Habitats Regulations Assessment of the Newark and Sherwood Publication Amended Core Strategy

Appropriate Assessment

June 2018

LEPUS CONSULTING
LANDSCAPE, ECOLOGY, PLANNING & URBAN SUSTAINABILITY

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LC-372	Document Control Box
Client	Newark and Sherwood District Council
Report Title	Appropriate Assessment of the Newark and Sherwood PACS
Filename	LC-372_Newark&Sherwood_AA_9_220618ND.docx
Date	June 2018
Author	CW & JE
Reviewed	JE & NJD
Approved	NJD

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About this report & notes for the reader

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The report is not intended to be a substitute for Environmental Impact Assessment or Strategic Environmental Assessment.

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Acronyms

AA	Appropriate Assessment
DEFRA	Department for Environment, Food, and Rural Affairs
DMRB	Design Manual for Roads and Bridges
DPD	Development Plan Document
EA	Environment Agency
ERF	Energy Recovery Facility
EU	European Union
GIS	Geographic Information Systems
HRA	Habitats Regulations Assessment
IBA	Important Bird Area
IPENS	Improvement Programme for England's Natura 2000 sites
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee
LPA	Local Planning Authority
LSE	Likely Significant Effect
MENE	Monitor of Engagement with Natural Environment
NBGRC	Nottinghamshire Biological and Geological Records Centre
NCA	Natural Character Area
NE	Natural England
NPPF	National Planning Policy Framework
NSDC	Newark and Sherwood District Council
PACS	Publication Amended Core Strategy
ppSPA	Possible Potential Special Protection Area
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SANGS	Suitable Alternative Natural Greenspace
SIP	Site Improvement Plan
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

Executive Summary

E1. This is an Appropriate Assessment of the Newark and Sherwood Publication Amended Core Strategy (PACS). It has been prepared under Regulation 102 of the Conservation of Habitats and Species Regulations 2010 (the Habitats Regulations).

E2. Previous Habitats Regulations Assessment (HRA) work to inform the evolution of the PACS development plan document has included scoping (March, 2016), screening (January, 2017) and re-screening (July, 2017) of different iterations of the document as it has been prepared. To inform the preparation of the PACS, the Council previously published a document called 'Preferred Approach' (a three part document with information in relation to Strategy - July, 2016; Sites and Settlements – February 2017; and Town Centre and Retail – February 2017). The Preferred Approach document was aimed at informing the provisional creation of a new Local Plan for Newark and Sherwood.

E3. The findings of the 2017 HRA Screening report concluded that likely significant effects (LSE) were associated with the Preferred Approach. LSEs included: air quality, disturbance from dog walking recreation and predation from domestic animals.

E4. Later that year, an HRA re-screening process (July, 2017) was undertaken. Following established best practice procedures, this process concluded that a likely significant effect (LSE) from air quality changes on Birkland and Bilhaugh SAC could be objectively ruled out. This decision was informed by detailed air quality modelling.

E5. The re-screening process also concluded that LSEs relating to disturbance from dogs and predation from pets on Sherwood Forest ppSPA could also be objectively ruled out. Natural England agreed with this conclusion.

E6. However, the conclusion of 'no LSEs' at the re-screening stage relied upon the incorporation of mitigation and the development of subsequent mitigating policies within the PACS. Recent case law has determined that this approach is no longer sound. The 2018 'Sweetman' Ruling determined that mitigation measures are only permitted as part of an Appropriate Assessment.

E7. Therefore the purpose of this document is to provide an HRA AA of the PACS document so that the HRA of the PACS remains legally compliant in light of this recent landmark ruling in case law.

E8. This AA document supersedes the re-screening HRA document.

E9. The preparation of the AA presents an opportunity to screen the latest version of the PACS. Screening results are enclosed in this report; no new LSEs have been identified. The AA has also incorporated the latest bird survey data which has become available since the screening report was prepared.

E10. Following a thorough analysis of the potential impacts of the PACS on Sherwood Forest ppSPA, all LSEs have been objectively ruled out. Policies in the PACS will help to ensure adverse impacts on Sherwood Forest ppSPA and its qualifying features are avoided or mitigated.

E11. The PACS is not expected to result in any LSE and therefore satisfies the Habitat Regulations. The PACS and related HRA process is considered to be legally compliant in light of case law (i.e. the 'Sweetman Case' of April 2018).

1 Introduction

1.1 Background

1.1.1 Appropriate Assessment (AA) of the PACS is a requirement of Regulation 102 of the Conservation of Habitats and Species Regulations 2010[1] (the Habitats Regulations).

1.1.2 Consequently, Lepus Consulting has prepared this Habitats Regulations Assessment (HRA) AA report of the Newark and Sherwood Publication Amended Core Strategy (PACS) on behalf of Newark and Sherwood District Council (NSDC).

1.2 The Publication Amended Core Strategy

1.2.1 The PACS sets out NSDC's spatial policy framework for delivering the development and change needed to realise the Council's vision for the District up to 2033.

1.2.2 The PACS is part of the District's self-titled 'Plan Review'. This is the process of reviewing all planning policy documents as part of good plan making and keeping up to date with changes in case law, changing local circumstances and national planning policy.

1.2.3 The District Council previously consulted on a Plan Review Issues Paper in October 2015 and from the responses to this produced a number of Preferred Approach documents in July 2016 and January 2017. Using the results of these consultations, the Council has prepared the PACS.

1.3 LSEs identified through the HRA screening process

1.3.1 An HRA screening report was prepared in January 2017 which appraised the January 2017 Preferred Approach document.

1.3.2 The findings of the 2017 HRA screening report concluded that likely significant effects (LSE) were associated with the Preferred Approach. LSEs included:

- Predation of birds from domestic animals;
- Disturbance to ground nesting birds from dog walking; and

[1] UK Government, (2010), The Conservation of Habitats and Species Regulations 2010

- Air quality effects on vegetation.

1.3.3 This AA carefully considers the extent to which these LSEs can be avoided or mitigated.

1.3.4 This AA document includes additional screening of those modifications made between the Preferred Approach stage and the PACS (see **Chapter 3** and **Appendix C**). It should be noted that the HRA screening of the three Preferred Approach documents included consideration of local allocations that are not necessarily included in the PACS since the three Preferred Approach documents are expansive and from which selected components have been brought into the PACS. Other elements will likely form part of the forthcoming review of the Allocations Development Plan Document (DPD).

1.4 Relevant European sites

1.4.1 The following European sites were identified using a 15km area of search around the district of Newark and Sherwood, as well as including sites which are potentially connected (e.g. hydrologically) beyond this distance:

- Birklands & Bilhaugh SAC; and
- Sherwood Forest ppSPA.

1.4.2 European Sites provide valuable ecological infrastructure for the protection of rare, endangered or vulnerable natural habitats and species of exceptional importance within Europe. These sites consist of Special Areas of Conservation (SACs), designated under the Habitats Directive, and Special Protection Areas (SPAs), classified under European Directive 2009/147/EC *on the conservation of wild birds* (the Birds Directive). Additionally, Government policy requires that sites listed under the Ramsar Convention (The Convention on Wetlands of International Importance, especially as Waterfowl Habitat) are to be treated as if they are fully designated European sites for the purpose of considering development proposals that may affect them.

1.4.3 The phrase 'European site' refers to Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) unless otherwise stated. Sherwood Forest ppSPA is a possible potential Special Protection Area. Based on breeding populations of nightjar (*Caprimulgus europaeus*) and woodlark (*Lullula arborea*), Natural England view a future recommendation for SPA classification of Sherwood Forest as being possible[2]. Natural England therefore recommends adopting a 'risk-based' approach whereby Local Planning Authorities assess and mitigate the likely impacts of all proposals on the nightjars and woodlarks of Sherwood Forest, as it is a possible potential SPA.

1.4.4 There is no legal obligation to include Sherwood Forest ppSPA in this assessment. However, in accordance with Natural England's advice, it will be included to ensure that all potential harmful impacts of the PACS on the breeding populations of nightjar and woodlark in the Sherwood Forest area can be adequately avoided or minimised. For the purpose of this report, Sherwood Forest ppSPA will be included in the term 'European site'.

1.4.5 The full list of the nature of, and conservation objectives of, both sites can be found in **Appendix A**.

1.5 The requirement for Appropriate Assessment

1.5.1 Recent case law in the form of the 2018 'Sweetman' Ruling has determined that mitigation measures are only permitted as part of an Appropriate Assessment. The HRA Screening Report (January, 2017) was re-screened in July 2017. Natural England were consulted on this document and confirmed that they agreed with the report's findings in terms of the conclusions reached (see **Appendix F**); the findings concluded that there were no LSEs alone or in-combination.

1.5.2 However since the report included mitigation measures to avoid or reduce the likely significant effects of the plan, such a report would not comply with the latest case law (see **Box 1**).

1.5.3 Therefore, the purpose of this document is to provide an HRA AA of the PACS document so that the HRA of the PACS remains legally compliant in light of this recent landmark ruling in case law.

[2] Natural England (2014) Advice Note to Local Planning Authorities regarding the consideration of likely effects on the breeding population of nightjar and woodlark in the Sherwood Forest region

Box 1: The Sweetman Case (April 2018)

A recent decision by the Court of Justice of the European Union (CJEU) *People Over Wind and Sweetman v Coillte Teoranta* (C-323/17) (from here on known as the 'Sweetman Case') has important consequences for the HRA process in the UK.

In summary, the ruling reinforces the position that if an LSE is identified during the HRA screening stage, it is not appropriate to incorporate mitigation measures to prevent the LSE and an appropriate assessment of the potential effects and the possible avoidance or mitigation measures is required. The 're-screening the Plan after mitigation has been applied' stage of Figure 2.1 is no longer an option which would be legally compliant:

"*Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site.*"

The AA ensures a comprehensive approach to the HRA process, ensuring the report remains legally compliant and that the PACS satisfies the Habitats Regulations.

1.6 Appropriate Assessment outputs

1.6.1 The outputs of this AA report include information in relation to:

- The HRA process;
- Methodology for HRA;
- Assessment of likely significant effects on European Sites;
- Considerations of how to mitigate likely adverse impacts; and
- Conclusions and recommendations.

2 HRA Methodology

2.1 Regulations and Guidance

2.1.1 The application of HRA to land-use plans is a requirement of the Conservation of Habitats and Species Regulations 2010, the UK's transposition of European Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). HRA applies to plans and projects, including all Local Development Documents in England and Wales.

2.1.2 This HRA has been informed by the following guidance:

- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites' - European Commission, 2001[3];
- The Habitat Regulations Assessment Handbook - David Tyldesley and Associates, 2013 (in particular Part F: '*Practical Guidance for the Assessment of Plans under the Regulations*'); and
- The Appropriate Assessment of Spatial Plans in England – A Guide to How, When and Why to do it - RSPB, 2007.

2.2 Habitats Regulations Assessment Methodology

2.2.1 HRA is a rigorous precautionary process centred around the conservation objectives of a European Site's qualifying interests. It is intended to ensure that designated European Sites are protected from impacts that could adversely affect their integrity, as required by the Birds and Habitats Directives. A step-by-step guide to this methodology is outlined in the Practical Guidance and has been reproduced in **Figure 2.1**.

2.2.2 The Screening Process evaluates plan proposals to identify any likely significant effects associated with the plan that may affect European sites.

[3] Assessment of plans and projects significantly affecting European sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. European Commission Environment DG, November 2001

2.2.3 The screening process uses a number of evaluation codes to summarise whether or not a plan component is likely to have significant effects alone or in-combination. See **Table 2.1.**

Table 2.1: Assessment and reasoning categories from Chapter F of The Habitats Regulations Assessment Handbook

Assessment and reasoning categories from Chapter F of The Habitats Regulations Assessment Handbook (DTA Publications, 2013):
A. General statements of policy / general aspirations
B. Policies listing general criteria for testing the acceptability / sustainability of proposals
C. Proposal referred to but not proposed by the plan
D. Environmental protection / site safeguarding policies
E. Policies or proposals that steer change in such a way as to protect European sites from adverse effects
F. Policies or proposals that cannot lead to development or other change
G. Policies or proposals that could not have any conceivable or adverse effect on a site
H. Policies or proposals the (actual or theoretical) effects of which cannot undermine the conservation objectives (either alone or in combination with other aspects of this or other plans or projects)
I. Policies or proposals with a likely significant effect on a site alone
J. Policies or proposals not likely to have a significant effect alone
K. Policies not likely to have a significant effect either alone or in combination
L. Policies or proposals likely to have a significant effect in combination

2.2.4 AA provides an analysis of LSEs identified during the HRA screening process. It considers the nature, magnitude and permanence of potential effects in order to inform the plan making process.

2.3 What is a Likely Significant Effect?

2.3.1 The DTA guidance provides the following interpretation of LSE:

"In this context, 'likely' means risk or possibility of effects occurring that cannot be ruled out on the basis of objective information. 'Significant' effects are those that would undermine the conservation objectives for the qualifying features potentially affected, either alone or in combination with other plans or projects… even a possibility of a significant effect occurring is sufficient to trigger an 'appropriate assessment'."[4]

2.3.2 With reference to a species' given conservation status in the Habitats or Birds Directives, the following examples would be considered to constitute a significant effect:

[4]Tyldesley, D. (2013) The Habitats Regulations Assessment Handbook – Chapter F. DTA Publications

- Any event which contributes to the long-term decline of the population of the species on the site;
- Any event contributing to the reduction or to the risk of reduction of the range of the species within the site; and
- Any event which contributes to the reduction of the size of the habitat of the species within the site.

2.3.3 Rulings from the 2012 'Sweetman[5]' case provides further clarification:

"*The requirement that the effect in question be 'significant' exists in order to lay down* ***a de minimis threshold****. Plans or projects that have no appreciable effect on the site are thereby excluded.* ***If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill.***"

2.3.4 Therefore, it is not necessary for NSDC to show that the PACS will result in no effects whatsoever on any European site. Instead, NSDC are required to show that the PACS, either alone or in-combination with other plans and projects, will not result in an effect which undermines the conservation objectives of one or more qualifying features.

2.3.5 Determining whether an effect is significant requires careful consideration of the environmental conditions and characteristics of the European site in question, as per the 2004 'Waddenzee[6]' case:

2.3.6 "in assessing the potential effects of a plan or project, their significance must be established in the light, inter alia, of the characteristics and **specific environmental conditions of the site** concerned by that plan or project".

[5] Source: EC Case C-258-11 Reference for a Preliminary Ruling, Opinion of Advocate General Sharpston 'Sweetman' delivered on 22nd November 2012 (para 48)
[6] Source: EC Case C-127/02 Reference for a Preliminary Ruling 'Waddenzee' 7th Sept 2004 (para 48)

2.4 Addressing LSEs

2.4.1 The hierarchy of intervention is important: where significant effects are likely or uncertain, plan makers must firstly seek to avoid the effect through, for example, a change of policy. If this is not possible, mitigation measures should be explored to remove or reduce the LSE. If neither avoidance nor mitigation is possible, alternatives to the Plan should be considered. Such alternatives should explore ways of achieving the Plan's objectives that do not adversely affect European sites.

2.4.2 Measures should be proportionate to the level of risk, and to the desired level of protection. They should be provisional in nature pending the availability of more reliable scientific data. If no suitable alternatives exist, plan-makers must demonstrate under the conditions of Regulation 103 of the Habitats Regulations that there are Imperative Reasons of Overriding Public Interest (IROPI) in order to continue with the proposal.

2.4.3 Natural England, or the relevant statutory body, is also consulted over the findings of the HRA.

2.5 Dealing with uncertainty

2.5.1 Uncertainty is an inherent characteristic of HRA and decisions can be made only on currently available and relevant information. This concept is reinforced in the 7th September 2004 'Waddenzee' ruling[7]:

"However, the necessary certainty cannot be construed as meaning absolute certainty since that is almost impossible to attain. Instead it is clear from the second sentence of Article 6(3) of the habitats directive that the competent authorities must take a decision having assessed all the relevant information which is set out in particular in the appropriate assessment. The conclusion of this assessment is, of necessity, subjective in nature. Therefore, the competent authorities can, from their point of view, be certain that there will be no adverse effects even though, from an objective point of view, there is no absolute certainty."

