from a change of pH in soils and water. Chemical changes lead to nutrient deficiencies, release of toxins and changes in microbial N transformations.

7.7 The implications of the Local Plan in relation to air quality need to be assessed against background trends and the trajectory of vehicle emission improvements. Improvements in vehicular technology and standards that all vehicles are currently being manufactured to, may outweigh impacts from new development. The improvements may be retarded by additional development, but future background levels of nitrogen are expected to decline with Government clean air strategies and the target to stop the sales of new diesel and petrol cars by 2030.

Case decisions and guidance

7.8 Case decisions provide an interpretation of the application of the Habitats Regulations and its parent European Directives in relation to air pollution and are useful in helping inform the assessment.

Guidance on assessing air quality impacts for designated sites

7.9 The Design Manual for Roads and Bridges (DMRB) has been the standard source of guidance for considering traffic generated air quality impacts. The latest DMRB has a specific section (LA105) on air quality, and this highlights the potential for impacts on sensitive habitats within 200m of a road, and the need for further assessment where changes to the road network or traffic volumes might increase daily traffic flows by 1,000 Average Annual Daily Traffic (AADT) or

more. This is a simple measurement of change, using the total volume of traffic on a road and dividing it by 365 days to give a daily average.

7.10 Natural England and its partner UK statutory nature conservation bodies have a specialist air quality technical group known as the Air Quality Technical Advisory Group (AQTAG). This group regularly meets to discuss key issues in relation to air quality concerns for designated sites and will occasionally issue formal advice notes on key topics. AQTAG21 is an advice note that includes reference to a 1% threshold to be used in air quality assessments. This threshold has been consistently used by the statutory nature conservation bodies over a number of years to indicate where an increase in atmospheric pollutant might be deemed significant. The AQTAG21 refers to a 1% threshold in terms of the relevant critical load for the habitat type. Where the pollutant contribution is less than 1% of the critical load, it is deemed to be inconsequential (*de minimis*) and does not warrant further consideration for likely significant effects.

7.11 The Institute of Air Quality Management published guidance in June 2019 entitled 'A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites'.

7.12 This guidance contains detailed and relevant advice in relation to the assessment of traffic generated air quality impacts and highlights the 1% threshold as a widely used threshold, below which fluctuations are not likely to be discernible from background fluctuations/measurements, and above which a need for further assessment is identified but does not automatically imply damage will occur.

The Wealden Judgment

7.13 Use of the DMRB and AQTAG21 for the purposes of assessing air quality within a plan level HRA was scrutinised through a High Court Judgment[23] whereby Wealden District Council challenged the HRA conclusions of the Joint Core Strategy (JCS) for Lewes District and South Downs National Park. Whilst the HRA had made conclusions of no likely significant effect on the basis of growth within the JCS alone, the High Court found that the HRA had failed to consider the combined effect of growth within multiple Local Plans in the vicinity of Ashdown Forest, thus necessitating an appropriate assessment. Natural England's advice given at the time deemed both the DMRB 1000AADT and the 1% of the critical load to be thresholds below which further assessment was not required. The Judgment relies on the caveat set out within AQTAG21, which advises that if

[23] [23] *Wealden v SSCLG (2017)*

there was to be a concentration of plans or projects in the same area, at the same time, then there may be cause for case specific assessment and the 1% threshold may not automatically apply.

7.14 In light of this case it is important therefore for any HRA to refer to a range of evidence and advice when considering air quality impacts and the DMRB thresholds, the AQTAG21 advice and the findings of the High Court in the Wealden case should be considered together, alongside any other relevant research and evidence.

European Court - Joined Cases C-293/17 and C-294/17

7.15 Coöperatie Mobilisation (Joined Cases C-293/17 and C-294/17) are now being generally referred to as "the Dutch Case" for nitrogen deposition. This Netherlands co-joined case brought before the European Court is an important recent case in the interpretation of the European Directives for plans and projects with potential air pollution impacts. The case focusses on agricultural derived nitrogen deposition, and essentially questions whether it is appropriate to rely on strategic measures to alleviate air pollution that may create capacity for individual projects to be approved despite their individual contribution of additional pollutants.

