

15 ECOLOGY AND NATURE CONSERVATION

15.1 INTRODUCTION

Overview

- 15.1.1** This Chapter, prepared by Ecological Planning & Research Ltd, reports on the ecology and nature conservation value of Heyford Park and presents an ecological impact assessment of the proposed scheme according to the current guidance (IEM, 2006). Full details of the development proposals are presented in Chapter 3.
- 15.1.2** The zone of influence surveyed for impacts is identified as is the methodology used to assess nature conservation value. The current ecological baseline is then presented along with details of relevant policies and plans with respect to the survey area.
- 15.1.3** The future outcome for the survey area should the proposed development not go ahead is considered before setting out the potential impacts of the proposals upon the features of nature conservation value. Mitigation for these impacts is discussed before examining any residual impacts and stating the significance of any such impacts. Possible compensation is then considered before evaluating what the outcome of this assessment means in terms of current nature conservation policy.

15.2 STUDY AREA

The Zone of Influence

- 15.2.1** The IEM guidance on ecological impact assessment (2006) refers to the area considered to receive impacts from a proposal as the zone of influence. This zone is thus the area surveyed for features of ecological value. It is important for the assessment of ecological impacts that the zone of influence is defined. For the proposed development and its impacts upon features of biodiversity value, the zone of influence is defined as the area shown on Map EI. This area comprises the footprint of the proposed development and 1.5-2km around the periphery. Given the topography of the site, it is considered that indirect effects produced by the proposed development, such as noise and water run-off, may have wider impacts upon the landscape.
- 15.2.2** The zone of influence includes:
- The Flying Field;
 - RAF Upper Heyford County Wildlife Site;
 - Former Technical Area;
 - The Gorse and Heath;
 - Ardley Quarry and Cuttings SSSI;
 - Kennel Copse;
 - Rush Spinney County Wildlife Site.

15.3 METHODOLOGY

Introduction

15.3.1 This Chapter is based upon the Guidelines for Ecological Impact Assessment (EclA) in the UK published by the Institute of Ecology and Environmental Management (IEEM, 2006) which sets out the current best practice with respect to Ecological Impact Assessment.

15.3.2 The IEEM methodology provides a stepwise, descriptive approach to the assessment process including the following stages:

- Scoping the requirements of the assessment;
- Identification of the zone of influence of the proposals;
- Identification and evaluation of ecological resources and features likely to be affected;
- Identification of the biophysical changes likely to affect valued ecological resources and features;
- Assessment of likely significant ecological impact;
- Necessary steps for mitigation of negative impacts;
- Evaluation of residual impacts following mitigation and necessary compensation;
- Provision of advice on the consequences for decision making in respect of significant ecological impacts.

15.3.3 This assessment approach relies upon the professional judgement of an ecologist and is evaluated upon the background of the future baseline conditions at the time of implementation were the proposed development not to take place.

Assessment Methodology

Determining Value of Ecological Features/Resources

15.3.4 In order to inform the assessment of impacts from the proposed development, the ecological features or resources currently present require evaluation of their importance in nature conservation terms. The criteria used by the IEEM guidance does not readily assign values to categories as ecological features are complex and boundaries between values become difficult to define with precision. The guidelines therefore promote the use of professional judgement in determining the value of the feature being considered and rely upon available guidance, information and expert advice. However it is necessary to present the value of a feature in a comparable manner and thus the IEEM guidance determines the value of an ecological resource or feature within a geographical context and thus value is defined as:

- International;
- UK;
- National (i.e. England/Northern Ireland/Scotland/Wales);
- Regional;
- County (or Metropolitan – e.g. in London);
- District (or Unitary Authority, City or Borough);
- Local or Parish; and
- Within the zone of influence only.

15.3.5 The judgement of value considers whether sites affected are designated for their ecological value, contain habitats or species protected by UK or EU legislation or are covered by Habitat or Biodiversity Action Plans (HAPs or BAPs). Rarity of features as well as potential future value or supporting value to another feature are important considerations. Whether or not a feature provides social value to people or economic value is also considered.

Impact Assessment

15.3.6 The assessment of impacts in line with IEEM guidance is undertaken in relation to the baseline conditions within the zone of influence that are expected to occur if the Scheme were to not take place. Thus inevitably it is the future baseline conditions that are assessed. The assessment also evaluates the impact in terms of the following parameters:

- Positive or negative;
- Magnitude;
- Extent;
- Duration;
- Reversibility; and
- Timing and frequency.

15.3.7 The degree of confidence in the assessment of the impact on ecological structure and function is also stated.

The parameters used here are:

- Certain/near certain: probability estimated at 95% chance or higher;
- Probable: probability estimated above 50% but below 95%;
- Unlikely: probability estimated above 5% but less than 50%;
- Extremely Unlikely: probability estimated at less than 5%.

15.3.8 The significance of the impact is then judged on the affect upon the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area, though the impact may of course differ at different geographical scales. The integrity of a site is defined as:

'...the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat complex of habitats and/or the levels of populations of the species for which it was classified.'

A site/ecosystem that achieves this level of coherence is considered to be at favourable condition.

15.3.9 The EC Habitats Directive uses the term 'conservation status' to discuss the impacts of plans or projects upon features of ecological value and how to assess significance of those impacts. The IEEM guidance uses slightly modified versions of these definitions so that evaluation of conservation status can be applied to habitats or species within any defined geographical area:

- For habitats, conservation status is determined by the sum of the influences acting on the habitat and its typical species, that may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area; and
- For species, conservation status is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area.

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15.3.10 Conservation status may be evaluated for any defined study area at any defined level of ecological value. The extent of the area used in the assessment relates to the geographical level at which the feature is considered important.

Desk-Top Study

15.3.11 A desk-top study has been undertaken for the scheme area. Test Valley Environmental Records Centre was contacted for details of designated sites and protected species records within 2km of the site. TVERC was contacted in 2002 and again in 2007 to ensure that any records found were up-to-date.

15.3.12 Bird data was also obtained from Banbury Ornithological Society.

Baseline Surveys

Summary

15.3.13 Ecological surveys have been undertaken at Heyford Park over a ten year period from 1997 to 2007 in order to inform on the likely impacts of development proposals at Heyford Park. Ecological surveys have been undertaken following current standard methodology and best practice guidance, though this has changed somewhat over the years. The following ecological surveys were carried out to provide baseline data for the Environmental Statement:

▪ Grassland Vegetation Survey	EPR	April 1997
▪ Breeding Bird Survey	EPR	June 1998
▪ Skylark and Vegetation Survey	EPR	June 1999
▪ Bat Survey	EPR	May 2001
▪ Badger Survey	EPR	May 2002
▪ Bat Survey	EPR	May 2002
▪ Breeding Bird Survey	EPR	May 2002
▪ Breeding Bird Survey	Ecoscope	May 2002
▪ Vegetation and Habitat Survey	Ecoscope	May 2002
▪ Great Crested Newt Survey	EPR	May 2002
▪ Great Crested Newt Survey	Bioscan	April 2005
▪ Updating Vegetation Survey	EPR	Oct 2006
▪ Bat Survey	EPR	Oct 2006 – July 2007
▪ Updating Bird Survey	EPR	Oct 2006
▪ Updating Badger Survey	EPR	Jan 2007
▪ Updating Great Crested Newt Survey	EPR	May 2007
▪ Invertebrate Survey	EPR	June/July 2007

Vegetation

15.3.14 A Phase 1 habitat survey (NCC 1980) was carried in 2006 to update knowledge of habitat types at a landscape level and to target more detailed surveys in more important habitat areas (see Map E2). In 1997 and 1998 a Phase 2 survey of the grassland on the whole airfield at Heyford Park was undertaken mapping the vegetation communities present in greater detail; this survey was subsequently updated in October 2006. A full tree survey of the site was undertaken and full details of this are presented in Chapter 14.