2.6 The Precautionary Principle

2.6.1 The HRA process is characterised by the precautionary principle. This is described by the European Commission as being:

[7]EC Case C-127/02 Reference for a Preliminary Ruling 'Waddenzee' 7th September 2004 Advocate General's Opinion (para 107)

"If a preliminary scientific evaluation shows that there are reasonable grounds for concern that a particular activity might lead to damaging effects on the environment, or on human, animal or plant health, which would be inconsistent with protection normally afforded to these within the European Community, the ***Precautionary Principle*** *is triggered."*

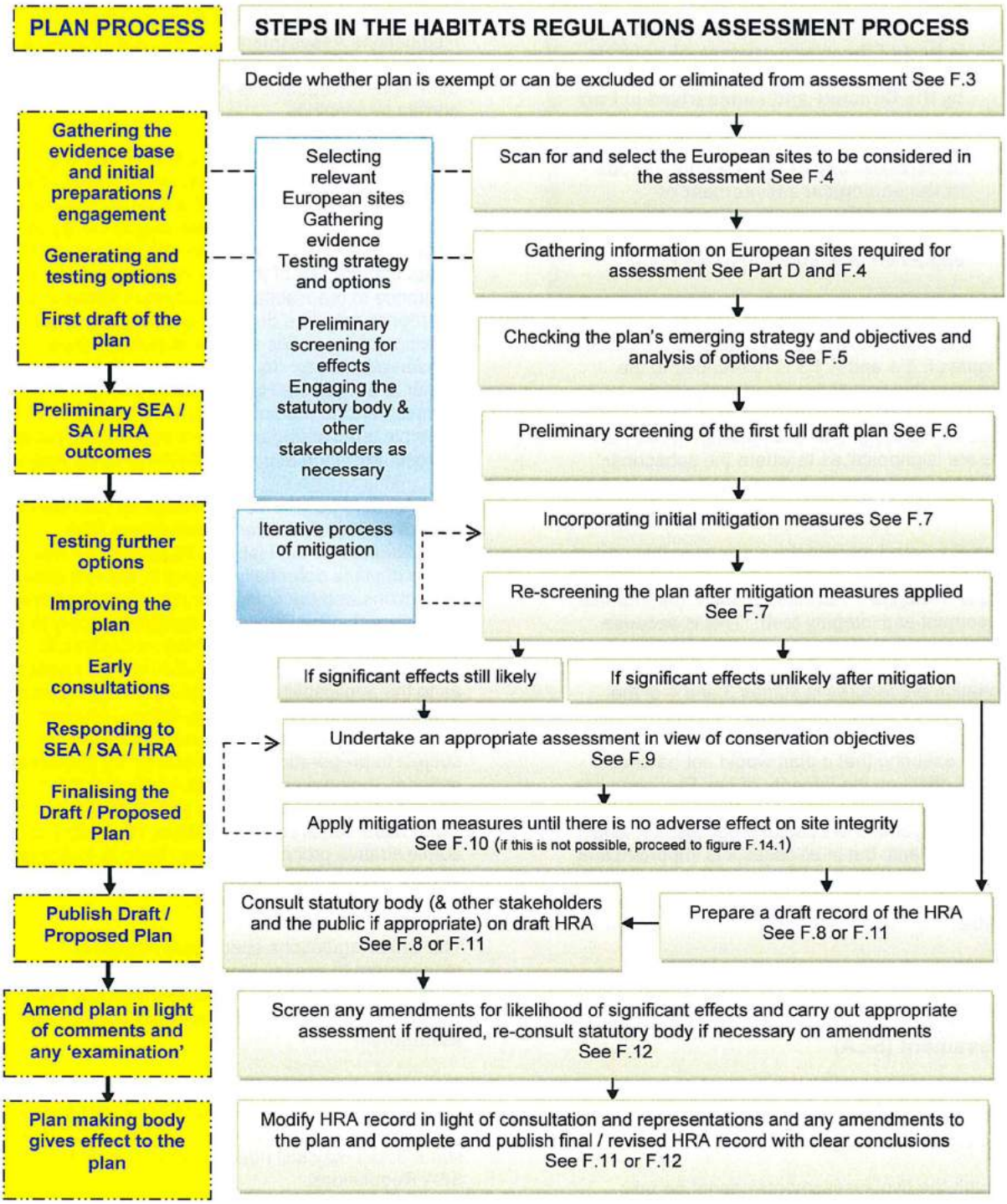

Figure 2.1: Relationship of steps in the Habitats Regulations Assessment with a typical plan-making process (reproduced from DTA, 2013[8]).

[8] Tyldesley, D. (2013) The Habitats Regulations Assessment Handbook – Chapter F. DTA Publications

3 Screening

3.1 Previous reports

3.1.1 In March 2016, Lepus prepared the HRA scoping report[9] on behalf of NSDC. This report identified the key HRA issues in the district.

3.1.2 In December 2016 Lepus prepared the initial HRA screening report[10]. This report considered the impacts of policies proposed in the Preferred Approach on European sites and was sent to Natural England, the relevant statutory body, for their comments and review.

3.1.3 Natural England responded to the HRA screening report consultation in their letter dated 08 March 2017 (ref: 206193). In their response, Natural England requested further information before agreeing that an LSE on all European sites could be ruled out (see Appendix X).

3.1.4 Natural England suggested that following Likely Significant Effects (LSEs) could not be objectively ruled out:

- **An LSE on Birklands & Bilhaugh SAC due to air pollution stemming from traffic on roads within 200m of the SAC caused by developments in the PACS;**
- **An LSE due to pet cat predation of nightjar and woodlark stemming from the increase in the number of pet cats within 400m of Important Bird Areas; and**
- **An LSE of dogs disturbing nightjar and woodlark due to the increase in dogs being walked in Important Bird Areas.**

[9] Lepus Consulting (2016) Habitat Regulations Assessment Scoping Report of the Newark and Sherwood District Local Plan Review, March 2016
[10] Lepus Consulting (2017) Habitat Regulations Assessment of Newark and Sherwood Local Plan Review, HRA Screening Document, January 2017

3.1.5 Further information was subsequently supplied in the next iteration of the HRA screening[11], which more precisely established the potential nature, magnitude and permanence of potential effects. Mitigation measures were considered and ultimately an LSE was objectively ruled out on all European sites. Natural England agreed with this conclusion (see **Appendix E**).

3.1.6 The Sweetman Ruling 2018 renders this re-screening document to be potentially unlawful. On this basis, the re-screening report has been replaced by this AA report.

3.1.7 The preparation of the AA presents an opportunity to screen the latest version of the PACS. The screening results of the PACS can be found in **Appendix C**. This assesses all policies listed in the PACS. Some of these policies that have already been assessed in the 'Preferred Approach' but have been replicated for ease of assessment.

3.1.8 The AA has also incorporated the latest available bird survey data which has become available since the screening report was prepared (see **Appendix D**).

3.2 Identified LSEs

3.2.1 On the basis of the screening results, the following LSEs are explored in this AA report:

- **Air pollution impacts on Birklands & Bilhaugh SAC due to air pollution stemming from traffic on roads within 200m of the SAC caused by developments in the PACS;**
- **Pet cat predation of nightjar and woodlark stemming from the increase in the number of pet cats within 400m of Important Bird Areas; and**
- **Disturbance from dogs to nightjar and woodlark due to the increase in dogs being walked in Important Bird Areas.**

[11] Lepus Consulting (2017) Habitat Regulations Assessment of the Newark and Sherwood Local Plan Review, HRA Re-Screening Report, July 2017

Table 3.1: Summary of PACS components associated with LSEs

Section of the document	Assessment	Proposed development	Screening conclusion (Category) see **Table 2.1**
Core Policy 2	Rural Affordable Housing	The District Council will seek to secure the provision of affordable housing on rural affordable housing 'exception sites'.	**Screened in (L)** • Potential air quality effects • Cat predation • Disturbance from dog walking
Core Policy 11	Rural Accessibility	The District Council will promote rural accessibility to services, facilities and employment.	**Screened in (L)** • Potential air quality effects
Policy NAP 1	Newark Urban Area	Promote Newark Urban Area as a focus for residential, commercial and leisure activity.	**Screened in (L)** • Potential air quality effects • Disturbance from dog walking
Policy NAP 2a	Land South of Newark	A strategic site for 3,150 dwellings, employment land, two local centres, comprising retail, service, employment and community uses; and associated green, transport and other infrastructure.	**Screened in (L)** • Potential air quality effects • Disturbance from dog walking
Policy NAP 2B	Land East of Newark	A strategic site for 1000 dwellings, a local centre, comprising retail, service, employment and community uses; and associated green, transport and other infrastructure	**Screened in (L)** • Potential air quality effects • Disturbance from dog walking
Policy NAP 2C	Land around Fernwood	A strategic site for 3,200 dwellings,; employment development (15 hectares); a local centre, comprising retail, service, employment and community uses; and associated green, transport and other infrastructure	**Screened in (L)** • Potential air quality effects • Disturbance from dog walking
Policy ShAP 4	Land at Thoresby Colliery	A strategic site for 800 dwellings, 10ha of employment land, a 'community centre', comprising leisure and community uses along with retail to meet local needs; and associated green, transport and other infrastructure.	**Screened in (L)** • Potential air quality effects • Cat predation • Disturbance from dog walking

4 Updated Nightjar and Woodlark data for Sherwood Forest ppSPA

4.1 Background

4.1.1 Sherwood Forest is a possible potential Special Protection Area (ppSPA). Based on breeding populations of nightjar (*Caprimulgus europaeus*) and woodlark (*Lullula arborea*), Natural England view a future recommendation for SPA classification of Sherwood Forest as being possible[12]. Natural England therefore recommends adopting a 'risk-based' approach whereby Local Planning Authorities (LPAs) assess and mitigate the likely impacts of all proposals on the nightjars and woodlarks of Sherwood Forest.

4.1.2 In accordance with Natural England's advice, Sherwood Forest ppSPA has been included to ensure that all potential impacts of the PACS on the breeding populations of nightjar and woodlark in the Sherwood Forest area can be adequately avoided and/or minimised. Following a Public Inquiry in 2011, the Secretary of State refused planning permission for an Energy Recovery Facility (ERF) on land at the former Rufford Colliery site at Rainworth. This was due to the likely effects on breeding populations of nightjar and woodlark[13].

4.1.3 Natural England has drawn a boundary of Sherwood Forest ppSPA based on areas of greatest ornithological interest for breeding nightjar and woodlark (see **Appendix D** and **Figure 4.1**). There is an ongoing consideration from Natural England as to whether this boundary should be expanded to include populations and habitats of the Annex 1 species honey buzzard (*Pernis apivorus*) in the north. This boundary was submitted as evidence in the Rufford ERF Public Inquiry and was used by the Inspector to inform his ruling. This boundary of Sherwood Forest ppSPA is therefore used in this assessment.

[12] Natural England (2014) Advice Note to Local Planning Authorities regarding the consideration of likely effects on the breeding population of nightjar and woodlark in the Sherwood Forest region

[13] Communities and Local Government (2011) Town And Country Planning Act 1990 – Section 77. APPLICATION BY VEOLIA ES NOTTINGHAMSHIRE LIMITED LAND AT FORMER RUFFORD COLLIERY, RAINWORTH, NOTTINGHAMSHIRE NG21 OET. APPLICATION REF: 3/07/01793/CMW Available online at: http://webarchive.nationalarchives.gov.uk/20120919132719/ http:/www.communities.gov.uk/documents/planning-callins/pdf/1914959.pdf Accessed 19.05.17

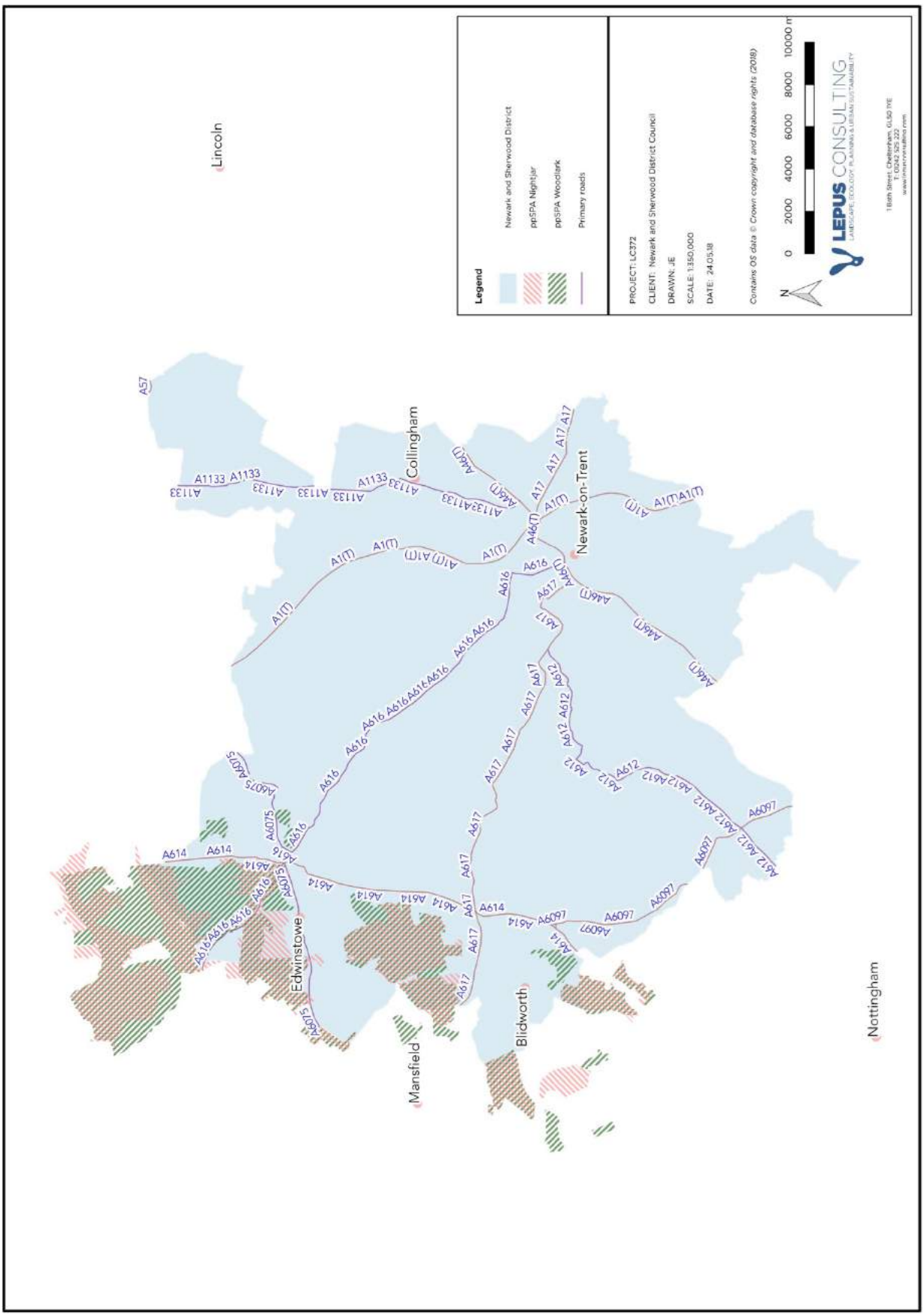

Figure 4.1: Woodlark and nightjar important bird areas (IBAs), and where IBAs for both species overlap (appears brown) in relation to Newark and Sherwood.

4.2 Habitats and designations in Sherwood Forest ppSPA

4.2.1 The precise breakdown of habitats in Sherwood Forest ppSPA is not well established. The ppSPA sits within the Sherwood Forest Natural Character Area (NCA), which is comprised of the following habitats[14]:

- 65% farmland;
- 16% urban land;
- 10% coniferous woodland;
- 10% broad-leaved woodland;
- 1.6% Ancient Woodland;
- 2% heathland and/or acid grassland; and
- 2.5% other habitats of ecological importance.