7.16 The European Court Judgment focusses on the fact that where a European site is already deteriorating, projects that then worsen the situation should not be approved, unless there are clear and definitive measures underway to restore the situation and maintain favourable conservation status. The Netherlands Government has an approach that relies upon a programme of nitrogen reduction measures. What is key to the assessment of traffic increases relating to Local Plans, and indeed the assessment of any other potential impacts at the plan level, is that the European Court was clear that measures should not be relied upon if they are uncertain, have not yet been carried out, are not certain to take place, or have poor scientific basis.

7.17 The case therefore highlights the need to have certainty in any measures being relied upon to allow a conclusion of no adverse effects where they are expected but not yet completed. Importantly, any such measures need to be scientifically certain and secured (in terms of responsibility, finances, practical delivery etc.), rather than just forecasts.

Natural England Guidance

7.18 With growing interest from competent authorities in the correct approach to assessing air quality impacts following recent court cases, Natural England has been assisting local planning authorities across the country with advice on what

should be considered within an HRA. Natural England has a number of research reports available within its publications webpage.

7.19 Caporn et al (2016) highlights that the majority of designated sites in the UK are currently exceeding their critical loads for N deposition, and this is leading to significant changes in these sensitive habitats as a consequence. There are particular concerns in relation to lower plants, which are highly sensitive to N deposition.

7.20 Although habitat responses to N deposition are not fully understood, it is apparent that the relationship between increased pollutants and habitat deterioration (declines in species richness and species composition) is not linear. Critical loads identify a point at which significant vegetation change is likely to occur, but changes do not continue on a linear basis beyond the critical threshold.

7.21 Natural England's (2018) guidance on their approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations makes it clear that it is for the competent authority, not Natural England, to acquire enough evidence to support its HRA conclusions. Helpfully, the document highlights that the 1% threshold can be used to establish whether further assessment is necessary, but should not be used to determine whether an adverse effect can or cannot be ruled out.

7.22 Importantly, this document indicates that traffic management measures and habitat management measures or interventions that limit the dispersal of traffic emissions might constitute mitigation measures. It is concluded that whilst these measures alone do not enable a conclusion of no adverse effect as the extent of their effectiveness is not yet quantified, they can be considered as additional measures that positively support such a conclusion.

CIEEM guidance

7.23 Given the relatively high profile cases and complexities in assessment of air quality, recently published guidance (CIEEM, 2021) provides up to date information and complements other guidance. It provides a consistent approach to understanding effects while highlighting that ultimately assessment needs to be a balanced and informed judgement as to 'risk'.

7.24 Assessment of air quality issues is a rapidly evolving field and further guidance or advice may be available prior to the next iteration of the HRA.

Roads and European sites around Bradford

7.25 In Map 4 we show European sites and any roads that are within 200m of European sites. Roads within 200m of European sites are coloured to indicate the road class, with A roads shown as thick purple lines and B roads in yellow.

7.26 From this map, sections of road of relevance are largely outside the District and include:

- A59 – East of Bolton Abbey
- A6033 – North of Hebden Bridge
- A58 – across Rishworth Moor
- B6160 – north of Bolton Abbey
- B6138 – through Soyland Moor