Birds

15.3.15 Bird surveys were undertaken of the whole airfield (see Map E4) in 1997 and 1999. These highlighted the low value of the new settlement area for bird species and the importance of the central grasslands within the Flying Field Area. Surveys of the whole airfield were undertaken in 2002 and 2006.

Badgers

15.3.16 A survey of the site for use by Badgers *Meles meles* was undertaken in May 2002. The site was systematically searched for setts and other signs of badger activity, such as latrines, paths, footprints, hairs and feeding signs; this survey was subsequently updated in January 2007.

Bats

15.3.17 Bat surveys were undertaken of the buildings on site in 2001, 2002, 2006 and 2007. Buildings were assessed for their potential to support bats externally and then examined internally for bat evidence according to JNCC guidelines. Where evidence of bats was found emergence surveys were undertaken using bat detectors to establish the presence or absence of bats.

Great Crested Newts

15.3.18 A Great Crested Newt was discovered in a water tank within the site during May 2002. Subsequently, a survey of all water bodies on site was undertaken to establish the presence or absence of Great Crested Newts on site and included an assessment of all the water bodies on the site for their suitability as amphibian habitat. All water bodies located on the site were surveyed for the presence or likely absence of amphibians in May 2002, April 2005 and May/June 2007 in accordance with English Nature guidance to allow an estimate of Great Crested Newt population class size and structure to be made.

Invertebrates

15.3.19 An invertebrate survey was carried out of the site in October, 2006, June and July 2007. Habitats of value for invertebrates were highlighted and then a variety of trapping techniques employed to sample the grassland habitats for invertebrates.

15.4 CONSULTATION**Overview**

15.4.1 In the lead up to this planning application there has been long-term dialogue between planning officers of Cherwell District Council, Oxford County Ecologist, English Nature and North Oxford Consortium. Survey types and methodologies have been agreed between the parties and on site meetings have been held to talk through the proposals and the necessary mitigation. In addition to these meetings North Oxfordshire Consortium has liaised with Cherwell District Council throughout the compilation of the Revised Comprehensive Planning Brief for the site.

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- 15.4.2** Biological records for the site have also been obtained from Thames Valley Environmental Records Centre (see Appendix E.A01)

15.5 EXISTING ENVIRONMENT WITHIN THE ZONE OF INFLUENCE

Introduction

- 15.5.1** In this section the baseline ecology data for the area proposed for development is presented along with an assessment of its nature conservation value.

Site Description and Context

- 15.5.2** Heyford Park lies approximately 15 miles north west of Oxford, on a plateau overlooking the Cherwell Valley and North Oxford Canal. South-west of the site lies the village of Upper Heyford and surrounding the site is a mosaic of large predominantly arable fields, with few hedgerows. The area generally lacks woodland, although a limited number of woodland fragments are also present. Species rich limestone grassland occurs on railway cuttings of the main Birmingham to London line, to the immediate east of the airbase.
- 15.5.3** The site consists mainly of open improved, species-poor grassland with former airbase buildings and hardstanding. The site is dry, with the exception of artificial emergency water storage tanks and oil/petrol interceptor structures which hold water. The former runway, with associated grasslands, makes up the majority of the site. To the south of this area lies the former military buildings, and residential accommodation.
- 15.5.4** The buildings to the north of Camp Road now form Heyford Park industrial estate, with a variety of businesses located on the site. This area is a mosaic of buildings interspersed with mown grassland. Well-developed planted deciduous trees, predominately Sycamore *Acer* spp., line most of the avenues. To the South of Camp Road are two areas of derelict buildings, and a residential area comprising semi-detached and terrace houses with small gardens.
- 15.5.5** The site is bordered on all sides by arable farmland. An exception to this is a very small fragment of woodland to the north east of the site. A 10m gap separates the farmland from the north of the site and has been recently planted with saplings; deciduous trees have been planted on the north-west corner of the site, and conifers are occasionally dotted throughout the northern grasslands. Trees on site are discussed within Chapter 14

Designated Sites

Statutory Sites

- 15.5.6** There is only one Statutory site of ecological importance within 2km of Upper Heyford; Ardley Cutting and Quarry Site of Special Scientific Interest (SSSI), which has been notified for both its geological and biological value. The primary feature of ecological value is the limestone grassland present on the railway cutting and quarry, which is one of the largest limestone grassland sites in the Oxfordshire Cotswolds (English Nature 1999). This grassland also contains a diverse invertebrate fauna and supports a number of butterfly species

uncommon in Oxfordshire as well as other nationally notable species. The site also supports part of a large population of Great Crested Newts *Triturus cristatus*.

Nature Conservation Value: National

Non-statutory Sites

RAF Upper Heyford Airfield County Wildlife Site

- 15.5.7** The former airbase comprises a very large area of grassland, though much of it is of relatively low nature conservation value. To the east an area of c. 35ha is limestone grassland with notable plants including Bee Orchid *Ophrys apifera* and Dwarf Thistle *Cirsium acaule* present. In addition to the botanical interest, a large number of Skylark *Alauda arvensis* have been recorded breeding and Curlew *Numenius arquata*, Corn Bunting *Miliaria calandra* and Tree Sparrow *Passer montanus* have also been noted.

Nature Conservation Value: County

Rush Spinney County Wildlife Site

- 15.5.8** Rush Spinney comprises a small area of rare marshy habitat adjacent to the Oxford Canal. Rushes dominate and tussock sedge (*Carex paniculata*) is abundant. There are some patches dominated by Reed Sweet-grass (*Glyceria maxima*). Southern Marsh Orchid (*Dactylorhiza praetermissa*), Common Spotted Orchid (*Dactylorhiza fuchsii*), Ragged Robin (*Lychnis flos-cuculi*) and Marsh Marigold (*Caltha palustris*) are amongst the characteristic wetland species present on site. The hybrid sedge *Carex c. subgracilis* which has only been found in scattered locations in Britain is present.

Nature Conservation Value: County

RAF Upper Heyford Airfield Ecologically Important Landscape

- 15.5.9** A wider area within the flying field is designated as an Ecologically Important Landscape (EIL) as a locally important large area of semi-improved grassland which is of importance for ground nesting bird species.