4.2.2 Within the ppSPA, there are a number of other statutory and non-statutory ecological designations which afford varying levels of protection. These include:

- Birklands and Bilhaugh SAC;
- Foxcovert Plantation, Nottinghamshire Wildlife Trust Nature Reserve;
- Rainsworth Water Local Nature Reserve;
- Cockglode and Rotary Wood Local Nature Reserve;
- Sherwood Heath Local Nature Reserve;
- Sherwood Forest National Nature Reserve;
- Rainworth Heath SSSI;
- Strawberry Hill Heath SSSI;
- Birklands West and Ollerton Corner SSSI;
- Birklands and Bilhaugh SSSI;
- Thoresby Lake SSSI;
- Welbeck Lake SSSI; and
- Clumber Park SSSI.

[14] Sherwood Habitats Strategy Group (2015) The State of Nature in Sherwood Report 2015, 1st Edition

4.2.3 There are various recreational activities and uses of the ppSPA that will likely attract visitors from a wide catchment area. Activities include Sherwood Forest Country Park and Visitor Centre, Rufford Abbey and Country Park and the Centre Parcs holiday resort near Sherwood Pines Forest.

4.3 Important Bird Areas

4.3.1 Approximately 7,285ha of Sherwood Forest ppSPA has been recognised as suitable habitat for nightjar and 9,225ha for woodlark. These Important Bird Areas (IBAs) frequently overlap. In order to maintain the integrity of Sherwood Forest ppSPA, and to ensure it can contribute to the aims of the Wild Birds Directive, it is therefore important to maintain and restore:

- The extent and distribution of the habitats of nightjar and woodlark;
- The structure and function of the habitats of the nightjar and woodlark;
- The supporting processes on which these habitats rely;
- The populations of nightjar and woodlark; and
- The distribution of nightjar and woodlark within the site.

4.3.2 With these key environmental conditions in mind, the following adverse effects would be considered to be significant:

- Any event which contributes to the long-term decline of the population of nightjar and woodlark;
- Any event contributing to the reduction, or to the risk of reduction, of the range of the nightjar and woodlark within the site; and
- Any event which contributes to the reduction of the size of the habitat of the nightjar and woodlark within the site.

4.3.3 As per Article 6(2) of the Habitats Directive;

"Disturbance of a species occurs on a site when the population dynamics data for this site show that the species could no longer constitute a viable element of it in comparison to the initial situation."

4.4 Nightjar in Sherwood Forest ppSPA

4.4.1 Sherwood Forest ppSPA supports a population of breeding nightjar[15]. The normal counting unit for nightjars is churring males. In 2004 the UK population of nightjar was estimated at 4,600 churring males[16]. The threshold for SPA classification is to support 1% of the UK population, which for nightjars would be 46 churring males. The most up-to-date nightjar data from Nottinghamshire Biological and Geological Records Centre (NBGRC) reveal the number of territories in Sherwood Forest, based on the number of churring males without adjustment, recorded during a 2016 survey, to be 90. Each territory is approximately 1km^2. Further analysis of the data gives a minimum estimate of 63 pairs, which is a slight decline from the1987 recorded levels of 67.

4.4.2 Recently, a steep linear decrease in the number of successful fledglings per breeding attempt has become evident, with studies suggesting nest failure is most likely in areas frequented by walkers and dogs.[17]

4.4.3 **Figure 4.2**, repeated from the NBGRC report, shows the number of churring males recorded across Sherwood Forest. This shows a fairly even distribution across the ppSPA, although populations might be more dense in the more northern portions of the forest. This distribution of nightjar in Sherwood, according to **Figure 4.2**, accords well with the IBA's prepared by Natural England (see **Appendix D** and **Figure 4.1**).

4.4.4 The 2004 national nightjar survey[18] estimated a 36% increase in the UK population. Sherwood Forest is bucking this trend with its minor decline. The 2004 national survey also estimated a density of 0.78 males/km^2 in the Midlands. The density at Sherwood Forest is thought to be 0.66 males/km^2 (63 males across 96m^2).

[15] RSPB Futurescapes Sherwood Forest Available online at: https://www.rspb.org.uk/Images/sherwood-forest_tcm9-281889.pdf Accessed 19.05.17
[16] Conway, G., Wotton, S., Henderson, I., Langston, R., Drewitt, A. & Currie, F. (2007) Status and distribution of European Nightjars Caprimulgus europaeus in the UK in 2004. Bird Study 54: 98–111
[17] Langston, R.H.W., Liley, D., Murison, G., Woodfield, E. & Clarke, R.T. (2007) What effects do walkers and dogs have on the distribution and productivity of breeding European Nightjar Caprimulgus europaeus? Ibis 149, supplement 1: 27–36
[18] Conway, G., Wotton, S., Henderson, I., Langston, R., Drewitt, A. & Currie, F. (2007) Status and distribution of European Nightjars Caprimulgus europaeus in the UK in 2004. Bird Study 54: 98–111

4.4.5 Habitat requirements for nightjar include[19]:

- Heathland;
- Open woodland;
- Clearings; and
- Heterogenic and semi-open natural habitats for foraging and nesting.

4.5 Woodlark in Sherwood Forest ppSPA

4.5.1 Populations of woodlark in Sherwood Forest are less well established. Their territories are considered to average approximately 3.4ha, ranging from 0.9 to 8.3ha, whilst male territories rarely, if ever, overlap[20]. The mean distance woodlark travel from nest to forage site is 3.1km, with the majority travelling between 2km and 4km[21].

4.5.2 Their habitat requirements include:

- Lowland heathland with short, sparse, natural developed turf interspersed with tussocky vegetation;
- A high abundance of invertebrate prey on bare ground;
- Heterogeneous land type with two to four land cover types suitable for foraging and nesting.

[19] Sierro, Antoine, et al. "Habitat use and foraging ecology of the nightjar (Caprimulgus europaeus) in the Swiss Alps: towards a conservation scheme." Biological conservation 98.3 (2001): 325-331.
[20] Sirami, C., Brotons, L., & Martin, J. L. (2011). Woodlarks Lullula arborea and landscape heterogeneity created by land abandonment. Bird Study, 58(1), 99-106
[21] Bright. J. A., Langston. R. H. W. and Anthony. S. (2009) Mapped and written guidance in relation to birds and onshore wind energy development in England. RSPB Research Report No 35

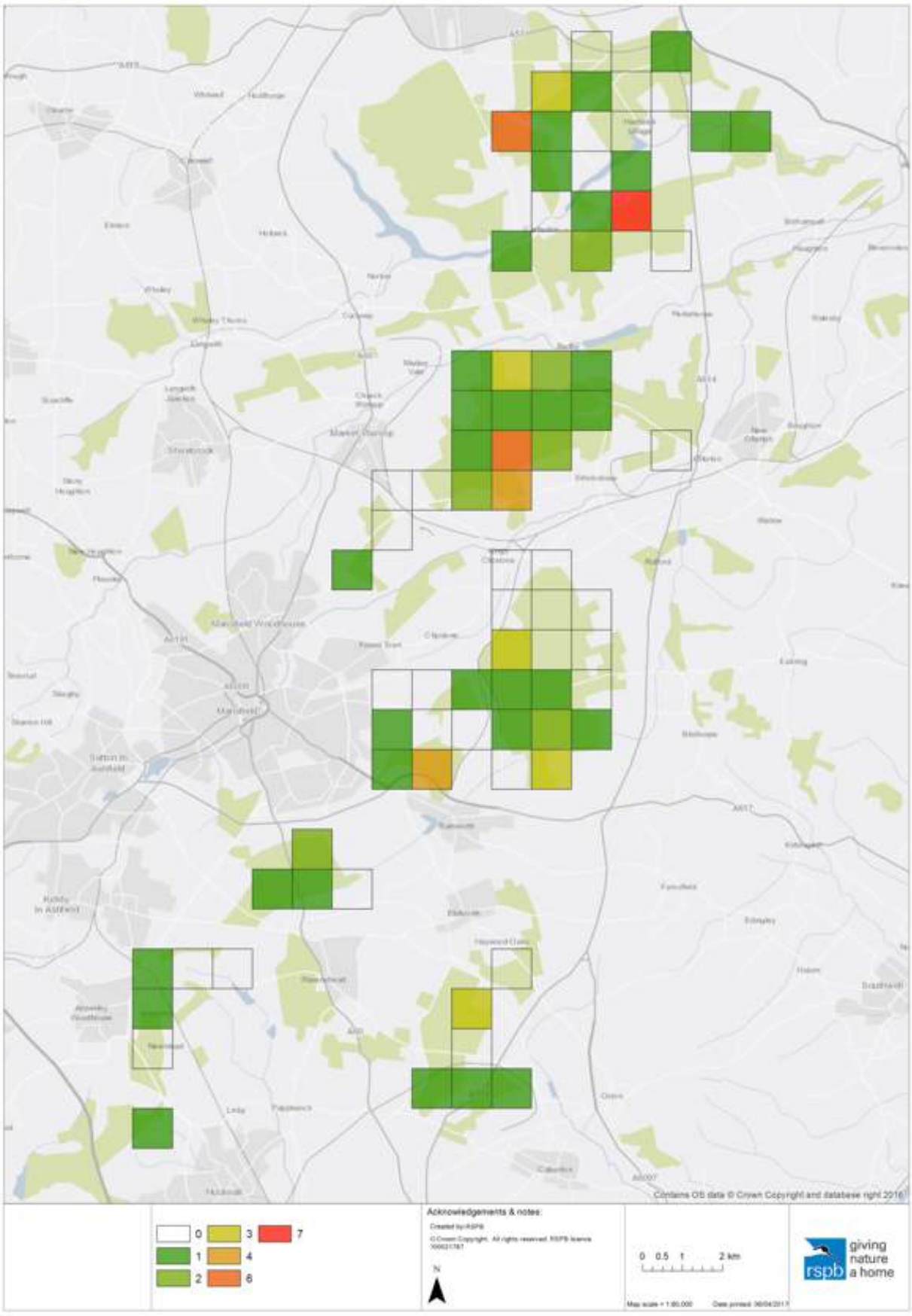

Figure 4.2: Records of (nightjar) churring males at Sherwood Forest. Data and map supplied by the NBGRC and based on the nightjar survey completed in 2016 by the RSPB

5 Air quality at Birklands and Bilhaugh SAC

5.1 Air Pollution

5.1.1 Birklands & Bilhaugh SAC is considered to be experiencing poor air quality in terms of nitrogen deposition and associated acid deposition (see **Table 5.1**). Air pollution was considered in the screening report with a focus on atmospheric nitrogen deposition. The Site Improvement Plan (SIP)[22] for the SAC states:

"Nitrogen deposition exceeds site relevant critical loads. Locally observed effects include increases in bracken cover and vigorous grasses at the expense of slower growing species of impoverished soils (although it is not possible to attribute this solely to nitrogen deposition)."

Table 5.1: Current levels of air pollution at Birklands & Bilhaugh SAC using data derived from APIS23

	Concentration and deposition	Critical load
Nitrogen deposition	28.42kg N/ha/yr	10-15kg N/ha/yr
Acid deposition nitrogen	2.03keq/ha/yr	1.387keq/ha/yr
Acid deposition sulphur	0.49keq/ha/yr	1.245keq/ha/yr
NOx concentration	20.8µg/m^3	30µg NOx/m^3 annual mean
SO_2 concentration	2.91µg/m^3	10-20µg SO_2/m^3 annual mean

5.1.2 The 'critical loads' of pollutants are defined as a "*the quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge*"[24].

[22] Natural England (2015) Site Improvement Plan Birklands & Bilhaugh. Available online at: publications.naturalengland.org.uk/file/5351066822508544

[23] Air Pollution Information System (APIS) Available online at: http://www.apis.ac.uk/srcl Accessed 19.05.17

[24] UNECE (date unavailable) ICP Modeling and Mapping Critical loads and levels approach, available at: http://www.unece.org/env/lrtap/WorkingGroups/wge/definitions.html, accessed 20/09/16

5.1.3 The primary source of nitrogen deposition in residential developments is usually road traffic. The SAC may be exposed to increased levels of air pollution as a result of increased traffic on nearby roads caused by the proposed developments in the PACS. In the case of Birklands & Bilhaugh SAC, NOx concentration is below the critical load whilst nitrogen deposition exceeds the critical load. This suggests that the primary source of nitrogen deposition is not road traffic. Natural England have advised that approximately 38% of nitrogen deposition at the SAC is thought to stem from the Whitwell lime production plant, 34% from agricultural sources and 17% from road traffic.

5.1.4 The Sherwood Forest Visitor Centre was previously located within the SAC boundary. A new visitor centre is in the process of development and will be located further south on the B6034. The new location of the visitor centre is not anticipated to change either the number of visitors to this area of the forest or the route by which visitors reach the forest. The main car parking area will be moved to east of the B6034, although most visitors to the centre are anticipated to be channelled through the new visitor centre.

5.1.5 The Design Manual for Roads and Bridges (DMRB) suggests that air quality impacts from vehicles are most likely to occur within 200m of a road[25]. Lepus had considered that traffic increases on roads within 200m of Birklands & Bilhaugh SAC, caused by development proposed in the PACS, would be negligible in relation to current levels. This was predominantly because the B6034, the only road to run within 200m of the SAC, was not considered to be a popular route of commute to areas of employment or recreation for residents of Edwinstowe or the District as a whole.

5.1.6 However, given that the SAC is currently suffering the adverse impacts of nitrogen deposition (excessive bracken *Pteridium aquilinum* growth), it was considered that any increase in nitrogen deposition could exacerbate the issue further and thereby undermine the integrity of the SAC and its conservation objectives. Natural England's comments were therefore specifically requested on the subject, and they advised in their letter dated 08 March 2017 (ref: 206193) the following:

[25] The Highways Agency, Transport Scotland, Welsh Assembly Government, The Department for Regional Development Northern Ireland (2007) Design Manual for Roads and Bridges, Volume 11, Section 3, Part 1: Air Quality

"The B6034 is the only road within 200m of the SAC and therefore modelling to predict the increase in traffic movements along this road may be useful. The Thoresby Colliery redevelopment site (800 homes) will result in a significant number of movements potentially above 1000 AADT alone however it is unlikely that all the traffic will travel along the B6034 which is a minor road."

5.1.7 DMRB guidelines recommend the following approach to determine if air quality effects exist at a given location within the Natura 2000 network:

1. If there are no new roads, or no increases in the number of cars on roads within 200m of a European Site, then the issue can be screened out;

2. If there is a new road, or there is anticipated to be an increase in the number of cars on a road within 200m, then further consideration is needed *only* if the number of additional car movements exceeds 1000 Annual Average Daily Traffic (AADT);

3. Traffic and air quality modelling should be used to determine air quality effects if, based on Air Pollution Information System (APIS) data[26], there is going to be an increase in deposition loads of more than 1% on background levels;

4. If there is an increase of more than 1%, then mitigation measures are required.

5.1.8 Redmore Environmental Ltd (Redmore) were instructed to undertake an Air Quality Assessment (ref: 1459r2) on the Thoresby Colliery proposal[27]l. Natural England, the Nottinghamshire Wildlife Trust and the RSPB have commented on this assessment and noted their concerns on the assessment's methodology and inputs.