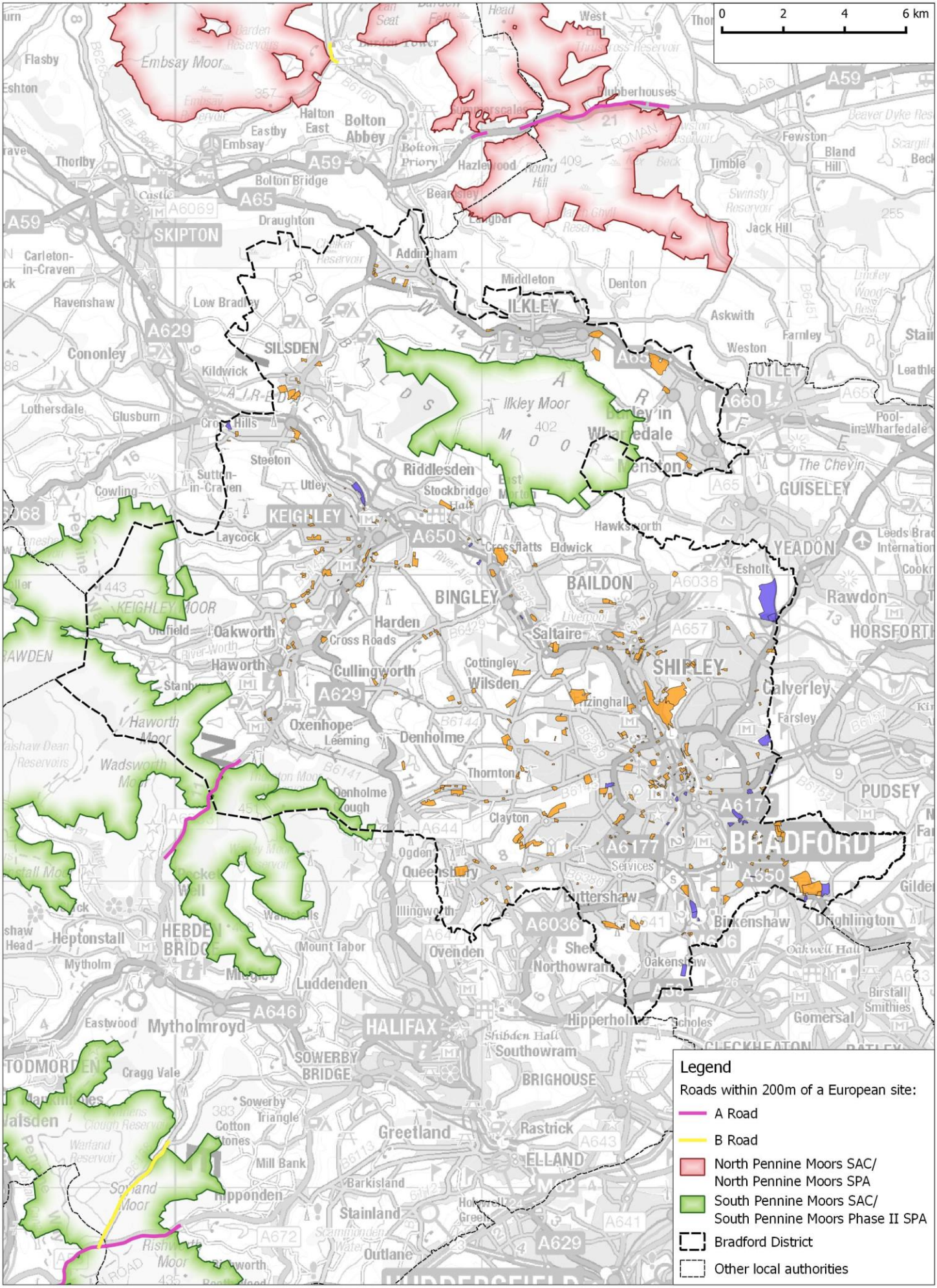
7.27 Also, not highlighted on Map 4, and potentially relevant, are the M62 which crosses the South Pennine Moors SPA/SAC at Moss Moor (to the south of the area shown on the map) and also some of the more minor roads around Ilkley Moor, where local development may have implications for traffic flows.

Implications from the Plan and next steps

7.28 The air quality policy EN8 identifies the need for air quality modelling work to be carried out to assess possible effects of the allocations and proposed growth on the European sites.

7.29 In order to rule out adverse effects on integrity in future iterations of the HRA it will be necessary to understand how traffic flows will change on the road sections identified in Map 4 and listed in paragraphs 7.26 and 7.27. Depending on the scale of traffic increases, it may be necessary to also undertake air quality modelling. It will be necessary to understand the vulnerability of the European site interest and the distribution of vulnerable features in relation to the road network. This will need to be a key area of focus for future iterations of the HRA.

Map 5: Main roads within 200m of European sites



References

Avian Ecology. (2019). *Bradford Foraging Bird Surveys 2019 on behalf of City of Bradford Metropolitan District Council*.

Baines, D. (1988). The effects of improvement of upland, marginal grasslands on the distribution and density of breeding wading birds (Charadriiformes) in northern England. *Biological Conservation*, *45*(3), 221–236. https://doi.org/10.1016/0006-3207(88)90141-3

Bertinussen, A. (2018). *Habitat suitability modelling for foraging European Golden Plover (Pluvialis apricaria) that breed on the South Pennine Moors Special Protection Area*. Report by Conservation First for Natural England.

Brown, A. F., Crick, H. Q. P., & Stillman, R. A. (1995). The distribution, numbers and breeding ecology of Twite Acanthis flavirostris in the south Pennines of England. *Bird Study*, *42*(2), 107–121. https://doi.org/10.1080/00063659509477157

Burfield, I. (2002). *The breeding ecology and conservation of the Ring Ouzel Turdus torquatus in Britain*. Queens College.