Nature Conservation Value: Local

Vegetation

Introduction

- 15.5.10** A Phase I habitat survey was carried in 2006 to update knowledge of habitat types at a landscape level and to target more detailed surveys in more important habitat areas.
- 15.5.11** The new settlement area itself consists of existing developed land. The majority of the remainder of the site on the Flying Field Area consists of species poor semi-improved grasslands. Within this grassland is situated the infrastructure associated with the former airbase, much of which is now in use for storage. The buildings and infrastructure are concentrated toward the north and south of the site, leaving the central area containing the runway relatively open and with significantly less human disturbance. The eastern third of this central area

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(see Map E2) contains sheep-grazed moderate to species rich grasslands and has been identified as a County Wildlife Site; this area is discussed in greater detail below. At its far eastern and western ends, the runway has been broken up and a ruderal vegetation community has developed. A number of small coniferous, deciduous and mixed species immature and semi-mature plantations are present across the site, particularly around the edge of the airfield.

Grassland

Overview

- 15.5.12** The grasslands at the former RAF Upper Heyford show rather gradual transitions from species poor grasslands, mainly permanent pastures, through to calcicolous grasslands, although none are particularly species rich and beyond the calcicolous grassland, consist of rather similar mixtures of grasses with increasing numbers of grassland herbs. In 2006, management of the site consisted of different levels of grazing and mowing in different areas; management was much more uniform in 1997 and 1998.

Very Species Poor Swards

- 15.5.13** The composition of this grassland is primarily determined by management, with mixed permanent grassland swards found where the swards are grazed or frequently mown. Lightly managed or unmanaged areas have rank grasslands. The former generally have *Festuca rubra* dominant but there are variable amounts of *Lolium perenne* present and it can dominate to the far west. The proportion of *Lolium perenne* was observed to drop off to the east. In contrast *Cynosurus cristatus* was more noticeable to the east, but less so to the west. Other associated grasses included frequent *Dactylis glomerata*, *Agrostis stolonifera*, *Festuca arundinacea* and occasional *Holcus lanatus* and *Trisetum flavescens*. In 2006, swards in this category were usually very lush and productive and associated herbs were mainly confined to robust competitive species. Prominent herb species included *Trifolium pratensis*, *Trifolium repens*, *Vicia sativa* and *Taraxacum* spp.
- 15.5.14** In terms of the National Vegetation Classification the bulk of the grassland is referable to the *Lolium perenne* – *Cynosurus cristatus* Grassland (MG6), with probably both the typical (MG6a) and *Trisetum flavescens* sub-community (MG6c) present. To the far west *Cynosurus* appeared to drop out of the sward and the swards became closer to NVC community *Lolium perenne* Leys (MG7). There is a continuum from MG7 through MG6a to MG6c on the site. The 1998 description over emphasised the extent of MG7, probably because *Cynosurus* was under recorded in the more closely mown swards. A short rabbit grazed area supported the Waxcap fungi *Hygrocybe conica* and *Hygrocybe russocoriacea*.
- 15.5.15** Ungrazed and less frequently mown areas were distinguished by the appearance of *Arrhenatherum elatius*, a lower cover of *Festuca rubra* and an increase in cover of *Dactylis glomerata*; the herb content was usually very low. These rank grasslands are referable to NVC community *Arrhenatherum elatius* Grassland *Festuca rubra* sub-community (MG1a). These grasslands appear to have become much more widespread since 1998, probably reflecting a decline in mowing intensity in parts of the site. MG1 is likely to develop on productive soils that

are ungrazed and only mown once a year. Grazing or more frequent mowing will suppress *Arrhenatherum elatius*.

Species Poor Swards with Some Grassland Herbs

15.5.16 These swards are similar to the very species poor swards, with productive mixed swards dominated by *Festuca rubra*. The unit was defined by the additional occurrence of *Lotus corniculatus* but with only rarely associated other species characteristic of lower productivity swards. Only rare isolated plants of *Cirsium acaule* and *Bromopsis erecta* were seen. The other associated herbs are similar to the very species poor swards, with *Trifolium* species prominent.

15.5.17 This community is best referred to NVC community *Lolium perenne* – *Cynosurus cristatus* Grassland *Trisetum flavescens* sub-community (MG6c) but is beginning to grade into the more species rich Creeping Fescue swards described below.

Moderate to Species Rich Creeping Fescue Swards

15.5.18 The species poor swards with some grassland herbs grade into this category of grassland, but where well developed it can be picked out by the general lower productivity of the sward, the decline in cover of Clovers *Trifolium spp.* and Dandelion *Taraxacum spp.*, the disappearance of *Vicia sativa* and a greater diversity of grassland species. The grass sward was found to be similar to the more species poor *Festuca* swards but completely lacked *Lolium perenne*. The herbs included frequent to abundant *Lotus corniculatus* along with variable amounts of species such as *Galium verum*, *Cirsium acaule*, *Centaurea scabiosa*, *Linum catharticum*, *Primula veris*, *Plantago media* and *Ranunculus bulbosus* and *Sanguisorba minor*. The lime loving grasses *Bromopsis erecta*, and *Brachypodium pinnatum* occur as scattered plants or small clumps.

15.5.19 In terms of the NVC, these communities are closest to the *Cynosurus cristatus* – *Centaurea nigra* Grassland *Galium verum* sub-community (MG5b). This is a characteristic unimproved grassland community of calcareous loams. It is often found associated with calcicolous grasslands, but found on deeper and less strong calcareous soils. This may be the case at Heyford Park, but the community could also be successional to calcicolous grassland here, as swards recover from past disturbance or enrichment. The grassland here is a typical pasture form of MG5 in which *Centaurea nigra* is less prominent. This occurs where MG5 stands have not been managed as traditional hay meadows but have been pastured, or, as here, mown as lawn type swards. Contrary to statements in Rodwell (1992), MG5 stands not managed as traditional hay meadows are no less species rich than long term hay meadows (Gibson, 1997).

Calcicolous grassland

15.5.20 This map unit is the most easily defined of all categories; the simple dominance of the lime loving grasses *Bromopsis erecta* and *Brachypodium pinnatum* was used. The largest and best developed stands have a stronger representation of lime loving species than the richer *Festuca* dominated stands. Associated lime loving species noted included *Carex flacca*, *Centaurea scabiosa*, *Cirsium acaule*, *Filipendula vulgaris*, *Euphrasia sp.*, *Linum*

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catharticum, *Ophrys apifera*, *Pilosella officinarum*, *Sanguisorba minor* and *Viola hirta*. *Bromopsis erecta* is much more widespread than *Brachypodium pinnatum*.

- 15.5.21** The largest stands of *Bromopsis erecta* are closest to NVC community *Bromopsis erecta* Grassland *Knautia arvensis* – *Bellis perennis* sub-community (CG3c), a calcicolous grassland of deeper more mesic soils. Stands with *Brachypodium pinnatum* are smaller and less well developed but may develop into *Brachypodium pinnatum* Grassland (CG4) or *Bromopsis erecta* – *Brachypodium pinnatum* Grassland (CG5) given time.
- 15.5.22** The calcicolous grasslands at Upper Heyford airbase are fragmented and mostly occur as small patches. Also some normally common and ubiquitous species, such as *Leontodon hispidus* are rare. They give the definite impression of being developing features, which could be expanded by appropriate management.