5.1.9 Redmore addressed the issues raised by the RSPB, Nottinghamshire Wildlife Trust and Natural England (ref: 1459r1) in their report dated 12 May 2017[28]. The report assessed the potential increases in annual NOx concentrations and nitrogen deposition within the SAC as a result of additional road traffic exhaust emissions associated with the Thoresby Colliery development. The report concluded that:

- *"Impacts on annual mean NOx concentrations were classified as* ***not***

[26] Air Pollution Information System (APIS) Accessed online at: http://www.apis.ac.uk/srcl
[27] Redmore environmental (2017) Air Quality Assessment, Formery Thoresby Colliery, Edwinstowe, 17th February 2017
[28] Redmore environmental (2017) Air Quality Technical Note (Ecological Impacts) Former Thoresby Colliery, Edwinstowe, 12th May 2017

significant *at the worst-case receptor locations in accordance with the stated methodology. This was because the predicted change in annual mean NO_x concentration was less than 1% of the critical level at all locations;*

- *Impacts on nitrogen deposition were classified as* ***not significant*** *at the worst-case receptor locations in accordance with the stated methodology. This was because the predicted increase in nitrogen deposition was less than 1% of the critical load at all locations; and*
- *Although not specifically required due to impacts at the Birklands and Bilhaugh SSSI and SAC, the proposals included mitigation to prevent, and where not possible, minimise, the quantity of vehicle exhaust emissions. This reduction has not been considered within the modelling assessment and therefore the presented impacts are worst-case."*

5.1.10 Furthermore, Redmore was commissioned to undertake an In-Combination Assessment[29] of potential cumulative impacts of the proposed Thoresby Colliery development and other local sources of pollution (ref: 1459–2r1). These sources included the Center Parcs Combined Heat and Power Unit, Bilsthorpe Energy Centre, Brickyards Farm, Longbelt Farm and Stud Farm Anaerobic Digestion Plant. The assessment concluded that:

5.1.11 *"The predicted contribution from all considered sources to oxides of nitrogen concentrations and nitrogen deposition was below the relevant criteria at all ecological receptor locations in the vicinity of the site for all modelling years. As such, resultant impacts were classified as not significant in accordance with the stated criteria."*

5.1.12 In response to the air quality assessments conducted by Redmore, Natural England stated that an LSE on Birkland and Bilhaugh SAC due to air pollution, caused by the proposed development at Thoresby Colliery, can be ruled out. Natural England confirmed that:

5.1.13 *"The projected amount of nitrogen deposition from the proposed new development when considered alone and in combination with other proposals will be below the relevant threshold for significant effects for the Birkland and Bilhaugh SAC."*

[29] Redmore environmental (2017) In-Combination Assessment, Former Thoresby Colliery, Edwinstowe, 7th June 2017

5.1.14 The Nottinghamshire Wildlife Trust were also consulted on the ShAP4 development proposals and the Air Quality Technical Note. They advised in their letter to NSDC, dated 24 May 2017, that their concerns related to air quality have been sufficiently allayed and they are able to remove their holding objection to the planning application. However, NWT requested that the development be subject to long term atmospheric nitrogen deposition monitoring, at Sherwood Forest ppSPA and Birkland & Bilhaugh SAC.

5.2 Conclusion

5.2.1 Based on the conclusions of the Redmore Air Quality Assessments, and in accordance with advice from Natural England, it is considered that an LSE on Birkland & Bilhaugh SAC as a result of air pollution caused by the PACS can be objectively ruled out.

6 Pet Cats and Sherwood Forest ppSPA

6.1 Cat numbers and new residential development

6.1.1 Approximately one quarter of households in the UK have been recorded as housing at least one cat[30], although this figure has also been recorded at 17%[31]. For every 1,000 households, 320 – 330 pet cats have been recorded, with some regional variation[32]. Rural and suburban households are known to generally house more cats than urban households[33].

6.2 How far do the cats travel?

6.2.1 The roaming distance of pet cats is considered to vary from 300m to potentially 1,500m, with generally larger distances travelled by rural cats than urban and males travelling further than females[34]. Development is prohibited within 400m of the boundary of Thames Basin Heaths SPA to protect the qualifying bird species, as it was considered 60% of cats roam up to 400m[35]. A 360m buffer was recommended in Western Australia after research showed the longest linear distance travelled by pet cats is 300m[36].

[30] Barratt, D.G. (1997) Home range size, habitat utilisation and movement patterns of suburban and farm cats Felis catus. *Ecography*, 20, 271-280.

[31] Pet Food Manufacturer's Association (PFMA) 2016 Pet Population 2016. Available online at: http://www.pfma.org.uk/pet-population-2016. Accessed 15.05.17

[32] English Nature Research Reports Number 623 (2005) A literature review of urban effects on lowland heaths and their wildlife, J C Underhill-Day, RSPB

[33] Lepczyk. C. A., Mertig. A. G. and Liu. J. (2003) Landowners and cat predation across rural-to-urban landscapes. Biological Conservation. 115. 191-201

[34] Barratt, D.G. (1997) Home range size, habitat utilisation and movement patterns of suburban and farm cats Felis catus. *Ecography*, 20, 271-280.

[35] Royal Borough of Windsor and Maidenhead (July, 2010) Local Development Framework, Thames Basin Heaths Special Protection Area Supplementary Planning Document (Part 1)

[36] Lilith, M., Calver, M., & Garkaklis, M. (2008). Roaming habits of pet cats on the suburban fringe in Perth, Western Australia: what size buffer zone is needed to protect wildlife in reserves. Mosman NSW: Royal Zoological Soc New South Wales, 65-72.

6.2.2 Their range is determined by a variety of factors, such as the presence of waterbodies and busy roads, the spatial density of cats in the area utilising food resources, personality and social dominance of individual cats and the location of favoured hunting and/or resting sites[37] [38]. Movements of more than 100m to 200m beyond the suburban edge are considered most likely to be made at night[39].

6.3 How much do the cats hunt?

6.3.1 Studies have recorded the average number of prey per cat per year as being 10.2[40], 14[41], 16.6[42], 29[43] and 33[44]. The quantity of prey is highly contextual. In some locations there is a greater availability of prey. Younger cats are known to hunt more than older cats whilst approximately 22% of prey is considered to be birds[45].

6.4 Other factors influencing the rate of predation

6.4.1 Nests are actively predated significantly more often when within 225m of a path[46]. This relationship is true for within 50m, 100m and 500m of a path. The longer the path, the greater the correlation[47]. Predated nests are also associated with reduced vegetation cover, a greater proportion of bare ground and less gorse[48].

[37] D. G. Barratt (1995) Movement patterns and prey habits of house cats Felis catus in Canberra, Australia, A thesis submitted in fulfilment of the requirements of the Degree of Master of Applied Science at the University of Canberra
[38] Barratt, D.G. (1997) Home range size, habitat utilisation and movement patterns of suburban and farm cats Felis catus. *Ecography*, 20, 271-280.
[39] Ibid
[40] Barratt, D.G. (1998) Predation by house cats, Felis catus (L.), in Canberra, Australia. II. Factors affecting the amount of prey caught and estimates of the impact on wildlife. Wildlife Research, 25, 475-487.
[41] Churcher, P.B. & Lawton, J.H. (1987) Predation by domestic cats in an English village. Journal of Zoology, London, 212, 439-455.
[42] Woods. M., McDonald. A. R., and Harris. S. (2003) Domestic Cat Predation on Wildlife. The Mammal Society.
[43] Ibid
[44] Howes, C. (1982) What's the cat brought in? Bird Life, 1982 (January-February), 26.
[45] Ibid
[46] English Nature Research Reports Number 623 (2005) A literature review of urban effects on lowland heaths and their wildlife, J C Underhill-Day, RSPB
[47] English Nature Research Reports Number 623 (2005) A literature review of urban effects on lowland heaths and their wildlife, J C Underhill-Day, RSPB
[48] Taylor, E. (2002) Predation risk in woodlark Lullula arborea habitat: the influence of recreational disturbance, predator abundance, nest site characteristics and temporal factors. MSc. Dissertation. University of East Anglia

6.4.2 The woodlark nest predation rate has been recorded at 69%, although 53% of predators are considered to be corvids (magpies, crows etc.) and 26% foxes[49]. Corvid numbers are higher on sites visited by more people[50]. Some predators have been recorded at higher densities in urban than rural environments[51], for example magpies and foxes[52].

6.4.3 The nightjar lays its eggs between May and June whilst the woodlark does so between April and August, after which the chicks rely on the mother for approximately 30 days[53]. The birds are therefore particularly vulnerable during the spring and early summer months when it is likely that cats spend a greater proportion of their time outdoors.

6.4.4 Nightjar and woodlark individuals are considered to be relatively difficult prey for cats to hunt. When singing, a woodlark is on average 3.1m off the ground, generally atop a bush or flying[54]. They are considered to only spend approximately one third of their time on the ground[55].

6.5 Impacts of predation on population dynamics

6.5.1 A small reduction in fecundity due to cat predation can potentially lead to significant reductions in bird abundance[56]. Domestic cats have been recorded as depredating 12.5% of local bird nests[57].

[49] Taylor, E. (2002) Predation risk in woodlark Lullula arborea habitat: the influence of recreational disturbance, predator abundance, nest site characteristics and temporal factors. MSc. Dissertation. University of East Anglia
[50] Ibid
[51] Liley, D., & Clarke, R.T. (2003). The impact of urban development and human disturbance on the numbers of nightjar Caprimulgus europaeaus on heathlands in Dorset, England. Biological Conservation, 114, 219-230
[52] Harris, S., & Raynor, J.M.V. (1986). Urban fox Vulpes vulpes population estimates and habitat requirements in several British cities. Journal of Animal Ecology, 55, 575-591.
[53] Bright. J. A., Langston. R. H. W. and Anthony. S. (2009) Mapped and written guidance in relation to birds and onshore wind energy development in England. RSPB Research Report No 35
[54] Sirami, C., Brotons, L., & Martin, J. L. (2011). Woodlarks Lullula arborea and landscape heterogeneity created by land abandonment. Bird Study, 58(1), 99-106
[55] Sirami, C., Brotons, L., & Martin, J. L. (2011). Woodlarks Lullula arborea and landscape heterogeneity created by land abandonment. Bird Study, 58(1), 99-106
[56] Turner, D. C., and O.Meister.1988. Hunting behaviour of the domestic cat. Pages 111–121 *in* D. C. Turner and P. Bateson, editors. The domestic cat: the biology of its behaviour. Cambridge University Press, Cambridge, UK
[57] Lepczyk. C. A., Mertig. A. G. and Liu. J. (2003) Landowners and cat predation across rural-to-urban landscapes. Biological Conservation. 115. 191-201

6.6 PACS and pet cat predation

6.6.1 **Table 6.1** identifies PACS components that have been identified as having LSEs associated with cat predation on ground nesting birds.

Table 6.1: PACS components that have been identified as having LSEs associated with cat predation on ground nesting birds

Section of the document	Assessment	Proposed development	Screening conclusion (Category) see **Table 2.1**
Core Policy 2	Rural Affordable Housing	The District Council will seek to secure the provision of affordable housing on rural affordable housing 'exception sites'.	**Screened in (L)** • Potential air quality effects • Disturbance from dog walking • Cat predation
Policy ShAP 4	Land at Thoresby Colliery	A strategic site for 800 dwellings, 10ha of employment land, a 'community centre', comprising leisure and community uses along with retail to meet local needs; and associated green, transport and other infrastructure.	**Screened in (L)** • Potential air quality effects • Disturbance from dog walking • Cat predation

6.6.2 The only PACS strategic allocation within 400m of Sherwood Forest ppSPA associated with potential cat predation impacts is ShaP4 (Thoresby Colliery development) – see **Table 6.1**.

6.7 ShAP4 Thoresby Colliery

6.7.1 The Thoresby Colliery redevelopment includes proposals for 800 residential properties on land overlapping with IBAs. This could potentially lead to the introduction of 256 – 264 cats (very likely more than 136 cats, potentially more than 264 cats. Such a quantity of cats could potentially kill between 299 and 985 birds a year.

6.7.2 Nightjar have a low breeding productivity with only two or three chicks a year. The loss of just one or two birds could compromise the conservation status of nightjar in Sherwood Forest and it is thus afforded a high level of protection[58]. It is therefore important to establish how likely it is pet cats introduced to the Thoresby Colliery location will prey on ground nesting nightjar and/or woodlark.

6.7.3 A large proportion of the Thoresby Colliery site is considered to be within the boundary of the woodlark IBA and to lie entirely within 400m of both nightjar and woodlark IBAs.

6.7.4 The boundaries of the IBAs identified by Natural England highlight the areas of greatest ornithological interest for breeding nightjar and woodlark. These boundaries are not a formal assessment of any future SPA and no such assessment has yet been made, and they are largely based on the national nightjar and woodlark surveys of 2004 and 2006[59]. It is therefore not possible to definitively state if ShAP4 lies within or outside what may in the future be designated as a SPA.

6.7.5 However, when taking a closer look at the location of the former Thoresby Colliery it is apparent that in its current condition it is largely unsuitable for supporting nightjar and woodlark populations. Both ground nesting species prefer lowland heathland, with naturally developed and tussocky turf for woodlark and open and cleared woodland for nightjar. In its current condition this is not provided by the Thoresby Colliery. The site is predominantly covered in spoil heaps, headstocks, roads and other infrastructure associated with coal mining.

[58] Nottinghamshire Wildlife Trust (2015) Letter to Secretary of State Re: Re: PINS Reference APP/L0355/V/14/3007886 Proposed Development of the Bilsthorpe Energy Centre - Third Regulation 22 submission

[59] Nottinghamshire Wildlife Trust (2015) Letter to Secretary of State Re: Re: PINS Reference APP/L0355/V/14/3007886 Proposed Development of the Bilsthorpe Energy Centre - Third Regulation 22 submission

6.7.6 The Thoresby Colliery redevelopment includes proposals for 99.03ha of country park, within which will be a number of habitats of benefit to local wildlife, including approximately 34.5ha of heathland. The redevelopment also includes large areas of acid grassland, woodland nature reserve and restoration and planting of new woodland. Areas of the site in its current state that are considered suitable for nightjar and woodlark will not be built upon. Woodlark require heterogeneity in their territories with different land cover types, such as bare ground, shrub and bushes[60]. This is considered to be provided by the development proposals.

6.7.7 In and around the residential and employment developments will also be approximately 9.7ha of green infrastructure, including a large waterbody and a wide green corridor of trees.

6.7.8 The extent to which pet cats at the redevelopment pose a threat to nightjar and woodlark populations is complex. The number of pet cats that will be introduced to this location, the proportion of these which will hunt, the distances these hunters will roam and the quantity and species of prey that these hunters will target is not currently possible to precisely determine.

6.7.9 A proportion of cats will be located further than 400m from IBAs. Cats that are within 400m will not necessarily have an easy route to the nightjar and woodlark IBAs due to the presence of barriers, including the waterbody proposed at Thoresby Colliery, busy roads, stock proof fencing and the presence of other cats. It is considered likely that ShAP4 would increase the availability of suitable habitat for nightjar and woodlark in Sherwood Forest ppSPA. Section C of ShAP 4 includes '*measures to address potential pet predation on restored heathland to the north of the core development area*'.

[60] Sirami, C., Brotons, L., & Martin, J. L. (2011). Woodlarks Lullula arborea and landscape heterogeneity created by land abandonment. Bird Study, 58(1), 99-106.

6.7.10 Woodlark only spend approximately a third of their time on the ground, and when on the ground they are silent[61]. The extent to which nightjar and woodlark will habituate the Country Park of the Thoresby Colliery redevelopment, and thereby expose themselves to the risk of predation, is unknown. However, sites surrounded by urban development generally support lower densities of nightjar population, reducing the number of nightjars which could be subject to predatation[62].

6.7.11 On the other hand, the scale of development proposed in the PACS could potentially introduce over 250 pet cats to locations within 400m of IBAs, with a proportion of cats being within just several metres of suitable nightjar and woodlark habitat. The busy road immediately to the south of the Thoresby Colliery development is likely to impede the roaming distance of cats going south and they may therefore be more likely to head northwards towards the IBAs. The network of walking paths throughout the IBAs of Sherwood Forest ppSPA bring people and their pets in closer proximity to nightjar and woodlark nests and individuals, increasing the likelihood of disturbance.

6.8 Summary of adverse effect

6.8.1 It is considered likely that the scale of development proposed in the PACS, and in particular that which is proposed in ShAP 4 at the former Thoresby Colliery, could lead to an increase in disturbance and predation of the nightjar and woodlark of Sherwood Forest ppSPA due to pet cats.

6.9 Mitigation

6.9.1 In terms of mitigating this identified LSE as well as that of disturbance from dogs, **Chapter 9** considers this impact in the context of Core Policy 12: Biodiversity & Green Infrastructure of the LDF Core Strategy DPD, and Policy DM7: Biodiversity & Green Infrastructure of the LDF Allocations & Development Management DPD.

[61] Sirami, C., Brotons, L., & Martin, J. L. (2011). Woodlarks Lullula arborea and landscape heterogeneity created by land abandonment. Bird Study, 58(1), 99-106.

[62] Liley, D., & Clarke, R. T. (2003). The impact of urban development and human disturbance on the numbers of nightjar Caprimulgus europaeus on heathlands in Dorset, England. Biological Conservation, 114(2), 219-230.