Caporn, S., Field, C., Payne, R., Dise, N., Britton, A., Emmett, B., Jones, L., Phoenix, G., Power, S., Sheppard, L., & Stevens, C. (2016). *Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on seminatural habitats of conservation importance.* (No. NECR210).

Chace, J. F., & Walsh, J. J. (2006). Urban effects on native avifauna: A review. *Landscape and Urban Planning*, *74*(1), 46–69. https://doi.org/10.1016/j.landurbplan.2004.08.007

Chapman, C., & Tyldesley, D. (2016). *Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects – a review of authoritative decisions* (Natural England Commissioned Report No. NECR207). Natural England.

CIEEM. (2021). *Advice on Ecological Assessment of Air Quality Impacts*. Chartered Institute of Ecology and Environmental Management.

Cox, J., & Pincombe, N. (2014). *Habitats Regulations Assessment for the City of Bradford District Core Strategy*. Urban Edge Environmental Consulting/Jonathan Cox Associates.

Finney, S. K., Pearce-Higgins, J. W., & Yalden, D. W. (2005). The effect of recreational disturbance on an upland breeding bird, the golden plover Pluvialis apricaria. *Biological Conservation*, *121*(1), 53–63.

Floyd, L., & Underhill-Day, J. (2013). *A literature review on the effects of pet cats on nearby protected wildlife sites*. Footprint Ecology Ltd Unpublished report for Breckland Council.

ICF GHK. (2013). *The economic impact of Natural England's National Nature Reserves* (Natural England Commissioned Report No. NECR131).

ICRT. (2011). *The Economic Potential of Nature Tourism in Eastern Yorkshire* (p. 61). http://mediafiles.thedms.co.uk/Publication/YS-EY/cms/pdf/YNT%20ICRT%20Report,%20Nature%20Tourism%20in%20Eastern%20Yorkshire.pdf

Keniger, L. E., Gaston, K. J., Irvine, K. N., & Fuller, R. A. (2013). What are the Benefits of Interacting with Nature? *International Journal of Environmental Research and Public Health*, *10*(3), 913–935. https://doi.org/10.3390/ijerph10030913

Langston, R. H. W., Smith, T., Brown, A. F., & Gregory, R. D. (2006). Status of breeding Twite Carduelis flavirostris in the UK. *Bird Study*, *53*(1), 55–63. https://doi.org/10.1080/00063650609461416

Lee, A. C. K., & Maheswaran, R. (2011). The health benefits of urban green spaces: A review of the evidence. *Journal of Public Health*, *33*(2), 212–222. https://doi.org/10.1093/pubmed/fdq068

Liley, D., Lake, S., Underhill-Day, J., Sharp, J., White, J., Hoskin, R., Cruickshanks, K., & Fearnley, H. (2010). *Welsh Seasonal Habitat Vulnerability Review*. Footprint Ecology / CCW.

Lowen, J., Liley, D., Underhill-Day, J., & Whitehouse, A. T. (2008). *Access and Nature Conservation Reconciliation: Supplementary guidance for England.* internal-pdf://NECR013 Access and N C Reconciliation - Supp Guidance-2802587904/NECR013 Access and N C Reconciliation - Supp Guidance.pdf

McDonald, R. I., & Boucher, T. M. (2011). Global development and the future of the protected area strategy. *Biological Conservation*, *144*(1), 383–392. https://doi.org/10.1016/j.biocon.2010.09.016

Mcdonald, R. I., Kareiva, P., & Forman, R. T. T. (2008). The implications of current and future urbanization for global protected areas and biodiversity conservation. *Biological Conservation*, *141*(6), 1695–1703. https://doi.org/10.1016/j.biocon.2008.04.025

Natural England. (2018). *Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations* (NEA No. 001). Natural England. http://publications.naturalengland.org.uk/file/5431868963160064

O'Neill, R. (2019). *Monitor of Engagement with the Natural Environment – The national survey on people and the natural environment. Headline report 2019* (NECR No. 275). Natural England and the Office for National Statistics. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/828552/Monitor_Engagement_Natural_Environment_2018_2019_v2.pdf

Pretty, J., Griffin, M., Peacock, J., Hine, R., Selens, M., & South, N. (2005). A countryside for health and well-being: The physical and mental health benefits of green exercise. *Countryside Recreation*, *13*(1), 2–7.