Disturbed Areas

- 15.5.23** Small areas of parched ground at the edge of some of the runways support species such as *Aphanes arvensis*, *Erodium cicutarium*, *Sedum acre* and *Sherardia arvensis*. At the end of the main runway are areas of crumbling gravel that support open communities of short ruderal species with frequent to abundant *Hypericum perforatum*, *Medicago lupulina*, *Sherardia arvensis* and *Trifolium dubium*. Associated species include *Agrostis stolonifera*, *Dactylis glomerata*, *Poa annua*, *Cerastium semidecandrum*, *Sedum acre*, *Erophila verna*, *Viola arvensis* and *Reseda luteola*. South of the main runway there is a disturbed area with *Agrostis stolonifera* and *Medicago lupulina* abundant.

Flora

- 15.5.24** A total of 79 species of vascular plants have been recorded from the grasslands. The greatest diversity of species was noted in the richer areas of grassland to the east with species typical of lime rich neutral grassland and calcicolous grasslands and disturbed areas by the runway, where ruderal species dominated. No nationally rare or scarce species (Preston et al 2002) were found but several of the species found are declining due to the intensification of agriculture. Given the limited survival of the once extensive limestone grassland in north Oxfordshire, several of the species are likely to be uncommon locally.

Trees

- 15.5.25** The site covers a large area dominated by grassland and is largely devoid of trees. Mature trees are limited on site and the vast majority of trees are approximately 50 years old and younger. Trees have been planted in small belts at strategic points on site and recent newer planting has been established to the north of the flying field off site. However there is some good tree cover within the new settlement area, where artificial planting has been established within the former technical area and within the new settlement area south of Camp Road. Full details of the tree survey are given in Chapter 14.

Evaluation

- 15.5.26** The grasslands within the airfield show a complete graduation from 'improved' species poor grasslands through to 'unimproved' neutral and calcicolous grasslands. This distribution clearly reflects changes in soil

productivity across the site. The limited soil sections seen would suggest that, in the east at least, there are no marked differences in soil depth over the limestone between species poor and species rich grassland, with all on brown rendzina soils with 10 to 30cm of brown loam over mixtures of limestone rubble with brown loam. The best calcicolous grasslands, however appear to be on slopes, possibly formed by land reforming during runway construction, so the difference between neutral (MG5b) and calcicolous species rich grasslands (CG3, CG4 & CG5) may reflect soil depths over the limestone.

- 15.5.27** Soil sections were not seen in the west of the site, so the reasons for the absence of species rich grassland to the west are not clear, however past agricultural treatment may be significant.
- 15.5.28** The fragmentary nature of the species rich grasslands, the local association with reformed land, and the sparse occurrence of some characteristic species, strongly suggests that the species rich grassland has developed here since runway construction, possibly associated with localised areas of topsoil removal.
- 15.5.29** The Oxfordshire Cotswolds once had sizable areas of limestone grassland, the local wood named 'The Heath' is probably on the site of one, but these have virtually all been ploughed up since the 19th century. The dire condition of this habitat in the Oxfordshire Cotswolds is illustrated by the nearby Ardley Cutting & Quarries SSSI. This has CG3 and CG5 limestone grasslands in a railway cutting, an entirely artificial situation, and is described in the SSSI citation as 'one of the largest limestone grassland sites in the Oxfordshire Cotswolds where unimproved grassland is now very rare'. The proximity of the Ardley Cutting & Quarries SSSI, to the grasslands of interest within the site strongly suggests that recolonisation of calcicolous grassland species on the site has occurred from this SSSI to the east.
- 15.5.30** The neutral grasslands (MG5b) are assigned to the Lowland Meadows BAP and the calcicolous grasslands the Lowland Calcareous Grassland BAP. However, as MG5b is a standard component of limestone and chalk grassland vegetation complexes, it would be most sensible to regard all the species rich grasslands here as being covered by the Lowland Calcareous Grassland BAP.
- 15.5.31** The MG6 swards are permanent pastures with the potential to revert to more diverse swards, of greater value for nature conservation if nutrient levels are reduced. Their inherent nature conservation value, however, is low, whatever the high potential for restoration they represent.
- 15.5.32** No veteran trees have been recorded on site, however the limited trees on site do diversify the habitat available for wildlife in this large, flat expanse of grassland and thus are considered of Local value .

Nature Conservation Value:

- | | | |
|---|--|---------------------|
| ▪ | Eastern third of the central grasslands (Flying Field Area: | County Value |
| ▪ | Remainder of flying field: | Local |
| ▪ | New Settlement Area: | Negligible |
| ▪ | Trees on site | Local |

Heyford Park Environmental Statement**Bats****Bat Roosts****Overview**

15.5.33 All the buildings on site were assessed for their potential to support bats. Twenty buildings on the site were confirmed as supporting bat roosts (see **Map E3**). The majority of these buildings contain signs of individual bats/low numbers of bats. However building 133, the old cinema within the former technical area supports a medium sized maternity roost of Common Pipistrelle *Pipistrellus pipistrellus* bats. This roost was first identified in 2002 and has been reconfirmed in 2007.

Former Technical Area (trident area, north of Camp Road)

15.5.34 Four buildings within the former Technical Area were confirmed as supporting bat roosts. The building numbers of these roosts are:
74, 125, 133, 146 (see Map E3).

15.5.35 Building 74, the former Officer's Club was found to contain evidence of bat use and four bats were seen to emerge in October 2006: a single Common Pipistrelle bat and three Long-eared bats *Plecotus* Sp.

15.5.36 Building 125 was found to contain a single Long-eared bat dropping and thus appears to have been in use by a single bat or low numbers of bats.

15.5.37 Building 133 contained large numbers of Pipistrelle bat droppings. In 2002 24 bats were seen to enter the boiler room of this building at dusk. In 2007, 33 bats were seen to emerge at dusk. This building is thus confirmed as a maternity Common Pipistrelle roost.

15.5.38 Building 146 adjacent to 133 was found to contain two bat droppings suggesting low use by bats.

Existing Residential Area

15.5.39 Eighty-nine buildings within the existing residential area south of Camp Road were considered to have the potential to support bat roosts. The 89 buildings inspected during this survey are described in Appendix E.A02. Evidence of bats in the form of bat droppings was found in 13 buildings across the estate; 9 bungalows and 4 two-storey buildings. Inspection of a further 13 buildings was attempted during the survey but access was not possible (residents were not in, lofts not accessible etc).

15.5.40 Building numbers within this area confirmed as bat roosts are:
531, 533, 556, 562, 657, 684, 685, 686, 700, 720, 736, 768, 770 (see **Map E3**).

Former Residential Area

15.5.41 Three buildings within the former RAF residential area, part of the proposed new settlement area, were confirmed as bat roosts. The building numbers of these roosts are:
455, 457, 485.

15.5.42 Building 457 had two Common Pipistrelle bats emerge in October 2006, whilst Building 485 had a single Pipistrelle present in 2002. No bats were seen to emerge from Building 457.