7 Dogs and Sherwood Forest ppSPA

7.1 How do dogs disturb nightjar and woodlark?

7.1.1 Birds are considered to be more wary of dogs than people alone, and therefore flush from their nest more readily, more frequently and at greater distances when disturbed by dogs[63]. Nightjars are likely to flush from their nest during incubation when a predator is within 10m and during chick rearing when a potential predator is within 50-100m[64]. The birds will then stay off the nest for between five and 15 minutes, during which predation of their eggs is a significant concern[65].

7.1.2 Passive disturbances are likely to occur at an even greater distance. The presence of dogs delays the arrival of birds at feeding areas, makes them depart feeding areas earlier and reduces the amount they eat whilst there due to increased vigilance[66] [67] [68] [69]. Dogs may also prey on ground nesting birds as well as trample their nests[70].

[63] Murison, G. (2002) The impact of human disturbance on the breeding success of nightjar Caprimulgus europaeus on heathlands in south Dorset, England. English Nature, Peterborough.
[64] Ruddock, M. & Whitfield, D.P. (2007) A Review of Disturbance Distances in Selected Bird Species, A report from Natural Research (Projects) Ltd to Scottish Natural Heritage
[65] Lack, D.L. (1932). Some breeding habits of the European nightjar. Ibis, 74, 266-284.
[66] Yalden, P. E. and Yalden, D. W. (1990). Recreational disturbance of breeding golden plovers Pluvialis apricarius. Biological Conservation 51, 243-262.
[67] Lafferty, Kevin D. "Birds at a Southern California beach: seasonality, habitat use and disturbance by human activity." Biodiversity and Conservation 10.11 (2001): 1949-1962.
[68] Lord, Andrea, et al. "Effects of human approaches to nests of northern New Zealand dotterels." Biological conservation 98.2 (2001): 233-240.
[69] Miller, Scott G., Richard L. Knight, and Clinton K. Miller. "Wildlife responses to pedestrians and dogs." Wildlife Society Bulletin (2001): 124-132.
[70] Murison, G. (2002) The impact of human disturbance on the breeding success of nightjar Caprimulgus europaeus on heathlands in south Dorset, England. English Nature, Peterborough.

7.1.3 It has been well recorded that disturbance reduces the mean reproductive success rate[71] with most nightjar breeding failures occurring during incubation[72]. Research in New South Wales, Australia found dog walking was causing bird numbers to drop by an average of 41% across 90 sites, despite dogs being kept on leads[73].

7.1.4 A single dog running off-path into the heather could therefore disturb large areas of nightjar breeding habitat[74]. Because of this, it is considered to some extent that the distribution of people walking their dogs is more important than the actual quantity of dogs being walked.

7.2 How many dogs are anticipated?

7.2.1 In 2015 there were approximately 8.5 million pet dogs in the UK[75] with 26% of households home to at least one dog (based on a sample of 4,000 people)[76]. If you exclude the region of London from consideration, approximately 30% of households are home to at least one dog[77]. A random sample of 2,980 houses in the UK in 2007 found that 31% of households were home to at least one dog, with an increased likelihood where houses had gardens and/or were in rural locations[78]. A study of 1,278 households in Cheshire, UK found 24% of households to be home to at least one dog[79].

[71] Hockin, D., et al. "Examination of the effects of disturbance on birds with reference to its importance in ecological assessments." Journal of Environmental Management 36.4 (1992): 253-286.
[72] Murison, G. (2002) The impact of human disturbance on the breeding success of nightjar Caprimulgus europaeus on heathlands in south Dorset, England. English Nature, Peterborough.
[73] University of New South Wales (2007) "A Dog in The Hand Scares Birds In The Bush." ScienceDaily. ScienceDaily, 12 September 2007
[74] Woodfield, E. & Langston, R.H. (2004) A study of the effects on breeding nightjars of access on foot to heathland. English Nature, Peterborough
[75] RSPCA (2015) Facts and figures. Available online at: https://media.rspca.org.uk/media/facts . Accessed 17.05.17
[76] Pet Food Manufacturer's Association (2015/16) Pet population 2016. Available online at: http://www.pfma.org.uk/pet-population-2016 . Accessed 17.05.17
[77] Pet Food Manufacturer's Association (2015/16) Regional pet population 2016. Available online at: http://www.pfma.org.uk/regional-pet-population-2016. Accessed 17.05.17.
[78] Murray J. K., Browne W. J., Roberts M. A., Whimarsh A. and Gruffydd-Jones T. J. (2010) Number and ownership profiles of cats and dogs in the UK. Veterinary record 177, 163-168
[79] Westgarth, C., Pinchbeck, G. L., Bradshaw, J. W., Dawson, S., Gaskell, R. M., & Christley, R. M. (2007). Factors associated with dog ownership and contact with dogs in a UK community. BMC Veterinary Research, 3(1), 5.

7.3 Where do people walk their dogs?

7.3.1 There is no survey data for Sherwood Forest ppSPA that provides data on where dog walking visitors to the site are travelling from. As the ppSPA is spread over a large area, and as it is comprised of a variety of different habitats and landscapes, it is also difficult to apply results from surveys of other sites to the context of the ppSPA.

7.3.2 For example, the visitor survey of Cannock Chase conducted by Footprint Ecology in 2012[80] found that 50% of visitors lived within 6.24km of the site, 45% of the 4,809 surveyed visitors were walking dogs and 42% of dog walkers were visiting for less than one hour. Cannock Chase SAC a singular woodland with a clearly defined perimeter, which is in contrast to the loosely defined borders of Sherwood Forest ppSPA.

7.3.3 Results from the Natural England Monitor of Engagement with the Natural Environment (MENE) survey found that in between 2014 and 2015, 92% of the 5,479 people surveyed who were walking their dog travelled no more than 8km to reach the dog walking location. Between 2013 and 2014, this figure was 93%. Approximately 79% of dog walkers travel no further than 3km to reach the location at which they walk their dogs[81].

7.3.4 It is therefore considered that the 2km - 5km buffer zone around the ppSPA, applied by Natural England, is an appropriate place to start in the consideration of how many residents may walk their dogs in nightjar and woodlark IBAs.

7.4 PACS and disturbance from dogs

7.4.1 **Table 7.1** identifies PACS components that have been identified as having LSEs associated with disturbance from dogs on ground nesting birds.

[80] Liley, D. (2012). Cannock Chase SAC Visitor Survey. Unpublished report, Footprint Ecology
[81] Natural England MENE Online Cross Tabulation Viewer. Available online at: naturalengland.tns-global.com . Accessed 17.05.17

Table 7.1: PACS components that have been identified as having LSEs associated with disturbance from dogs on ground nesting birds

Section of the document	Assessment	Proposed development	Screening conclusion (Category) see **Table 2.1**
Core Policy 2	Rural Affordable Housing	The District Council will seek to secure the provision of affordable housing on rural affordable housing 'exception sites'.	**Screened in (L)** • Potential air quality effects • Cat predation • Disturbance from dog walking
Policy NAP 1	Newark Urban Area	Promote Newark Urban Area as a focus for residential, commercial and leisure activity.	**Screened in (L)** • Potential air quality effects • Disturbance from dog walking
Policy NAP 2a	Land South of Newark	A strategic site for 3,150 dwellings, employment land, two local centres, comprising retail, service, employment and community uses; and associated green, transport and other infrastructure.	**Screened in (L)** • Potential air quality effects • Disturbance from dog walking
Policy NAP 2B	Land East of Newark	A strategic site for 1000 dwellings, a local centre, comprising retail, service, employment and community uses; and associated green, transport and other infrastructure	**Screened in (L)** • Potential air quality effects • Disturbance from dog walking
Policy NAP 2C	Land around Fernwood	A strategic site for 3,200 dwellings,; employment development (15 hectares); a local centre, comprising retail, service, employment and community uses; and associated green, transport and other infrastructure	**Screened in (L)** • Potential air quality effects • Disturbance from dog walking
Policy ShAP 4	Land at Thoresby Colliery	A strategic site for 800 dwellings, 10ha of employment land, a 'community centre', comprising leisure and community uses along with retail to meet local needs; and associated green, transport and other infrastructure.	**Screened in (L)** • Potential air quality effects • Cat predation • Disturbance from dog walking

7.4.2 The Screening of PACS proposals (see **Table 7.1** and **Appendix C**) has identified several components that could have an LSE associated with dog walking and ground nesting birds. This includes four strategic residential site allocations.

7.4.3 This chapter of the AA has identified a zone of influence of 5km within which residents of new homes built during the plan period are likely to visit the ppSPA to walk their dog. Consequently, a potential LSE on ground nesting birds from dog walking may arise from planning development in this zone.

7.4.4 Only one of the four strategic sites lies within this zone: ShAP4. The other three strategic sites which were identified at the screening stage as having a potential LSE associated with dog walking are consequently assessed further. In the same way, Policy NAP1 is not considered further.

7.4.5 The Rural Affordable Housing policy (Core Policy 2) has not specified the location of such affordable housing; it has been assumed that some houses might be built within proximity of the ppSPA therefore the same conclusions that have been drawn up for ShAP4 apply to Core Policy 2.

7.5 ShAP4 - Edwinstowe

7.5.1 ShAP 4 proposes 800 residential units which could potentially equate to an increase in the number of homes housing at least one pet dog by 192 – 248.

7.5.2 North of Edwinstowe lies woodland that is designated as Birkland & Bilhaugh SAC, as well as Sherwood Forest County Park National Nature Reserve and Birklands and West Ollerton SSSI. Policy ShAP4 is considered to be within the boundaries of woodlark IBA, although this area is currently made up of the out of use Thoresby Colliery.

7.5.3 These woodlands have a range of walking trails advertised to the public. They receive a large number of visitors, particularly in the vicinity of Major Oak which is famous through the legend of Robin Hood.

7.5.4 It is considered likely that new residents in Edwinstowe will utilise these woodlands for walking dogs on a regular basis, given the proximity of the woodlands, their attractive nature and the trails on offer. However, it is also considered likely that the woodlands are closely managed due to the number of visitors, and any increase would be negligible in relation to current levels. New visitors are not anticipated to change the distribution of people and their dogs throughout the woodlands.

7.6 Conclusions

7.6.1 It is considered likely that 24 – 31% of new houses at the strategic allocation will be home to at least one dog. It should be noted that any additional homes that are built in the 5km zone of influence through the commitment to affordable housing at exception sites may also increase the number of dog walkers at Sherwood Forest ppSPA.

7.6.2 Owners are considered likely to utilise areas of Sherwood Forest ppSPA because of the attractive and tranquil nature of the woodland and heathland, the variety of trails on offer and the ease of accessibility stemming from numerous car parks and visitor centres.

7.6.3 The majority of these areas are managed by the Forestry Commission as well as volunteer groups and Natural England. Whilst the networks of trails and routes attract dog walkers, they also increase the likelihood that new dog walkers will stick to the same routes throughout the ppSPA that current users do. In many cases, the IBAs are not the closest potential dog walking location for residents.

7.6.4 It is considered likely that the scale of development proposed in the PACS could potentially lead to an increase in disturbance and predation of the nightjar and woodlark of Sherwood Forest ppSPA due to dog walking.

7.6.5 In terms of mitigating this identified LSE as well as that of predation from cats, **Chapter 9** considers this impact in the context of Core Policy 12: Biodiversity & Green Infrastructure of the LDF Core Strategy DPD, and Policy DM7: Biodiversity & Green Infrastructure of the LDF Allocations & Development Management DPD.

8 In-combination effects with neighbouring plans

8.1 Potential in-combination effects

8.1.1 It is important to consider the cumulative impacts of the development proposed in the PACS in-combination with other plans and projects. In response to the initial HRA screening, Natural England advised in this regard:

8.1.2 "We suggest that other plans and projects that may contribute to a significant effect on both the SAC and the ppSPA should be fully considered".

8.1.3 Neighbouring districts and boroughs of Newark and Sherwood are illustrated in **Figure 8.1**. Birklands & Bilhaugh SAC and Sherwood Forest ppSPA are located in the north west of the district. Spatial development proposals at Thoresby Colliery are considered in-combination with neighbouring districts as follows.

8.2 Exploring potential cumulative effects

Mansfield

8.2.1 The emerging Mansfield Local Plan, once adopted, will cover development in the district up to 2033. It proposes a total of 7,520 dwellings, 720 of which will be in the Warsop Parish. The remaining 6,800 homes are currently anticipated to be located in Mansfield and Mansfield Woodhouse.

8.2.2 In relation to Sherwood Forest ppSPA, the Mansfield Local Plan proposes that all development within 400m of the ppSPA is subject to application specific assessment to determine whether any adverse effect on the nightjar and woodlark would arise.

8.2.3 Accepting that the strong network of green infrastructure in Mansfield, including the open spaces and woodlands around the District, should help to offset increases in recreational pressures on the ppSPA as well as Birkland & Bilhaugh SAC.

8.2.4 The Mansfield Local Plan HRA identifies no LSEs on European Sites as a result of the Mansfield Local Plan either alone or incombination with other plans or projects, including the Newark & Sherwood PACS.

8.2.5 At the time of writing, there is no anticipated in-combination effect with the emerging Local Plan for Mansfield.

Bassetlaw

8.2.6 Bassetlaw District Council adopted their Core Strategy in 2011 and are drafting their emerging Bassetlaw Plan. Bassetlaw aim to build an additional 3,700 dwellings between 2019 and 2034. The HRA report for this Plan is not currently available. The nearest urban areas of Bassetlaw are more than 10km from areas of Sherwood Forest ppSPA in Newark & Sherwood District as well as Birkland & Bilhaugh SAC.

8.2.7 It is therefore considered that a cumulative impact of the Bassetlaw Plan increasing dog disturbances and pet cat predation on the qualifying features of Sherwood Forest ppSPA is unlikely. It is also considered unlikely that the emerging Bassetlaw Plan would act in combination with the Newark and Sherwood PACS to increase air pollution at Birkland & Bilhaugh SAC via increasing traffic on nearby roads.

8.2.8 The recommendation for joint working in relation to improving the understanding of potential visitor pressures at Sherwood Forest ppSPA and Birklands & Bilhaugh SAC may benefit from a wider partnership of authorities beyond those mentioned in this chapter.

8.3 Gedling

8.3.1 Gedling Borough has prepared an HRA Screening reports[82], and submitted additional information in the form of addendums (September, 2017; February, 2018) to assess the emerging Part 2 Local Plan. All findings conclude that there will be no effect alone or incombination on the plan following mitigation identified in those reports. The Inspector's Report into the Gedling's Local Planning Document (Part 2 Local Plan) is imminent and the Plan is due to be adopted at Gedling's Full Council on 18th July.

8.3.2 At the time of writing, there is no anticipated in-combination effect with the emerging Part 2 Local Plan for Gedling.

[82] Gedling Borough Council HRA Screening Report, May 2016.

8.4 Ashfield

8.4.1 The Ashfield Local Plan is presently subject to Examination. HRA work prepared to inform the Local Plan has concluded no LSE alone or in-combination with other plans. At the time of writing, there is no anticipated in-combination effect with the emerging Local Plan for Ashfield.