Richardson, M., Cormack, A., McRobert, L., & Underhill, R. (2016). 30 Days Wild: Development and Evaluation of a Large-Scale Nature Engagement Campaign to Improve Well-Being. *PLOS ONE*, *11*(2), e0149777. https://doi.org/10.1371/journal.pone.0149777

Robson, G. (1998). *The breeding ecology of curlew Numenius arquata on North Pennine moorland*. University of Sunderland.

Ross, K., Liley, D., Austin, G., Clarke, R. T., Burton, N. H., Stillman, R. A., Cruickshanks, K., & Underhill-Day, J. (2014). *Housing development and estuaries in England: Developing methodologies for assessing the impacts of disturbance to non-breeding waterfowl*. Footprint Ecology, unpublished report for Natural England.

Saunders, C., Selwyn, J., Richardson, S., May, V., & Heeps, C. (2000). *A review of the effects of recreational interactions within UK European marine sites*. UK CEED & Bournemouth University. file:///S:/reports%20%26%20pdfs/Papers%20linked%20to%20Endnote/CEED%20recreation%20marine%20sites.pdf

SLR. (2019). *Keighley and East Morton & Burley and Menston (Batch 1) foraging bird surveys*.

Stroud, D., Bainbridge, I. P., Maddock, A., Anthony, S., Baker, H., Buxton, N., Chambers, D., Enlander, I., Hearn, R. D., Jennings, K. R., Mavor, R., Whitehead, S., & Wilson, J. D. (2016). *The status of UK SPAs in the 2000s: The Third Network Review.* JNCC.

The Land Trust. (2018). *The Economic Value of Greenspaces*. The Land Trust.

Tyldesley, D., Chapman, C., & Machin, G. (2021). *The Habitats Regulations Handbook*. DTA Publications. https://www.dtapublications.co.uk/handbook/

Underhill-Day, J. C. (2005). *A literature review of urban effects on lowland heaths and their wildlife*. English Nature. internal-pdf://EN RR 623, John Day literature review of urban effects-3794804480/EN RR 623, John Day literature review of urban effects.pdf

Watermelon. (2019). *South Pennine Moors—Visitor Survey 2019 Fieldwork Report Prepared for the City of Bradford Metropolitan District Council*.

Weitowitz, D. C., Panter, C., Hoskin, R., & Liley, D. (2019). The effect of urban development on visitor numbers to nearby protected nature conservation sites. *Journal of Urban Ecology*, *5*(1). https://doi.org/10.1093/jue/juz019

Whittingham, M. J., Percival, S. M., & Brown, A. F. (2000). Time budgets and foraging of breeding golden plover Pluvialis apricaria. *Journal of Applied Ecology*, *37*(4), 632–646. https://doi.org/10.1046/j.1365-2664.2000.00519.x

Woods, M., McDonald, R. A., & Harris, S. (2003). Predation of wildlife by domestic cats Felis catus in Great Britain. *Mammal Review*, *33*(2), 174–188.

Yalden, D. W. (1992). The influence of recreational disturbance on Common Sandpipers Actitis hypoleucos breeding by an upland reservoir in England. *Biological Conservation*, *61*, 41–49.

Appendix 1: European Site Conservation Objectives

As required by the Directives, 'Conservation Objectives' have been established by Natural England, which should define the required ecologically robust state for each European site interest feature. All sites should be meeting their conservation objectives. When being fully met, each site will be adequately contributing to the overall favourable conservation status of the species or habitat interest feature across its natural range. Where conservation objectives are not being met at a site level, and the interest feature is therefore not contributing to overall favourable conservation status of the species or habitat, plans should be in place for adequate restoration.

Conservation objectives inform any HRA of a plan or project, by identifying what the interest features for the site should be achieving, and what impacts may be significant for the site in terms of undermining the site's ability to meet its conservation objectives

In 2012, Natural England issued a set of generic European site Conservation Objectives, which should be applied to each interest feature of each European site. The list of generic Conservation Objectives for each European site includes an overarching objective, followed by a list of attributes that are essential for the achievement of the overarching objective. Whilst the generic objectives currently issued are standardised, they are to be applied to each interest feature of each European site, and the application and achievement of those objectives will therefore be site specific and dependant on the nature and characteristics of the site.