Bat Activity

15.5.43 Bats emerging from the maternity roost at Building 133 were seen to forage amongst the canopies of trees within the former technical area on emergence before using the flyway of mature Horse Chestnut trees to leave the site to the east. Long-eared bats were seen to forage around the conifers immediately in front of the Officer's club and low numbers of Pipistrelle bats were seen to forage along the vegetation line to the east of the Officer's Club. Otherwise bat use of the site was low with occasional Pipistrelle activity at the boundaries of the Flying Field and the former technical area.

Evaluation

15.5.44 The maternity bat roost on site is of importance at a District level, though the bats themselves are protected by EU legislation and a licence from Natural England would be required to demolish the bat roosts. Other roosts found are of low numbers of bats/individual bats and are also of Local nature conservation value.

15.5.45 The site stands on a plateau and hence is rather exposed to the environment. It is noticeable that in the former technical area where a jumble of buildings and trees provide a more sheltered environment a maternity bat roost is located. Out on the Flying Field and south of Camp Road, temperatures are cooler and vegetation corridors minimal. The improved grasslands are rather exposed and generally of low value for invertebrates. Foraging habitat provided by the site for bats is thus low in comparison to its large size.

Nature Conservation Value:

- | | | |
|---|-------------------------------|-----------------|
| ▪ | Maternity Roost: | District |
| ▪ | Individual bat roosts: | Local |

Badgers

Sett status and activity

15.5.46 Twelve badger setts (Setts A-L) were identified within the survey area. The setts included two main setts (Setts H and K), two annexe setts (Setts G and I) and eight outlying setts (Setts A-F, J and L). The locations of these setts and other signs of badger activity are shown on Map E3.

Sett A

15.5.47 Outlying sett that comprised one partially-used hole situated inside a pillbox. This sett had been excavated by badgers under a concrete ledge that formed the base of the pillbox. Only limited badger activity was recorded at the sett.

Sett B

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- 15.5.48** Outlying sett that comprised one partially-used hole situated inside a pillbox. This sett had been excavated by badgers under a concrete ledge that formed the base of the pillbox. The sett showed signs of use by rabbits but no evidence of current use by badgers.

Sett C

- 15.5.49** Outlying sett that comprised one partially-used hole situated inside a Pillbox. This sett had been excavated by badgers under a concrete ledge that formed the base of the pillbox. Only limited badger activity was recorded at the sett.

Sett D

- 15.5.50** Outlying sett that comprised one partially-used hole situated inside a Pillbox. This sett had been excavated by badgers under a concrete ledge that formed the base of the pillbox. The sett showed no evidence of current use by badgers.

Sett E

- 15.5.51** Outlying sett that comprised 3 partially-used holes situated on the Heyford Park boundary (one entrance inside site boundary). The sett also showed signs of use by fox.

Sett F

- 15.5.52** Outlying sett that comprised one entrance situated immediately outside the Heyford Park boundary within the southern bank of a ditch. Badger footprints were observed on the spoil heap, although as there was no access to the sett it was not possible to classify the level of sett use.

Sett G

- 15.5.53** Annexe sett that comprised at least 4 entrances situated on the Heyford Park boundary. Two well-used holes were situated inside the site boundary with two possible well-used holes immediately outside the site within the southern bank of a ditch (it was not possible to accurately classify the level of use of holes outside the site due to a lack of access). Trails of bedding were found leading to the entrances observed outside the site. Due to restricted access and the dense nature of the vegetation outside the site, an exhaustive search for sett entrances was not possible and therefore the above figures represent a minimum count.

Sett H

15.5.54 Main sett that comprised at least 10 well-used holes and 6 partially-used holes situated on the airbase boundary, with the majority of entrances situated immediately outside the site within the southern bank of a ditch (five entrances inside and 11 entrances outside site boundary). It was not possible to accurately classify the level of activity of entrances outside the site due to the lack of access and for the same reason an exhaustive search for sett entrances was not possible and therefore the above figures represent a minimum count. Bedding was observed on the spoil heaps of five well-used holes and two latrines were found within the sett area.

Sett I

Possible annexe sett that comprised at least one well-used hole situated immediately inside the airbase boundary. Further entrances appeared to exist within bramble-dominated scrub immediately outside the site, although due to the dense vegetation and no access, this was not possible to confirm. Bedding was observed outside the entrance within the site.

Sett J

15.5.55 Outlying sett that comprised 2 partially-used holes with entrances situated either side of the Heyford Park boundary. The sett also showed signs of use by fox.

Sett K

15.5.56 Main sett that comprised 6 well-used holes and 5 partially-used holes situated either side of Chilgrove Drive within the road embankment. Bedding was observed outside four entrances and two latrines were found within the sett area.

Sett L

15.5.57 Outlying sett that comprised 2 partially-used holes situated within the eastern embankment of Chilgrove Drive. Bedding was recorded outside one entrance.

Other badger activity within the survey area

15.5.58 Reflecting the location of setts, a number of well-used badger paths were recorded around the perimeter of Heyford Park. Signs of badger foraging activity (shallow foraging pits also referred to as 'snuffle holes') were also largely restricted to grassland areas near setts.

Evaluation

15.5.59 Since 2002 there has been a significant increase in the number of setts within and immediately adjacent to Heyford Park. At least two social groups of badgers now exist within the Flying Field Area (Social Group 1 inhabiting Setts E-J and Social Group 2 occupying Setts K and L). At this stage it is not known if outlying setts A-D are visited by members of Social Group 1 or are used by a different social group possibly inhabiting a

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main sett to the north of the site. It is expected that the badger activity in the south-west corner of the site originates from a further social group of badgers.

- 15.5.60** The development of the new settlement area, adjacent to Camp Road, would not require the 'closure' of any badger setts.
- 15.5.61** It is considered that the badger populations on site are of local value.

Nature Conservation Value: Local

Birds

Survey Results

New Settlement Area

- 15.5.62** This area of the airbase holds a good range of commoner breeding bird species, typical of suburban and urban areas, with a number of exceptions. As the site borders farmland in most directions, there is still a farmland bird influence (see Map E4). Two Corn Bunting *Miliaria calandra* territories were recorded, four Yellowhammer *Emberiza citrinella* territories, and three Red-legged Partridge *Alectoris rufa*. Skylark *Alauda arvensis* were noted singing adjacent to the site and passage Wheatear *Oenanthe oenanthe* and Yellow Wagtail *Motacilla flava* were also recorded in the derelict residential area to the west. A further influence of the surrounding land use is the relatively high density of Linnet *Carduelis cannabina*.
- 15.5.63** Other species of interest included a medium-sized House Martin *Delichon urbica* colony on the larger hangars in the Business Park. Over 90 nests or signs of nests were recorded, however it is likely that in any one year the colony is probably around 20 pairs (12 nests were seen being investigated by birds). Other breeding birds included Song Thrush *Turdus philomelos*, House Sparrow *Passer domesticus* and Starling *Sturnus vulgaris*, the latter being present at relatively high density (20 nests were located, with a great deal more likely). Green Woodpecker *Picus viridis* were recorded in a couple of places, and on the airbase as a whole, four territories were recorded.
- 15.5.64** A Wood Warbler *Phylloscopus sibilatrix* was recorded on the first visit, a migrant along with a number of Whitethroat *Sylvia communis* that appeared, because of behaviour and habitat, to also be migrants. The only other unusual record was of a singing Grey Wagtail *Motacilla cinerea* on the roof of the main building in the Business Park. Lesser Whitethroat *Sylvia curruca* was recorded a short distance from the site, and although a small number of hedgerows appeared suitable habitat, none were heard or seen on the site.