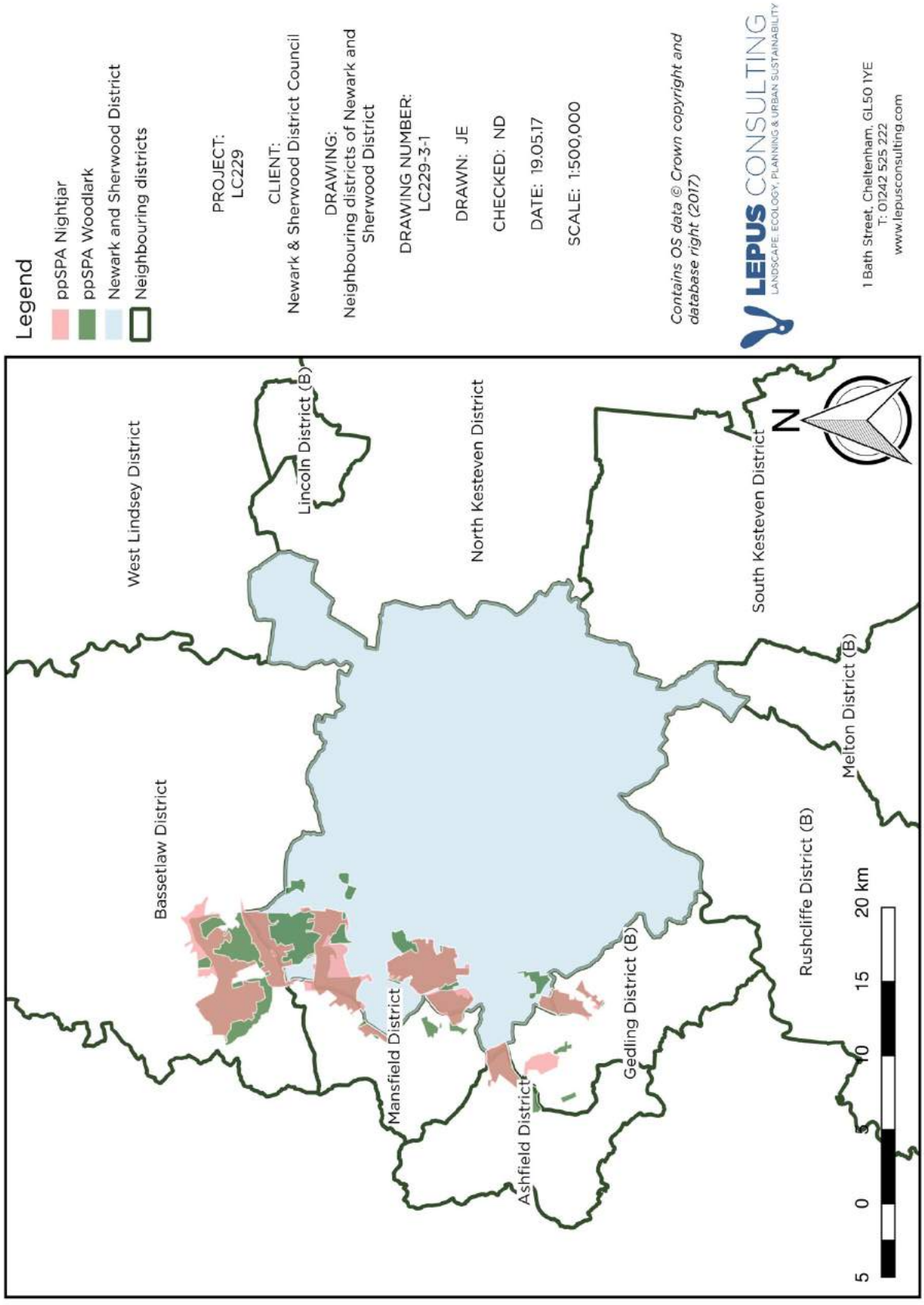

Figure 8.1: Neighbours of Newark & Sherwood District and Sherwood Forest ppSPA

9 Mitigation

9.1 Policies in the PACS

9.1.1 Policies proposed in the PACS will be expected to mitigate some of the potentially adverse impacts identified during this assessment.

9.1.2 Nightjar and woodlark are both Annex 1 species of the Birds Directive. The Council is therefore obligated to use best endeavours to try and ensure that the development proposed in the PACS avoids an LSE on populations of nightjar and woodlark of Sherwood Forest ppSPA. In 2006 Case C-418 was brought against Ireland by the EU Commission in relation to the inadequacy of their SPA protection. During this, best endeavours was interpreted as:

"Article 4(4) of the Birds Directive does not mean that the damage to be avoided must be prevented. It is not an obligation as to the result to be achieved but rather a duty of diligence, or to be more precise, a duty to use best endeavours… Serious endeavours, namely the taking of all reasonable measures to achieve the success being sought, require targeted action."[83]

9.1.3 Core Policy 12: Biodiversity & Green Infrastructure of the LDF Core Strategy DPD, and Policy DM7: Biodiversity & Green Infrastructure of the LDF Allocations & Development Management DPD, require the Council to conserve and enhance the biodiversity and geodiversity assets of the District. The Council is therefore committed to conserving and enhancing the habitats and populations of nightjar and woodlark in the district.

9.1.4 Committing to Policy DM7 includes the provision for SANGS, which would be anticipated to offer dog walkers alternative locations to IBAs for walking their dogs. The quantity and quality of SANGS will be developed and agreed on with Natural England. Core Policy 12 includes a commitment to implement the aims and proposals of the Nottinghamshire Local Biodiversity Action Plan, within which is a commitment to the conservation of Annex 1 species in the Birds Directive. This would therefore include nightjar and woodlark.

[83] EU Commission (2006) Case C-418/04 Commission of the European Communities v Ireland. Available online at: http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:62004CC0418

9.1.5 Because of the Council's existing commitment to ensuring these adverse impacts are avoided, it is anticipated that appropriate mitigation measures will be adopted. Whilst the details can only be agreed on at the planning application stage (as opposed to the plan making stage), it is important that the measures adopted are consistent, clear and informed by the latest data. They should form a coherent strategy to ensure the nightjar and woodlark are protected. Guidance as to what may be considered appropriate conservation effort at the planning application stage has been included in **Table 9.1**.

9.1.6 Each mitigation measure should be monitored to closely review the extent to which it is successfully achieving its aim. The results of this monitoring should be used to inform decision on the mitigation strategy, and whether measures should be reviewed or changed to ensure the Annex 1 bird species remain adequately protected.

9.1.7 With regards to the Country Park, the NWT has recommended that:

"An extension of habitat management on the pit tip beyond the 5 year statutory aftercare period required under the current mineral permission, financed through this proposed development… the absence of such a commitment to long term (at least 25 years) conservation management, the Tip habitats cannot be claimed as SANGs, as the impact of the residents would, of course, be in perpetuity."

9.1.8 As the introduction of a residential community will bear impacts on the surrounding habitats in perpetuity, conservation management of the Country Park should be a long term commitment.

9.1.9 It is considered that the Council's commitments to Core Policy 12 and Policy DM7 represent best endeavours to adequately protect the District's biodiversity assets, including nightjar and woodlark. Based on the reasonable assumption that adequate mitigation measures will be adopted through Core Policy 12 and DM7 where development may adversely impact these Annex 1 birds, it is concluded that an LSE can be objectively ruled out at this stage.

Table 9.1: Recommendations for appropriate mitigation measures to prevent potential adverse impacts of development on nightjar and woodlark. The finalised strategy should be agreed on during the planning application process for any development which may adversely impact nightjar and woodlark.

Strategy	Details
1. Raise awareness amongst residents via leaflets, accessible and online advice and the use of wardens or volunteers	• Inform residents on the location of IBAs (using boundary of Sherwood Forest ppSPA designed by Natural England, see Appendix D); • Inform residents on the preferred habitat ranges of nightjar and woodlark, as well as their appearance; • Advise owners to put collars and bells on pet cats, particular if within 400m of IBAs; • Advise owners to be aware of the activities of pet cats; • Request owners to report predation incidents of nightjar and woodlark to the Council to inform Strategy 4.
2. Keep dogs on leads during the breeding season and direct dog walkers away from areas of sensitive IBAs	• Inform residents in leaflets (see Strategy 1) of locations of IBAs and where dogs should not be walked, as well as to keep dogs on existing walking paths when near IBAs; • Place signs near entrances to sensitive IBAs advising residents to keep dogs on leads, stick to existing walking paths and of alternative dog walking locations; • Encourage dog owners to challenge irresponsible dog owners; • Use wardens or volunteers on site to speak with dog owners as they arrive.
3. Provide Suitable Alternative Natural Greenspaces for dog walkers	• The Country Park of the proposed Thoresby Colliery redevelopment is suitable nightjar and woodlark habitat and should not be used as SANGS; • Instead, informal and recreational green space should be provided for residents of the former Thoresby Colliery to walk dogs at locations distant from IBAs.
4. Monitor nightjar and woodlark populations	• The population and distribution of nightjar and woodlark in Sherwood Forest ppSPA should be monitored through further survey work, potentially bi-annually; • Should the population and/or distribution appear to be in decline, the Council should review this mitigation strategy and adopt the necessary measures to ensure the birds are adequately protected; • Monitoring of bird numbers and habitat type, quality and quantity should be prepared to inform a dynamic plan evidence base.

10 Conclusions

10.1 Conclusions to the HRA of the PACS

10.1.1 The HRA of the Plan Review has carefully considered the potential impacts of development and policy proposals on European sites. This has involved assessing the extent to which PACS proposals may exacerbate threats and pressures that European sites are known to be vulnerable to.

10.1.2 LSEs have been objectively ruled out for all European sites (Birkland and Bilhaugh SAC and Sherwood Forest ppSPA) over the course of the HRA process.

10.1.3 It is concluded that the PACS satisfies the Habitat Regulations and this appropriate assessment document has helped to ensure that the PACS and its HRA process remain legally compliant in light of recent case law, including the Sweetman ruling of April 2018.

10.2 Next steps

10.2.1 This report is subject to consultation with the statutory body Natural England.

10.3 Limitations

10.3.1 The 5km zone of influence for visitors has not been collaborated with a visitor survey. It is worth considering if a strategic visitor survey be convened amongst neighbouring districts to better understand, empirically, the number of visitors that patronise Sherwood Forest.

10.3.2 Fresh breeding bird surveys could be undertaken to better understand the distribution of birds in the Forest.

10.3.3 Habitat surveys could be undertaken to understand habitat breeding bird fecundity in relation to certain types.

10.4 Recommendations

10.4.1 Whilst the likelihood of in-combination effects with the PACS appears to be negligible, and no in-combination effect has been identified, it should be noted that the information which has been used to inform this assessment could usefully be improved.

10.4.2 It is recommended that NSDC consider working closely with neighbouring authorities surrounding Sherwood Forest to better understand visitor numbers and behaviour in light of planned new growth in and around the Forest.

10.4.3 Such partnership work could usefully involve detailed visitor studies to better understand the numbers and types of visitors and their recreational pursuits as well as any bearing this may have on the conservation objectives of the European sites.

10.4.4 The recommendation for joint working in relation to improving the understanding of potential visitor pressures at Sherwood Forest ppSPA and Birklands & Bilhaugh SAC may benefit from a wider partnership of authorities beyond those mentioned in this chapter.

10.5 Monitoring

10.5.1 It would be useful to closely monitor the various positive management activities in operation at the Forest and those being planned for the future.

10.5.2 It would also be useful to monitor the effectiveness of those policies that relate to mitigation for identified LSEs namely: Core Policy 12: Biodiversity & Green Infrastructure of the LDF Core Strategy DPD, and Policy DM7: Biodiversity & Green Infrastructure of the LDF Allocations & Development Management DPD.

10.5.3 If these policies indicate that their assumed effectiveness is not delivering the planned mitigation, the Council should respond to these and take appropriate action to avoid adverse effects on the Conservation Objectives of the European sites.

APPENDIX A

Table A. 1: European sites and their conservation objectives (source: Natural England).

Birklands & Bilhaugh SAC
Conservation objectives: Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying features, by maintaining or restoring; • The extent and distribution of qualifying natural habitats; • The structure and function (including typical species) of qualifying natural habitats; and • The supporting processes on which qualifying natural habitats rely. Qualifying Features: • H4010: Old acidophilous oak woods with *Quercus robur* on sandy plains; Dry oak-dominated woodland
Sherwood Forest ppSPA
Conservation objectives: Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying features, by maintaining or restoring; • The extent and distribution of qualifying natural habitats; • The structure and function (including typical species) of qualifying natural habitats; and • The supporting processes on which qualifying natural habitats rely. Qualifying Features: • A224: Caprimulgus europaeus; European nightjar (Breeding); and • A246: Lullula arbore; Woodlark (Breeding).

APPENDIX B

Table B. 1: Pressures and threats for European sites identified in Site Improvement Plans and Natura 2000 Data forms and Natural England advice notes. AQF stands for all qualifying features, which can be seen in their full in Appendix A.

Threats/ Pressures	Sherwood Forest ppSPA[84]
Public access/ disturbance	AQF
Planning permission: general	n/a
Change in land management	n/a
Physical modification	n/a
Air pollution	n/a
Disease	n/a
Invasive species	n/a
Loss or fragmentation of habitat	AQF
Bird mortality - predation or traffic	AQF
Human induced hydraulic changes	n/a
Changing cultivation practices	n/a

[84] Natural England (2014) Advice Note to Local Planning Authorities regarding the consideration of likely effects on the breeding population of nightjar and woodlark in the Sherwood Forest region

APPENDIX C: Screening of the Publication Amended Core Strategy

Table C. 1: Screening of the Publication Amended Core Strategy.

Screening conclusion categories are taken from Chapter F of The Habitats Regulations Assessment Handbook (DTA Publications, 2013).

Section of the document	Assessment	Proposed development	Screening conclusion (Category)
Chapter 1	Introduction		
Chapter 2	Spatial Portrait of Newark and Sherwood		
Chapter 3	Vision and Objectives		
Chapter 4	Spatial Polices		
4.3 – 4.5	Newark and Sherwood's Spatial Strategy		
4.6 – 4.11	Background on Settlement Hierarchy		
Spatial Policy 1	Settlement Hierarchy	Identifies settlements central to the delivery of the spatial strategy.	Screened out (K)
4.15 – 4.23	Background on Spatial Distribution of Growth		
Spatial Policy 2	Spatial Distribution of Growth	Growth in Newark and Sherwood District will focus on supporting the sub-regional centre of Newark Urban Area, regeneration and securing sustainable communities.	Screened out (K)
4.24 -4.27	Background on rural areas		
Spatial Policy 3	Rural Areas	Addressing housing need and providing economic support in rural areas. Proposes protection for the landscape and biodiversity whilst woodland cover will be encouraged in the right locations.	Screened out (D)
4.28 – 4.29	Background on Green Belt		
Spatial Policy 4a	Extent of the Green Belt	The extent of the Nottingham - Derby Green Belt which lies within Newark and Sherwood District will remain unchanged.	Screened out (G)
Spatial Policy 4b	Green Belt Development	Within the Green Belt, new housing and employment development will be focused in Blidworth, Lowdham and Gunthorpe.	Screened out (K)
4.31 – 4.38	Background on delivering the strategy		
Spatial Policy 5	Delivering the Strategy	Sufficient sites have been allocated to ensure housing need is met if some sites don't deliver.	Screened out (G)
4.39 – 4.45	Background on Infrastructure for growth		

Section of the document	Assessment	Proposed development	Screening conclusion (Category)
Spatial Policy 6	Infrastructure for Growth	Ensuring the delivery of infrastructure to support growth in the district.	Screened out (K)
4.46 – 4.50	Background on sustainable transport		
Spatial Policy 7	Sustainable Transport	Council will support development proposals that promote integrated transport network, public transport, rural accessibility and enhance pedestrian environment.	Screened out (D)
4.51 – 4.57	Background on leisure and community facilities		
Spatial Policy 8	Protecting and Promoting Leisure and Community Facilities	Provision of new community and leisure facilities will be encouraged.	Screened out (K)
4.58	Background on selecting sites appropriate for allocation		
Spatial Policy 9	Selecting Appropriate Sites for Allocation	Set of criteria for the selection of sites for housing, employment and community facilities.	Screened out (B)
Chapter 5	Core Polices		
5.2 – 5.12	Background on affordable housing		
Core Policy 1	Affordable Housing Provision	The district requires the provision of affordable housing in all qualifying developments.	Screened out (G)
Core Policy 2	Rural Affordable Housing	The District Council will seek to secure the provision of affordable housing on rural affordable housing 'exception sites'.	**Screened in (L)** • Potential air quality effects • Cat predation • Disturbance from dog walking
5.13 – 5.14	Background on mix, type and density of new housing		
Core Policy 3	Housing Mix, Type and Density	Developments must adequately address housing needs of the district (i.e. 1 bed, 2 bed etc.) at a density of 30 - 50 dwellings per hectare.	Screened out (K)
5.15 – 5.19	Background on gypsies, travellers and travelling showpeople		
Core Policy 4	Gypsies & Travellers - New Pitch Provision	Council will identify 40 pitches to meet needs identified in most recent Gypsy and Traveller Accommodation Assessment.	Screened out (K)
Core Policy 5	Criteria for Considering Gypsies & Travellers and Travelling Showpeople	List of criteria for guiding allocation of individual sites.	Screened out (B)