In addition to the generic objectives, there is more detailed, supplementary site-specific information to underpin these generic objectives. This provides much more site-specific information, and this detail plays a fundamental role in informing HRA, and gives greater clarity to what might constitute an adverse effect on a site interest feature. Links in Appendix 2 provide access to both generic conservation objectives and the supplementary advice for each European site.

For SPAs the overarching objective is to:

> *'Avoid the deterioration of the habitats of qualifying features, and the significant disturbance of the qualifying features, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving the aims of the Birds Directive.'*

This is achieved by, subject to natural change, maintaining and restoring:

- The extent and distribution of the habitats of the qualifying features.
- The structure and function of the habitats of the qualifying features.
- The supporting processes on which the habitats of the qualifying features rely.

- The populations of the qualifying features.
- The distribution of the qualifying features within the site.

For SACs the overarching objective is to:

> *'Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.'*

This is achieved by, subject to natural change, maintaining and restoring:

- The extent and distribution of the qualifying natural habitats 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.

Appendix 2: Conservation Interest of European Sites

Links in the table cross-reference to the Natural England website and the relevant page with the site's conservation objectives. In the qualifying features column, for SPAs, "nb" denotes non-breeding and "b" breeding features. For SACs, # denotes features for which the UK has a special responsibility. Qualifying features are those listed on the Natural England website, designated sites view for the site in question. The descriptive text is adapted from Natural England's site improvement plan or the supplementary conservation advice. For Ramsar sites, the qualifying features and description are drawn from the Ramsar spreadsheet on the JNCC website[24], and the link cross-references to the Ramsar site information page.

European site	Qualifying features	Description
South Pennine Moors SAC	H4010 Northern Atlantic wet heaths with *Erica tetralix* H4030 European dry heaths H7130# Blanket bogs H7140 Transition mires and quaking bogs H91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles	This site covers the key moorland blocks of the Southern Pennines from Ilkley Moor in the north to the Peak District in the south. The moorlands are on a rolling dissected plateau formed from rocks of Millstone Grit at altitudes of between 300m – 600m and a high point of over 630m at Kinder Scout. The greater part of the gritstone is overlain by blanket peat with the coarse gravelly mineral soils and shales occurring only on the lower slopes.
North Pennine Moors SAC	H6130 Calaminarian grasslands of the *Violetalia calaminariae* H6210# Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) H7220# Petrifying springs with tufa formation (*Cratoneurion*) H6150 Siliceous alpine and boreal grasslands H7130# Blanket bogs H7230 Alkaline fens	The North Pennine Moors SAC forms part of the North Pennines National Character Area (NCA), a distinctive upland landscape characterised by remote upland moorlands divided by quiet dales at the northern end of the English Pennine ridge. It comprises some of the highest and most exposed moorland summits in England, with several major rivers, including the South Tyne, Wear and Tees, draining out to the north, east and south-east. It is bordered to the west by the Eden valley, to the north by the Tyne valley, to the east by the Durham lowlands and to the south by the Yorkshire Dales. The varied topography, hydrology, soils and underlying geology has contributed to a high degree of habitat heterogeneity. Vegetation is largely unenclosed heather moorland, either as blanket bog or drier alpine and sub-alpine heaths, with smaller areas of wetland,