Flying Field Area

- 15.5.65** This area is unusual in that the habitat is extensive and fairly monotypic. Dry grasslands with concrete covered runways and slip roads dominate the area and provide an almost unique habitat for Oxfordshire. The ornithological interest with a couple of notable exceptions was, on the present breeding bird survey, found towards the edges of this area. Typical farmland and open grassland species were recorded including species that have declined nationally in great numbers, such as Corn Bunting (8 territories), Reed Bunting *Emberiza*

schoeniclus (2 territories), Tree Sparrow *Passer montanus* (up to 15+ territories with a main colony and possible satellite colonies) and Yellowhammer (15-16 territories). Other species recorded in the hedgerows and fences bordering the site included Song Thrush, Grasshopper Warbler *Locustella naevia* (likely to be a migrant), Whitethroat and Stonechat *Saxicola torquata*.

- 15.5.66** The grasslands supported breeding territories of Skylark (100+ territories estimated), Meadow Pipit *Anthus pratensis* (26-28 territories), and a pair of Curlew *Numenius arquata*. Linnets were also present in numerous small groups. This grassland area appears to be a magnet for passage birds with large numbers of Wheatear (maximum day count = 50+) and Yellow Wagtail (maximum day count = 28) recorded, as well as individual records of Whimbrel *Numenius phaeopus*, Tree Pipit *Anthus trivialis* and Whinchat *Saxicola rubetra*. Some of the rabbit grazed grasslands to the south east of this area appear to be potential breeding habitat for Wheatear. During winter surveys in 2006 flocks of Skylark (20+), Starling (1000+), Meadow Pipit (three flocks of 30, 14 and 10) and a flock of approximately 800 mixed corvids (Jackdaw *Corvus monedula*, Carrion Crow *Corvus corone* and Rook *Corvus frugilegus*).
- 15.5.67** As well as the migrants mentioned above, a number of other bird species appeared to be using the area to feed. These included, Kestrel *Falco tinnunculus* (2 pairs), Buzzard *Buteo buteo* (2-3 pairs), Stock Dove *Columba oenas* (3+ pairs), Starling and Pied Wagtail *Motacilla alba*. It is likely that the first two species are breeding off site, whilst the latter three are utilising the derelict buildings and hangars on the site. Red Kite *Milvus milvus* and Hobby *Falco subbuteo* were also both seen on the site, although their use of the site to feed cannot be confirmed at this stage however Hobby hold territory over various parts of the Cherwell valley, and tend to nest in the upper valley areas.

Evaluation

New Settlement Area

- 15.5.68** The birds recorded in the more developed southern third of the site were generally speaking, the commoner garden species. A number of these species have undergone decline recently and are included in the British Trust for Ornithology alerts and the Birds of Conservation Concern list. A good number of the species are of some international interest, although common in the UK, and have been listed in the Berne Convention. The most notable species are discussed further below.
- a) **House Martin.** Over 90 old nests or attempted nests were recorded, mainly on the largest Hangars in the industrial area. A few of the residential houses also had signs of House Martin past use. During the present survey, at least 12 nests were seen being inspected by the birds, and as many as 25 birds were seen in the air at once. The nests were fairly close together in a loose colony. This represents a moderate sized colony and is of some nature conservation importance at a District level.

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- b) **Starling.** Starling are one of the commonest species in the UK, however, they have declined by 61%. At Heyford Park this species is one of the most numerous. The survey of the business park located around 20 nests, which is certainly an underestimate. It is thought that the site contains a high density of Starlings, and a large proportion use cracks in the roofing and joints of the houses, with a much smaller number of House Sparrows.
- c) **Other Species.** A number of other species of conservation concern were present, including 2-4 Song Thrush territories (across the whole airbase). Song Thrush is a relatively common suburban and garden species, but has declined considerably in farmland. It is a red listed species and a Species Action Plan has been prepared. The density at Heyford Park is low. Other BoCC and Alert species were recorded on the site, but were again at fairly low density. An interesting farmland bird found in one of the derelict southern areas was Red-legged Partridge, a species that is of European concern owing to its decline across Europe. Lesser Whitethroat were recorded in hedgerows leading up to the site but none were heard or seen on the site.

Overall Community Evaluation of New Settlement Area

15.5.69 Overall, the New Settlement Area is of much less nature conservation interest. It is interesting to note the density of Starling and the ubiquitous nature of Linnet, even on the residential areas. Two Corn Bunting territories were recorded on the southern boundary of the site with a few Yellowhammer as well.

Nature Conservation Value: Local-District

Flying Field Area

15.5.70 This part of the site contains a number of bird species adapted to farmland that have declined in overall population size over the past 30 years. Corn Bunting, Yellow Wagtail and Tree Sparrow have all declined by more than 85% since 1973-75, and Skylark, Linnet and Yellowhammer have declined by more than 50%. These declines have been attributed to a number of changing farming practices.

15.5.71 In studies on these bird species it has been suggested that a reduction in survival rates has been the most important factor in their decline. Changes in winter stubble such as autumn sowing of crops and herbicide spraying after summer yields has the most serious consequences for over wintering birds, e.g. Yellowhammer (Siriwardena et al 1998, 2000), Skylark (Gillings & Fuller 2001, Donald & Vickery 2000 and Wilson et al 1997), and for inference to Corn Bunting and Tree Sparrow see Ballie et al (2001).

- a) **Tree Sparrow.** The decline of Tree Sparrow, a once common and widespread farmland bird species, has been fairly critical for its conservation status. The species has also suffered a range contraction of greater than 20% (Ballie et al 2001). At a national level a Species Action Plan has been prepared and the Tree Sparrow is a Red List species.

The Action Plan for Tree Sparrow states that the relevant statutory nature conservation organisation

should take measures to safeguard a small quantity of the sites where moderate Tree Sparrow colonies (i.e. in excess of 20 pairs) exist (HMSO, 1998). It is possible that up to 20 pairs of Tree Sparrows are present on Heyford Park despite the survey only recording a total of 15 pairs. This represents a notable population. It is also possible that the populations found on the airbase are part of a larger colony in the local area. In this sense the population as a whole may greatly exceed 20 pairs.

- b) **Corn Bunting.** Corn Bunting have declined in a similar fashion to Tree Sparrow, and undergone a range contraction of 34% in 25 years (including extinction in Wales) (HMSO, 1998). The whole site and immediately surrounding area represent an estimated total of 10 territories, or 2-3 territories for every km².