Section of the document	Assessment	Proposed development	Screening conclusion (Category)
5.20 – 5.23	Background on employment profile		
Core Policy 6	Shaping our Employment Profile	Plans to strengthen and broaden the economy of Newark and Sherwood District.	Screened out (K)
5.24 – 5.27	Background on tourism development		
Core Policy 7	Tourism Development	The District Council will view positively proposals will help realise the tourism potential of the District.	Screened out (K)
5.28 – 5.37	Background on town centres and retail		
Core Policy 8	Retail & Town Centres	The Council will seek support centres, with a range of retail and other main Town Centre uses.	Screened out (H)
5.38 – 5.41	Background on sustainable development		
Core Policy 9	Sustainable Design	New development proposals demonstrate a high standard of sustainable design that protects and enhances the natural environmental and sustains the rich local distinctiveness of the District.	Screened out (D)
5.42 – 5.46	Background on climate change		
Core Policy 10	Climate Change	The District Council is committed to tackling the causes and impacts of climate change and reducing the District's carbon footprint. This includes promoting renewable energy, energy efficiency, minimising environmental impacts of developments building away from flood risk zones and sustainably managed drainage systems.	Screened out (D)
5.47 – 5.50	Background on local drainage designation		
Core Policy 10a	Local Drainage Designations	The District Council will help develop Local Drainage Designations in Lowdham and Southwell.	Screened out (D)
5.51 – 5.54	Background on rural accessibility		
Core Policy 11	Rural Accessibility	The District Council will promote rural accessibility to services, facilities and employment.	**Screened in (L)** • Potential air quality effects
5.56 – 5.63	Background on biodiversity and green infrastructure		
Core Policy 12	Biodiversity and green infrastructure	The District Council will seek to conserve and enhance the biodiversity and geological diversity of the District.	Screened out (D)

Section of the document	Assessment	Proposed development	Screening conclusion (Category)
5.64 – 5.66	Background on landscape character		
Core Policy 13	Landscape Character	The District Council will work with developers to ensure that valued landscapes are protected and enhanced.	Screened out (D)
5.67 – 5.71	Background on historic environment		
Core Policy 14	Historic Environment	District Council will work with developers to help protect and enhance the character and appearance of heritage assets and historic environment, such as listed buildings.	Screened out (D)
Chapter 6	Area Policies		
6.2 – 6.31	Background on Newark area		
Policy NAP 1	Newark Urban Area	Promote Newark Urban Area as a focus for residential, commercial and leisure activity.	**Screened in (L)** • Potential air quality effects • Disturbance from dog walking
6.32 – 6.42	Background on Newark strategic sites		
Policy NAP 2a	Land South of Newark	A strategic site for 3,150 dwellings, employment land, two local centres, comprising retail, service, employment and community uses; and associated green, transport and other infrastructure.	**Screened in (L)** • Potential air quality effects • Disturbance from dog walking
6.43 – 6.66	Background on development requirements and phasing		
Policy NAP 2B	Land East of Newark	A strategic site for 1000 dwellings, a local centre, comprising retail, service, employment and community uses; and associated green, transport and other infrastructure	**Screened in (L)** • Potential air quality effects • Disturbance from dog walking
Policy NAP 2C	Land around Fernwood	A strategic site for 3,200 dwellings,; employment development (15 hectares); a local centre, comprising retail, service, employment and community uses; and associated green, transport and other infrastructure	**Screened in (L)** • Potential air quality effects • Disturbance from dog walking
6.67	Background on urban area sports and leisure facilities		
Policy NAP 3	Newark Urban Area Sports and Leisure Facilities	The District Council will seek to improve sports and leisure facilities,	Screened out (H)

Section of the document	Assessment	Proposed development	Screening conclusion (Category)
		which are accessible by a range of modes.	
6.60 – 6.74	Background on Southern Link Road		
Policy NAP 4	Newark Southern Link Road	The provision of the Newark Southern Link Road linking the A46 at Farndon to the A1 at Balderton.	Screened out (K)
6.75 – 6.77	Background on Southwell area		
Policy SoAP 1	Role and Setting of Southwell	Promote Southwell's role as a Service Centre for the town and surrounding areas, whilst protecting and enhancing its historic environment.	Screened out (H)
6.78 – 6.79	Background on Brackenhurst campus		
Policy SoAP 2	Brackenhurst Campus – Nottingham Trent University	The Council will work with Nottingham Trent University to support the development of educational facilities and ensure development does not negatively affect the setting.	Screened out (H)
6.82 – 6.89	Background on Sherwood area		
Policy ShAP 1	Sherwood Area and Sherwood Forest Regional Park	Maintain and enhance the ecological, heritage and landscape value of Sherwood Area whilst promoting sustainable and appropriate leisure, tourism and economic regeneration.	Screened out (D)
6.90 – 6.95	Background on Ollerton & Boughton		
Policy ShAP 2	Role of Ollerton & Boughton	Promote and strengthen the Service Centre of Ollerton and Boughton by promoting new housing and employment opportunities, new community infrastructure and improve public transport linkages.	Screened out (A)
6.96 – 6.98	Background on Edwinstowe		
Policy ShAP 3	Role of Edwinstowe	Promote and strengthen the Service Centre of Edwinstowe by promoting new housing and employment opportunities, improving infrastructure, developing tourist facilities as well as protecting and enhancing the biodiversity and nature assets.	Screened out (A)
6.99 – 6.119	Background on Thoresby Colliery		
Policy ShAP 4	Land at Thoresby Colliery	A strategic site for 800 dwellings, 10ha of employment land, a 'community centre', comprising	**Screened in (L)** • Potential air quality effects

Section of the document	Assessment	Proposed development	Screening conclusion (Category)
		leisure and community uses along with retail to meet local needs; and associated green, transport and other infrastructure.	• Cat predation • Disturbance from dog walking
6.120 -6.121	Background on Mansfield Fringe		
Policy MFAP 1	Mansfield Fringe Area	Promote the Service Centres of Rainworth and Clipstone and the Principal Village of Blidworth as sustainable settlements, promoting new housing development, community infrastructure and improve public transport.	Screened out (A)
Appendix A	Glossary		
Appendix B	Strategic Framework		
Appendix C	Housing and Employment Figures		
Appendix D	Infrastructure		
Appendix E	Replaced Core Strategy Policies		
Appendix F	Monitoring of Core Strategy		

Box 1: Core Policy 12 - Biodiversity and Green Infrastructure

The District Council will seek to conserve and enhance the biodiversity and geological diversity of the District by working with partners to implement the aims and proposals of the Nottinghamshire Local Biodiversity Action Plan, the Green Infrastructure Strategy and the Nature Conservation Strategy. The District Council will therefore:

- Expect proposals to take into account the need for continued protection of the District's ecological, biological and geological assets. With particular regard to sites of international, national and local significance, Ancient Woodlands and species and habitats of principal importance identified in Section 41 of the Natural Environment and Rural Communities Act 2006 and in the Nottinghamshire Local Biodiversity Action Plan;

- Seek to secure development that maximises the opportunities to conserve, enhance and restore biodiversity and geological diversity and to increase provision of, and access to, green infrastructure within the District;

- Promote the appropriate management of features of major importance for wild flora and fauna;

- Provide for Suitable Alternative Natural Green Space to reduce visitor pressure on the District's ecological, biological and geological assets, particularly in the Newark area and for 5kms around the Birklands and Bilhaugh Special Area of Conservation;

- Support the development of a Green Infrastructure Network, as illustrated in the Green Infrastructure Diagram, linking together Key Strategic Routes throughout the District and providing for, in appropriate locations, visitor infrastructure that improves accessibility. The District Council will, in particular, promote improved green infrastructure linkages between:

    - Newark and Southwell; and

    - Southwell and the north-west of the District

    Development proposals crossing or adjacent to the network should make provision for its implementation and/or enhancement;

- Positively view proposals that seek to enhance the District's Green Infrastructure resource in support of tourism development. Proposals in the Bilsthorpe, Edwinstowe and Ollerton & Boughton areas, in connection with the Sherwood Forest Regional Park, will be supported. In Newark, new Green Infrastructure schemes that maximise the potential of the Trent Riverside area will be supported;

- Support the implementation of area-based Strategic Green Infrastructure interventions through the Allocations & Development Management DPD.

Box 2: Policy DM7 - Biodiversity and Green Infrastructure

New development, in line with the requirements of Core Policy 12, should protect, promote and enhance green infrastructure to deliver multi functional benefits and contribute to the ecological network both as part of on site development proposals and through off site provision. As set out in Core Policy 12 public open space provided in connection within allocations in settlements within a 5km radius of Birklands & Billhaugh

Special Area of Conservation, (provided in accordance with the Developer Contributions SPD) shall be designed to reflect the need to provide SANGS in perpetuity to relieve pressure on the SAC. Where SANGS are proposed, their quantity and quality shall be developed and agreed in conjunction with the District Council and Natural England.

Planning permission will not be granted for development proposals on, or affecting, Special Areas of Conservation or Special Protection Areas (European Sites) unless it is directly related to the management of the site for nature conservation and public access and does not significantly harm the integrity of the site.

For development proposals on, or affecting, Sites of Special Scientific Interest (SSSIs), planning permission will not be granted unless the justification for the development clearly outweighs the nature conservation value of the site.

On sites of regional or local importance, including previously developed land of biodiversity value, sites supporting priority habitats or contributing to ecological networks, or sites supporting priority species, planning permission will only be granted where it can be demonstrated that the need for the development outweighs the need to safeguard the nature conservation value of the site.

All development proposals affecting the above sites should be supported by an up-to date ecological assessment, involving a habitat survey and a survey for protected species and priority species listed in the UKBAP. On SSSI's and sites of regional or local importance, significantly harmful ecological impacts should be avoided through the design, layout and detailing of the development, with mitigation, and as a last resort, compensation (including off-site measures), provided where they cannot be avoided.

APPENDIX D: IBA of Sherwood Forest

Table D1: NBGRC data showing the year and location where nightjar have been recorded at Sherwood Forest

Year	Location	Number of Individuals	Total
1992	Burnststump Quarry	1	65
	Annesley Plantation	3	
	Thieves' Wood	2	
	Harlow Wood	3	
	Ransom Wood	1	
	Samson Wood	3	
	Blidworth Wood	5	
	Warsop Quarter	9	
	Black Hill, Clipstone Forest	7	
	Clipstone Forest	16	
	Carburton, Clumber Park	10	
	Hardwick, Clumber Park	2	
	Crookford Hill	3	
2004	Park Forest	2	66
	Samson Wood	2	
	Rainworth Bypass	2	
	Blidworth Wood	5	
	Rainworth Heath	1	
	Peafield Lane	1	
	Normans Plantation	3	
	Haywood Oaks	1	
	Boundary Wood	1	
	Rufford Colliery	1	
	Inkersall, Clipstone Forest	3	
	Far Round Plantation, Clipstone Forest	2	
	Centre Tree	1	
	Hanger Hill Wood	1	
	Boundary Plantation and Budby South Forest	2	
	Black Hill, Clipstone Forest	1	
	Browns Covert, Clipstone Forest	3	
	Sherwood Forest NNR	3	
	Budby South Forest	2	
	Clipstone Forest	10	
	Coronation Plantation	1	
	Carburton, Clumber Park	1	
	Carburton Hills, Clumber Park	2	
	Holywell Wood, Clumber Park	3	
	Clumber Park	1	
	Burnt Oak Plantation, Clumber Park	2	
	Budby Corner	2	
	Thorney Hill, Clumber Park	2	
	King Charles's Breck, Clumber Park	1	

Year	Location	Number of Individuals	Total
	Thoresby Border	3	
	Cabin Hill Covert, Clumber Park	1	
2008 - 2010	Thieve's Wood	1	176
	Fountaindale	2	
	Watchwood Plantation	2	
	Blidworth Woods	21	
	near Park House Farm - near Church Warsop	2	
	Peafield Lan - near Market Warsop	10	
	Cavendish Lodge - near Kings Clipstone, Thoresby Estate	7	
	Lings, Birklands Forest	1	
	Thynghowe, Birklands Forest	5	
	Gleadthorpe Piece, Birklands Forest	1	
	Welbeck Estate	2	
	Forest Country	4	
	Blackpool Plantation, Birklands Forest	3	
	Centre Tree - Map of Britain, Birklands Forest	5	
	Railway Piece, Birklands Forest	5	
	Cordite Field (area), Birklands Forest	2	
	Clipstone Forest	5	
	Sherwood Pines/Clipstone Forest	55	
	Buck Gates, Thoresby Estates	3	
	Budby Castle, Thoresby Estate	5	
	Ollerton Heath - near A614 Roundabout	2	
	Meadow Bank, Birklands Forest	2	
	Scotland Farm, Thoresby Estate	1	
	Budby Corner Plantation	10	
	Clumber Park	9	
	Morris Dancer's, Thoresby Estate	5	
	NI Plantation, Thoresby Estates	2	
	Budby South Forest	4	
2011-2015	Bentinck Void (5/2000)	1	261
	Annesley Pit (5/392), Annesley Pit Top	2	
	Longdale Lane	2	
	Blidworth Woods	13	
	near Park House Farm - near Church Warsop	3	
	Peafield Lane - near Market Warsop	8	
	Peafield Plantation, Warsop	4	
	Strawberry Hill	4	
	Cavendish Lodge - near Kings Clipstone, Thoresby Estate	6	
	Lings, Birklands Forest	1	
	Thynghowe, Birklands Forest	3	
	Budby Pumping Station	2	
	Welbeck Estate	27	
	Holme Pierrepont Gravel Pits, Holme Pierrepont	1	

Year	Location	Number of Individuals	Total
	Carlton	1	
	Blackpool Plantation, Birklands Forest	6	
	Centre Tree - Map of Britain, Birklands Forest	8	
	Clipstone Old Quarter	2	
	Railway Piece, Birklands Forest	7	
	Cordite Field (area), Birklands Forest	3	
	Sherwood Pines/Clipstone Forest	47	
	Sherwood Pines	17	
	Budby South Forest	35	
	Birklands and Bilhaugh (1/91), Sherwood Forest	10	
	Ollerton Heath - near A614 Roundabout	1	
	Meadow Bank, Birklands Forest	8	
	Scotland Farm, Thoresby Estate	7	
	Carburton	3	
	Budby	1	
	Budby Corner Plantation	7	
	Clumber Park	12	
	Morris Dancer's, Thoresby Estate	6	
	Elkesley Woods	2	
	Sutton and Lound (1/63), Lound Gravel Pit Complex	1	
2016	Park Forest	1	52
	Annesley Plantation	1	
	Robin Hood's Hills	1	
	Thieves' Wood	1	
	Harlow Wood	3	
	Ransom Wood	1	
	Samson Wood	2	
	Rainworth Bypass	4	
	Blidworth Wood	3	
	Peafield Lane	1	
	Strawberry Hill	1	
	The Sarts	2	
	Warsop Quarter	1	
	Hanger Hill	2	
	Gleadthorpe New Plantation	1	
	Rough Breck	1	
	Welbeck Estate	1	
	College Pines Golf Club/Manor Hills	1	
	Calverton Pit Top	1	
	Inkersall, Clipstone Forest	4	
	Far Round Plantation, Clipstone Forest	1	
	Clipstone Forest	5	
	Clipstone Old Quarter	4	
	Centre Tree	4	
	Boundary Plantation and Budby South Forest	3	
	Black Hill, Clipstone Forest	2	

Year	Location	Number of Individuals	Total
	Browns Covert, Clipstone Forest	1	
	Major Oak, Sherwood Forest NNR	2	
	Sherwood Forest NNR	1	
	Budby South Forest	2	
	Budby South Forest and Sherwood Forest NNR	1	
	Budby South Forest and South Grove	1	
	Gibraltar Plantation	1	
	Scotland Farm	1	
	Truman's Lodge, Clumber Park	6	
	Holywell Wood, Clumber Park	1	
	Clumber Park	1	
	Burnt Oak Plantation, Clumber Park	3	
	Budby Corner	2	
	Thorney Hill, Clumber Park	1	
	King Charles's Breck, Clumber Park	1	
	Thoresby Border	7	
	South Lawns, Clumber Park	1	
	Apley Head	1	
	Bracken Hill	1	
	Spitfire Bottoms	1	
2017	Clumber Park	35	35

Table D2: NBGRC data showing the year and location in which woodlark have been recorded at Sherwood Forest