[24] https://hub.jncc.gov.uk/assets/bc9b0905-fb63-4786-8e90-5f7851bb417d

European site	Qualifying features	Description
	H8110 Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) H8210 Calcareous rocky slopes with chasmophytic vegetation H8220 Siliceous rocky slopes with chasmophytic vegetation H91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles S1528 Saxifraga *hirculus*: Marsh saxifrage H4010 Northern Atlantic wet heaths with *Erica tetralix* H4030 European dry heaths H5130 *Juniperus communis* formations on heaths or calcareous grasslands	grassland, and other habitats, including a range of 'minority' habitats eg alpine pioneer formations, base-rich flushes, calaminarian grassland. Post-glacial relict flora and fauna are present. At the moorland fringes are areas of enclosed grassland including mountain hay meadows which have been managed at a relatively low level of agricultural intensification and so retain a diversity of meadow species.
Craven Limestone Complex SAC	H3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp H6130 Calaminarian grasslands of the *Violetalia calaminariae* H6210# Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) H6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) H7110# Active raised bogs H7220# Petrifying springs with tufa formation (Cratoneurion) H7230 Alkaline fens H8240# Limestone pavements H9180# Tilio-Acerion forests of slopes, screes and ravines S1092 *Austropotamobius pallipes*: White-clawed (or Atlantic stream) crayfish S1163 *Cottus gobio*: Bullhead S1902 *Cypripedium calceolus*: Ladys-slipper orchid	The Craven Limestone Complex includes the second most extensive area of calcareous grassland in the UK. It supports swards that exhibit exceptional structural diversity, ranging from hard-grazed through to tall herb-rich grasslands on un-grazed cliff ledges, woodland margins and around limestone pavements and screes. It is thus an important example of grassland-scrub transitions. The site supports large areas of mid-altitude limestone pavement, with a wide range of transitions to other habitats described above and woodlands on rocky slopes and ravines. There are large species-rich fen systems and extensive spring-fed flush fens throughout much of the site. The site also contains complexes of tufa forming springs associated with a range of other habitats including alkaline fens, calcareous grasslands, limestone pavements, cliffs and screes. Craven contains what are believed to be the largest expanses and type example of purple moor-grass – marsh hawk's-beard mire in the UK. Malham Tarn Moss is an active raised bog in an area overlying limestone where wetlands are more typically base-rich fens and which are represented on the lagg. Malham Tarn is considered the best example of an upland stonewort dominated lake in England and is the highest marl lake in the UK. The water drains from surrounding Carboniferous limestone and is nutrient-poor. The feeder streams and the tarn itself support populations of white-clawed crayfish while upland becks and streams with calcareous waters and stony beds support good numbers of bullhead. Craven Limestone Complex is also the single remaining native site for Lady's-slipper orchid.

European site	Qualifying features	Description
North Pennine Dales Meadows SAC	H6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) H6520 Mountain hay meadows	The North Pennine Dales Meadows SAC is a series of isolated fields within the higher parts of the enclosed valley bottoms of several north Pennine and Cumbrian valleys. The SAC is comprised of 58 component Sites of Special Scientific Interest (SSSI), which are located across the counties of Cumbria, Durham, Lancashire, North Yorkshire and Northumberland. It contains the major part of the remaining UK resource of mountain hay meadows and purple moor grass meadows, supporting a characteristic herb-rich vegetation unique to the Pennines and other upland areas of Northern England. The fields are part of the agricultural landscape and economy and are managed by summer cutting for hay and grazing through the rest of the year.
Denby Grange Colliery Ponds SAC	S1166 Triturus cristatus: Great crested newt	Denby Grange Colliery Ponds SAC lies in the valley of Stony Cliffe Beck, a tributary of the River Calder, Wakefield, West Yorkshire. To the immediate west is the site of the former Denby Grange colliery, now supporting a timber yard. The SAC supports three waterbodies within ancient, replanted woodland. The original breeding pond (Old Pond) was created by coal-mining activity and a second pond (Fire Pond) was created in 2000. Both ponds support breeding Great crested newts Triturus cristatus. A third non-breeding pond is present towards the site's northern boundary. In the 1990s this site supported the sixth-highest recorded count of Great crested newts for recent years in Great Britain and the largest known breeding colony of Great crested newts in West Yorkshire.
Rochdale Canal SAC	S1831 *Luronium natans*: Floating water-plantain	This section of the Rochdale Canal extends approximately 20 km from Littleborough to Failsworth, passing through urban parts of Rochdale and Oldham and the intervening areas of agricultural land (mostly pasture). Water supplied to the Rochdale Canal in part arises from the Pennines. This water is acidic and relatively low in nutrients, while water from other sources is relatively high in nutrients. The aquatic flora of the canal is thus indicative of a mesotrophic water quality (i.e. is moderately nutrient-rich) although there is evidence of some local enrichment. One species associated with mesotrophic conditions and found on the canal is Floating water-plantain (*Luronium natans*), a European Protected Species. The canal supports a diverse range of other aquatic flora, including a very wide range of pondweeds (*Potamogeton* spp) and in places there are good stands of emergent vegetation including plants such as water violet (*Hottonia palustris*). Marginal vegetation is rich in places and includes large stands of yellow flag (*Iris pseudacorus*) and occasionally the locally uncommon royal fern (*Osmunda regalis*). There is a rich invertebrate assemblage in excess of 112 species; 13 of these species are of local importance; two species are nationally