On a local level, the Birds of Oxfordshire (1992) recorded the species as a 'very numerous and widespread resident ...strongly, but not exclusively, associated with Oxfordshire's open, upland areas. It was estimated that the breeding density in the county is between 10-60 pairs per 10km square, 'with the upper range more likely'. This ties in with the density recorded on the airbase. Owing to the huge decline in numbers nationally and locally, and to the relatively high density of territories on Heyford Park, the nature conservation value of the population present is notable, on a local level.

- c) **Skylark and Meadow Pipit.** Over 80 singing Skylarks were recorded on the grasslands of the airbase, or the edges bordering farmland. It is likely that this is an underestimate, owing to the difficulties in surveying the size of the site. It is possible that there are 100+ Skylark territories on the site. If it is roughly assumed that there are 200ha or 2km² of grasslands in the runway and associated northern areas (whole site = 505ha.), the following densities can be calculated: 84 singing birds recorded = 42 territories per 1km² 100+ territories estimated = 50+ territories per 1km²
- The density figures produced above for these grasslands therefore tie in fairly well with published density (Cramp 1988). Density is not uniform across the grassland areas. Closely cropped sheep grazed areas on the north-west part of the main runway for example held few singing territories, whereas the open grasslands in the centre of the runway had many territories. The large area of bunkers and hangars to the north west of the site were also of a lower density.
- On a local level, the 1999 Oxfordshire Bird Report recorded Skylark territories in 92.3% of tetrads, showing that it is still a very widespread species. However it has also undergone declines in numbers, and although still widespread is not as common as in the past. Skylark are a Red List species, are of high alert and are of European conservation concern because of recorded declines across Europe, as well as being amongst the first bird species in the UK to have a Species Action Plan Drawn up (HMSO 1995).

Meadow Pipit is a scarce breeding bird in Oxfordshire, and it is possible that the estimated 26-28 territories represent the largest population in the County. Meadow Pipit are not listed in the BoCC, and this is mainly

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because of strong breeding populations in upland areas of the UK. Looking at the BTO Alert figures, it is possible to equate the 43% decline recorded on the CBC to more lowland areas, where the majority of CBC plots are present. This decline and the scarcity of breeding territories in Oxfordshire make the population present notable.

On a local level therefore, the number and density of breeding Skylark and the numbers of breeding Meadow Pipit on the northern two thirds of the airbase are of notable nature conservation value at a County level.

- d) **Linnet.** Linnet is another farmland species that has undergone a greater than 50% decline in the last 25-30 years. It is therefore a Red Listed species and has a Species Action Plan.

The population of Linnets on the site is difficult to determine owing to its loosely colonial nature and its high mobility. At least four singing birds were encountered, but a large number of birds were moving around on Heyford Park almost constantly, and because of such frequency it was not possible to map all movements. The largest flock encountered was to the east of the runway in a dead tree and consisted of eight birds. It is estimated that the numbers of birds using the airbase as a whole is in the region of 40-70+ birds.

The extensive nature of the site, coupled with its unimproved nature means that the grassland present is likely to be fairly good foraging habitat for the species, which is one of the most seed dependant of all finches.

- e) **Waders.** The only waders found on the site were a pair of Curlew, which were seen displaying. A third Curlew was seen displaying about 1km to the west of the site, roughly in the location of the River Cherwell flood meadows.

The population recorded at Heyford Park is small, possibly part of an isolated population along the Cherwell. However, Curlew has been present at the site for some time and has bred here in the past. The site is open and relatively undisturbed (from walkers and other human recreation), both habitat preferences for the species. The dry plateau nature of the grasslands is not typical of the lowland wet grassland sites usually associated with the species in Oxfordshire, but more reminiscent of the downland habitats in which it has been present. Curlew are better able to tolerate dry conditions than other wader species. Curlew are a Red Data Book Species because of large breeding and wintering populations in the UK, and are also an Amber listed species for this reason.

A notable absentee on the site is Lapwing *Vanellus vanellus*, however a flock were recorded at a nearby gravel pit in 2006, which may feed on the airfield a night. The habitat is not the most productive, because of its monotypic nature and dryness, however, it is unimproved and generally lacks disturbance

from livestock and humans. No waders were recorded on the site during survey work undertaken in 2006.

- f) **Other Species.** A number of other species of note were recorded. Two Reed Bunting territories were noted at the edge of the site where the adjoining field was planted with Oilseed Rape *Brassica napus*. Reed Bunting is a farmland and wetland species that along with other such species has declined considerably (61% in 25 years to 1998). It is listed by the RSPB as of high priority, Red list and a Species Action Plan has been prepared for the species.

A large number of passage birds were seen on the site, including up to 50 Wheatear on a couple of dates, and numerous Yellow Wagtail. It is possible that both these species may breed in low numbers. One particular area to the south east of the runway looks particularly suitable for Wheatear, containing closely cropped turf. Wheatear are not known as a regular breeding bird in Oxfordshire (Campbell, 2002 pers comm.), so if breeding was taking place it is likely that they would be the only ones in the county.

Four species of Raptor were seen over the site, including two pairs of Kestrel and three pairs of Buzzard. A Red Kite, was recorded over the site on the first visit, however this may simply be a wandering bird. Hobby was also recorded on one visit, this species has been gradually increasing in the UK recently and has increased its range considerably.

Overall Community Evaluation of Flying Field Area

- 15.5.72** The variety and number of declining farmland bird species on the northern two thirds of the site is of high nature conservation importance on a County level. A number of farmland bird species that are becoming scarce or are declining in Oxfordshire are still present on Heyford Park in relatively high density.

Species not Recorded but Considered likely

- 15.5.73** A number of species that may use the site were not recorded for a number of reasons. Firstly the survey period finished before the return of two late arriving breeding migrants, Swift *Apus apus* and Spotted Flycatcher *Muscicapa striata*. The industrial and residential areas appear suitable habitat for supporting small to moderate numbers of these species. Spotted Flycatcher is a red list BoCC, that has undergone large declines; a Species Action Plan has been prepared for this species (HMSO, 1998).
- 15.5.74** No evening or night-time visits were made to the site, and it is therefore possible that Little Owl *Athene noctua* may be using the site. A single Barn Owl *Tyto alba* was recorded on site in 2006 foraging within an open hangar used for straw storage.
- 15.5.75** Outside the breeding season it is possible that the large expanse of unimproved grassland may attract winter bird flocks feeding on grassland seeds. This in turn may attract uncommon winter raptors such as Merlin *Falco columbarius* and Peregrine *Falco peregrinus*. Plovers may also use the airfield over winter and on migration.

Nature Conservation Value: County.

Heyford Park Environmental Statement**Great Crested Newts****Survey Results**

15.5.76 Two types of artificial water body occur on site. These are both concrete chambers containing water:

- Fire water storage tanks – square, approximately 8m x 8m, concrete of unknown depth (greater than 2m), containing 118,000 gallons of water.
- Oil capture tanks – various sized elongated concrete tanks, with numerous inner-chambers and pipes. Varying depths with some approximately 2m deep, oil film on surface of water present.

In addition, a ditch on the site was also identified as suitable habitat.