Year	Location	Number of Individuals	Total
2008	Harlow Wood	1	116
	Maun Valley Trail	3	
	Welbeck Estate	56	
	Rufford Pit Top	12	
	Budby South Forest	18	
	Netherfield Lagoons	1	
	Clumber Park	21	
	Ollerton Regeneration Site	1	
	Lound Gravel Pit Complex	1	
	Spalford Warren	2	
2009	Annesley Pit Top, Newstead	17	119
	Warsop	2	
	Sherwood Golf Course	1	
	Welbeck Estate	10	
	Worksop	2	
	Budby Pumping Station	1	
	Rufford Pit Top	3	
	Clipstone Forest	5	
	Budby South Forest	53	
	Birklands	3	

Year	Location	Number of Individuals	Total
	Sherwood Forest Visitor Centre	1	
	Clumber Park	12	
	Serlby Park	1	
	Bevercotes Regeneration Site	2	
	Spalford Warren	6	
2010	Annesley Pit Top, Newstead	51	116
	Barton-in-Fabis	1	
	Shireoaks	2	
	Welbeck Estate	5	
	Budby Pumping Station	5	
	Rufford Pit Top	1	
	Clipstone Forest	11	
	Budby South Forest	24	
	Carburton	6	
	Clumber Park	1	
	Center Parcs	1	
	Ollerton	1	
	Bevercotes	4	
	Lound Gravel Pit Complex	1	
	Spalford Warren	2	
2011	Barton-in-Fabis	1	91
	Annesley Pit Top, Newstead	9	
	Newstead Pit Top	4	
	Welbeck Estate	4	
	Rainworth Heath	2	
	Budby Pumping Station	14	
	Rufford Colliery	2	
	Clipstone Forest	4	
	Budby South Forest	26	
	Clumber Park	8	
	Thoresby Park	1	
	Spalford Warren	16	
2012	Newstead Old Coal Stocking Yard	2	130
	Annesley Pit Top, Newstead	41	
	Longdale Lane	2	
	Welbeck Estate	4	
	Rufford Pit Top	2	
	Clipstone Colliery	4	
	Budby Pumping Station	11	
	Rufford Colliery	16	
	Budby South Forest	36	
	Budby Heath	1	
	Carburton gate	1	
	Holme Pierrepont	1	
	Sherwood Forest Country Park	3	
	Clumber Park	2	

Year	Location	Number of Individuals	Total
	Walesby Forest	2	
	Spalford Warren	2	
2013	Annesley Pit Top, Newstead	53	127
	Welbeck Estate	14	
	Budby Pumping Station	5	
	Rufford Colliery	2	
	Sherwood Forest VC	3	
	Budby South Forest	36	
	Clumber Park	11	
	Elkesley Woods	1	
	Spalford Warren	2	
2014	Annesley Pit Top	33	78
	Welbeck Raptor Watch Point	1	
	Welbeck Estate	12	
	Rufford Colliery	3	
	Rufford Pit Top	2	
	Clipstone Forest	8	
	Budby South Forest	14	
	Lound Gravel Pits Complex	1	
	Spalford Warren	4	

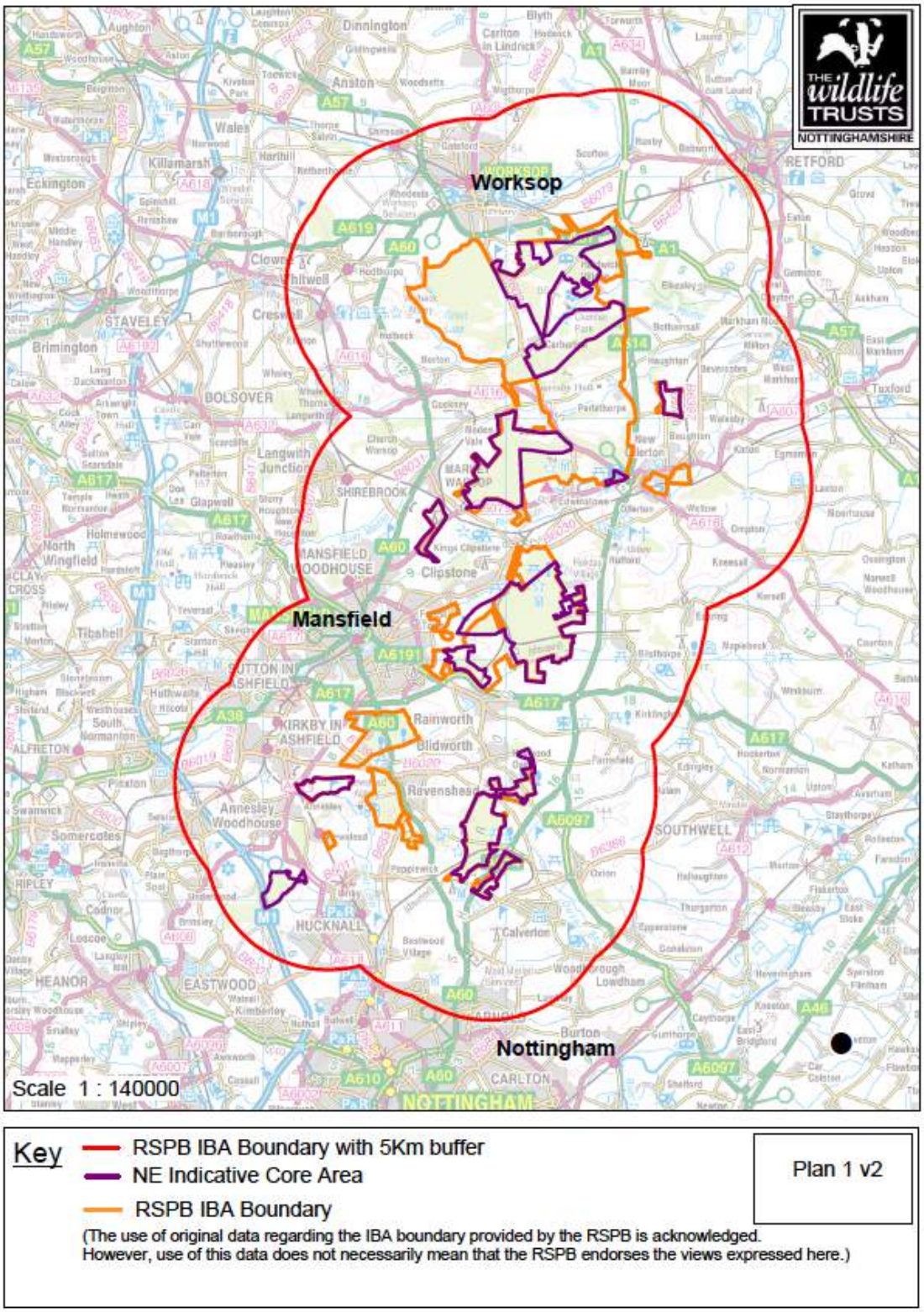

Figure D3: Map illustrating Important Bird Areas of Sherwood Forest ppSPA with a 5km buffer zone, submitted as evidence to the Rufford ERF Public Inquiry 2010[85].

[85] Map is available online at: http://www.newark-sherwooddc.gov.uk/media/newarkandsherwood/imagesandfiles/planningpolicy/pdfs/

APPENDIX E: Response to screening from Natural England (8th March, 2017)

Date: 08 March 2017
Our ref: 206193
Your ref: none

Adrian Allenbury
Planning Policy
Newark & Sherwood District Council
Adrian.Allenbury@nsdc.info

BY EMAIL ONLY

Customer Services
Hornbeam House
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T 0300 060 3900

Dear Adrian

Newark & Sherwood Local Development Framework Plan Review – Habitat Regulations Assessment (HRA) Screening Document

Thank you for your consultation on the above which was received by Natural England on 24 January 2017.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

CONSERVATION OF HABITATS AND SPECIES REGULATIONS 2010, AS AMENDED (THE 'HABITATS REGULATIONS')

Natural England welcomes the opportunity to comment on the HRA Screening Document and has the following comments on the report:

We acknowledge that the report has assessed the pressures and threats of the relevant European sites i.e. the Birklands & Bilhaugh Special Area of Conservation (SAC) and also that a risk based approach has been followed in respect of the Sherwood Forest possible potential Special Protection Area (ppSPA).

Disease and human induced hydraulic changes
Natural England agrees with the conclusions in relation to disease and human induced hydraulic changes i.e. that Likely Significant Effects (LSE) of the Local Plan Review on Birkland and Bilhaugh SAC can be objectively ruled out based on the current information available. Disease will not be positively correlated with how many houses that the plan may allocate, but will depend on other factors associated with the import or transmission of diseased material. Consequently, there is a risk that landscape planting may introduce disease but this can be avoided by planning conditions. Human induced hydraulic changes will also not be significant because 90% to 99% of tree roots occur within 1 metre of the soil surface and the natural water table within the SAC is well below this depth.

Air Quality
We note that in paragraph 4.5.12 Natural England's advice has been specifically sought because the Local Plan Review could potentially exacerbate the pre-existing poor air quality at the Birklands & Bilhaugh SAC which may degrade the ecosystem health.

Air pollution is not very well understood in terms of identified sources. The APIS website gives the following figures for air pollution within the SAC:

	Concentration and Deposition	Critical Load
Nitrogen Deposition	28.42kg N/ha/yr	10-15kg N/ha/yr
Acid Deposition Nitrogen	2.03keq/ha/yr	1.387keq/ha/yr
Acid Deposition Sulphur	0.49keq/ha/yr	1.245keq/ha/yr
NOx Concentration	20.8µg/m^3	30µg NOx/m^3 annual mean
SO2 Concentration	2.91µg/m^3	10-20µg SO_2/m^3 annual mean

This information shows that currently nitrogen deposition and acid deposition levels exceed their assigned critical loads for the SAC. However, the HRA suggests that the primary source of nitrogen deposition in residential development is road traffic and that air quality impacts from vehicles are most likely to occur within 200 metres of a road. Indeed, higher levels of NOx pollution would be expected in woodlands close to combustion plants, major roads and urban areas but at this site NOx concentrations are below critical load which suggests that road traffic may not be a key issue. It is estimated that non-agricultural sources are responsible for approximately 38% of local nitrogen deposition with the Whitwell lime production plant considered to be a significant contributor. Road transport is estimated to contribute 17% of local nitrogen deposition while agricultural sources are estimate to contribute 34%. Given the size of the proposed development near to the SAC some further assessment of the probable process contribution should be considered. Generally, a process contribution of less than 1% of the critical load would automatically rule out any likely significant effects. A process contribution >1% would require more detailed modelling and would need to include in-combination effects.

We suggest therefore that the HRA needs to draw on additional information to aid the assessment and provide further evidence to support its conclusions. The effects of air pollution are usually limited to within 200m of the road and according to Design Manual for Roads and Bridges[1] (DMRB) the significance threshold is an increase of 1000 Annual Average Daily Traffic (AADT). The B6034 is the only road within 200m of the SAC and therefore modelling to predict the increase in traffic movements along this road may be useful. The Thoresby Colliery redevelopment site (800 homes) will result in a significant number of movements potentially above 1000 AADT alone however it is unlikely that all the traffic will travel along the B6034 which is a minor road.

The new Sherwood Forest visitor centre could alter traffic movements and the effects of this traffic based on the predicted number of visitors should also be considered, though it is understood that this is likely to stay roughly the same, and the proposed access routes to the new visitor centre.

The report makes reference to SSSI condition but this should be used with caution in relation to the SAC and ppSPA. This is because SSSI condition specifically relates to the assessed condition of the notified features of the SSSI and these features might not be exactly the same as the SAC and ppSPA. For this reason, one should not try to equate the SSSI features with the SAC or ppSPA. This is because the features of the SAC and ppSPA are assessed independently of the features of the SSSI, and the features of the SSSI are assessed independently of the features of the SAC. In this respect, the current visitor centre and car park within the SAC is having a negative impact upon the notified features of the SSSI which is why the condition of unit 12 is assessed as unfavourable to change. The current visitor centre and car park within the SAC is also adversely affecting integrity but the SAC is not unfavourable in the same context as the SSSI. Consequently, for reasons of clarity, references to the SSSI should be removed from the HRA.

Cat Predation

We agree with the conclusion that based on the available information, a likely significant effect

[1] Design Manual for Roads and Bridges (2007) Volume 11 Environmental Assessment Section 3 Environmental Assessment Techniques.

associated with predation by cats on the breeding populations of nightjar and woodlark of Sherwood Forest ppSPA cannot be objectively ruled out. In this case the hierarchy of intervention should be followed where plan makers seek to avoid the effect through, for example, a change of policy. If this is not possible, mitigation measures should be explored to remove or reduce the significant effect. If neither avoidance, nor subsequently, mitigation is possible, alternatives to the plan should be considered. Such alternatives should explore ways of achieving the plan's objectives that do not adversely affect European sites.

In terms of cat predation the real risk is for those sites within 400m of identified nightjar and woodlark habitats and the report has identified that the Thoresby Colliery site (Policy ShAP4) would be at risk. We acknowledge that Policy ShAP4 has made provision for the protection of nature conservation interests and the provision of SANGs within the core development area as part of the provision of green infrastructure and the measures to address the issue of pet predation. (NB our comments to the Local Plan Review – Preferred Approach Sites & Settlement). However we would suggest that you may want to consider further mitigation measures incorporated into the design of the development to try to avoid and minimise any potential impacts as far as possible, for example the layout of the proposed development should aim to achieve the 400m exclusion zone or locating non-residential infrastructure within this distance, provision of impermeable landscape buffers and fences.

Dog Disturbance
The Local Plan Review is considered likely to lead to an increase in the number of dogs being walked in Sherwood Forest ppSPA and it is not possible to objectively rule out LSE associated with disturbance from dogs on the nightjar and woodlark of the site when adopting a precautionary approach. Therefore further information needs to be gathered to aid the assessment. This may involve predicting numbers of additional households and dogs and referring to green space plans to assess which green spaces are likely to be used and how they overlap with the nightjar and woodlark habitats. Opportunities should be sought to create or enhance suitable alternative spaces to alleviate pressure from the ecologically sensitive sites or implementing access management measures at existing sites in a similar way to those suggested to avoid cat predation (as above). This approach would also assist in combating other recreational pressures including instances of vandalism, unauthorised use of vehicles, etc.

In Combination effects
We note that at this stage the HRA does not seem to have fully considered the in combination effects that may arise from the Review. We suggest that other plans and projects that may contribute to a significant effect on both the SAC and the ppSPA should be fully considered.

We would be happy to comment further should the need arise but if in the meantime you have any queries please do not hesitate to contact us.

For any queries relating to the specific advice in this letter only please contact Roslyn Deeming on 02080268500. For any new consultations, or to provide further information on this consultation please send your correspondences to consultations@naturalengland.org.uk.

Yours sincerely

Roslyn Deeming
Lead Adviser
Sustainable Development Team
East Midlands Area

APPENDIX F: Consultation responses from Natural England at the Re-screening Stage (August, 2017)

RE: NSDC HRA Re-screening

P

PlanConsAreaTeamEastMidlands@defra.gsi.gov.uk
Wednesday, 16 August 2017 at 16:25
To: Adrian.Allenbury@newark-sherwooddc.gov.uk

Hi Adrian
Thank you for sending Natural England the revised HRA screening document. We have reviewed the document and consider that it addresses the points that we raised in our letter of 8th March 2017.

We acknowledge that additional information has been included relating to air quality including reference to the recent air quality assessments carried for the Thoresby Colliery application.

We also welcome the additional detail regarding cat predation and dog disturbance including table 9.1 which sets out recommendations for appropriate mitigation measures to prevent adverse impact on nightjar and woodlark.

We can therefore agree with the report's conclusions that LSE on the Birkland & Bilhaugh SAC as a result of air pollution caused by the Local Plan review can be ruled out and that core policy 12 and policy DM7 will provide adequate protection for the Annexe 1 bird species.

I hope this is of assistance and please contact me if you want to discuss this matter in further detail.
Regards
Roslyn

Habitat Regulations Assessments

Sustainability Appraisals

Strategic Environmental Assessments

Landscape Character Assessments

Landscape and Visual Impact Assessments

Green Belt Reviews

Expert Witness

Ecological Impact Assessments

Habitat and Ecology Surveys

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