European site	Qualifying features	Description
		scarce, a water beetle (*Agabus uliginosus*) and the pea mussel (*Pisidium pulchellum*). Predatory macro-invertebrates such as caddis fly larvae, adult and larval water beetles, dragonfly and damselfly larvae and certain water bugs amongst a predominantly herbivore-detritivore community is indicative of a healthy structured ecosystem. Twelve species of coarse fish predate on these invertebrates.
South Pennine Moors Phase 2 SPA	A098(B) *Falco columbarius*: Merlin A140(B) *Pluvialis apricaria*: European golden plover Breeding bird assemblage: *Pluvialis apricaria* : European golden plover *Actitis hypoleucos*: Common sandpiper *Calidris alpina schinzii*: Dunlin *Carduelis flavirostris*: Twite *Gallinago gallinago*: Common snipe *Numenius arquata*: Eurasian curlew A222(B) *Oenanthe oenanthe*: Northern wheatear *Saxicola rubetra*: Whinchat *Tringa totanus*: Common redshank *Turdus torquatus*: Ring ouzel *Vanellus vanellus*: Northern lapwing *Asio flammeus*: Short-eared owl	The site includes the major moorland blocks of the South Pennines from Ilkley in the North to Leek and Matlock in the South. It covers extensive tracts of semi-natural moorland habitats including upland heath and blanket mire. The diverse mosaic of habitats contributes greatly to the ornithological interest, which comprise birds of prey and waders.
North Pennine Moors SPA	A082(B) *Circus cyaneus*: Hen harrier A098(B) *Falco columbarius*: Merlin A103(B) *Falco peregrinus*: Peregrine falcon A140(B) *Pluvialis apricaria* : European golden plover	The North Pennine Moor SPA includes parts of the Pennine moorland massif between the Tyne Gap (Hexham) and the Ribble - Aire corridor (Skipton). It encompasses extensive tracts of semi-natural moorland habitats, including upland heath and blanket bog. The SPA comprises some of the highest and most exposed moorlands in England. It is remote and has few settlements. Livestock grazing and driven grouse shooting are the dominant land use practices. Peaty soils cover extensive areas of the higher ground and it is subject to high rainfall, low temperatures and strong winds in both winter and summer.
Peak District Moors (South Pennine Moors Phase I) SPA	A222(B) *Asio flammeus*: Short-eared owl A098(B) *Falco columbarius*: Merlin A140(B) *Pluvialis apricaria*: European golden plover	The Dark Peak and the South West Peak. This is a landscape of large-scale sweeping moorlands, pastures enclosed by drystone walls, and gritstone settlements contained within narrow valleys. The soils within the SPA are generally acidic in nature and nutrient-poor and consist of varying depths of peat overlying a geology of sandstone, gritstone and sedimentary rock.

European site	Qualifying features	Description
		The geomorphology and landscape is one of large expanses of uplands and valleys with associated crags, ledges and escarpments. The Dark Peak is made of three mountain massifs reaching over 600m in altitude with a substantial area of blanket peat at 400-500m above sea level. Between these lie steep sided valleys with tributaries via the River Etherow to the Mersey and, via the rivers Derwent and Don, to the Humber. Impoundment for reservoir reflect the importance of these areas for the water supply of the major conurbations that lie nearby. The valleys also provide some of the last fragments of semi-natural woodland in the areas. To the south east the 'eastern moors' provide a lower and drier ridge of moorland and characteristic gritstone edges with a substantially wooded undercliff, this is an area of added interest for the range of physical remains reflecting a long period of settlement and use. In the south west the moors above Buxton and Leek provide a mosaic of moorland with bog, heath and rushy pasture mixed together.
Malham Tarn Ramsar	Ramsar criterion 1 Contains the highest marl lake in Britain, along with acidophilous bog, calcareous fen and soligenous mire. Ramsar criterion 2 Supports the nationally rare alpine bartisia *Bartsia alpina* and narrow small reed *Calamagrostis stricta* and seven nationally scarce species. Supports five listed British Red Data Book invertebrates including the caddis fly *Agrypnia crassicornis*.	A wetland of international importance comprising areas of open water, fen, soligenous fen and raised bog. These habitats hold important communities of rare plant species and wetland invertebrates, and are of types now highly restricted due to drainage and land use changes.