Tanks Surveyed

15.5.77 A total of 34 tanks are present on the site: 22 Emergency Water Storage (EWS) tanks (1 – 22) and 12 oil interceptors (A – L). Five of the tanks were excluded from the survey: 6 and 22 were dry at the time of the survey, 5 and 21 are underground water storage tanks and were not considered suitable for Great Crested Newts. Tank 4 was excluded from the survey after two visits as it was considered unsuitable habitat as its water surface is approximately 1.5m above ground level and the water was shallow and of poor quality.

15.5.78 Great Crested Newts and other amphibians were also recovered from manholes close to tank 10 during the survey. Due to the body condition of some of these animals it is likely that they had been there for some time and had not bred during the 2007 season. These have not been included in the calculation of population size classes and population structure.

15.5.79 Tank 20 could not be surveyed as its water surface was covered with Duckweed and a wire mesh thus preventing the use of all survey methods. The locations of all of the tanks are shown on **Map E5**.

Great Crested Newt Distribution

15.5.80 Great Crested Newts were recorded in 15 of the 28 surveyed tanks (see **Table E.01**). The survey failed to record Great Crested Newts in two of the tanks (A and E) where they were recorded during the 2005 survey; in the case of E this is likely to be as a result of survey difficulties. Great Crested Newts were recorded in two tanks (C and G) where they had not been recorded in 2005. **Map E5** shows the location of occupied tanks. The maximum count (maximum number of adults counted in a single visit) for each tank is given in **Table E.01**; full results are given in **Appendix E.A03**.

15.5.81 Six adult and one juvenile Great Crested Newt were recovered from a manhole close to tank 10 along with other amphibians on 30 May and another juvenile on 25 June. These have not been included in the results.

15.5.82 Great Crested Newt larvae were recorded in nine tanks (1, 11, 12, 13, 14, 15, 16, B and H). Artificial egg strips were deployed in three tanks (2, 3 and 19), but did not appear to have been used throughout the survey period.

Other Amphibians

15.5.83 Common Frog *Rana temporaria*, Common Toad *Bufo bufo* (as adults and/or tadpoles) and Smooth Newt *Lissotriton vulgaris*, were all widely recorded across the site. Palmate Newts *Lissotriton helvetica* were recorded less widely, being present in three tanks (2, 11 and H) only. The tanks in which each of these species was recorded are indicated in **Table E.01**.

Tank	Surveyed 2007	Present 2007	Present 2005	Maximum Count 2007 (date)	Breeding	Smooth Newt	Palmate Newt	Common Frog	Common toad
1	•	•	•	8 (12 June)	suspected	•		•	
2	•	•	•	1 (15, 30 May, 25 June)	suspected	•	•	•	
3	•	•	•	2 (30 May)	suspected			•	
4	•								
5									
6									
7	•								
8	•					•			
9	•	•	•	33 (15 May)	suspected	•		•	•
10	•	•	•	14 (30 May)	suspected			•	•
11	•	•	•	20 (17 May)	confirmed	•	•		
12	•	•	•	14 (15 May)	confirmed	•		•	•
13	•	•	•	19 (15 May, 12 June)	confirmed	•			
14	•	•	•	42 (15 May)	confirmed	•		•	•
15	•	•	•	34 (25 May)	confirmed				
16	•	•		31 (30 May)	confirmed				
17	•								
18	•							•	•
19	•							•	
20									
21									
22									•
A	•							•	•
B	•	•		6 (17, 30 May)	confirmed				

Tank	Surveyed 2007	Present 2007	Present 2005	Maximum Count 2007 (date)	Breeding	Smooth Newt	Palmate Newt	Common Frog	Common toad
C	•	•		1 (17 May)				•	•
D	•								
E	•								
F	•							•	
G	•	•		1 (6 June)					
H	•	•		16 (6 June)	confirmed		•		•
I	•							•	•
J	•							•	
K	•							•	
L	•								

Evaluation

Population Structure

15.5.84 In order to allow an estimate of population size class to be made, it is necessary to first define the population. Newt populations can be considered at three levels; breeding pond level, population level and meta-population level. These were defined for Great Crested Newts by Grayson (1994) based on average distances travelled by adult newts from their breeding ponds as:

- Breeding pond: Number of newts in a single breeding pond
- Population: Number of newts in ponds within 250m of each other
- Meta-population: Number of newts in ponds within 500m of each other

15.5.85 Based on these definitions, a number of Great Crested Newt populations are present on the site. The largest of these is present within the area known as the “southern bomb store” and comprises tanks 10, 11, 12, 13, 14, 15, 16 and H.

15.5.86 A second population exists to the south of the site centred on Tanks I, B and (if the 2005 results are included) A. Tanks 2 and 3 are slightly farther than 250m from this population. However, these tanks are situated within a developed industrial area of the site where suitable habitat for Great Crested Newts is extremely limited and is of poor quality where it does exist. Due to the limitations of the terrestrial habitat, newts from these tanks are likely to disperse over a wider area and are more likely to move to and from the adjacent

population. For this reason, tanks 2 and 3 have been considered to be part of the same population as tanks 1, A and B.

15.5.87 Third and fourth populations are present in the north of the site, based on tank 9 in the “northern bomb store” and (based on 2005 results), tank E.

15.5.88 The survey recorded single Great Crested Newts on one survey visit in tanks C and G (both oil interceptors). This is likely to be a result of dispersing newts finding the tanks or being washed into the tanks during heavy rain that occurred during the survey period and it is considered unlikely that Great Crested Newts are breeding in these tanks and they do not support populations in their own right. Therefore, these tanks have not been considered in the estimation of population size classes. However, these tanks may well be important for dispersing newts and therefore are considered when describing metapopulation structure. The Great Crested Newt population structure across the site is shown on **Map E5**.

Population Size Class

15.5.89 Using the maximum counts within a population (the total of adult newts seen within all ponds within a population on a single night), it is possible to assign a size class to a population. The Great Crested Newt Mitigation Guidelines defines three population size classes as:

- Small: Maximum counts of up to 10
- Medium: Maximum counts of between 11 and 100
- Large: Maximum counts of over 100

15.5.90 Population class size estimates based on the 2007 survey results are presented in **Table E.02**. No estimate is given for the tank E population as Great Crested Newts were not recorded here in 2007, however, based on the 2005 results this would be considered a “small” population.

Population	Date recorded	Tank	Maximum count	Total maximum count	Size class
Southern bomb store	15 May 2007	10	2	127	Large
		11	15		
		12	14		
		13	19		
		14	42		
		15	34		
		16	15		

Table E.02: Population structures and size class estimates					
Population	Date recorded	Tank	Maximum count	Total maximum count	Size class
		H	0		
Southern	30 May 2006	I	3	12	Medium
		A	0		
		B	6		
		2	1		
		3	2		
Northern bomb store	15 May 2007	9	33	33	Medium

Breeding

15.5.91 Breeding was confirmed in nine tanks (I, II, 12, 13, 14, 15, 16, B and H) by the presence of larvae. Due to the number of adult newts recorded in tanks 9 and 10, it is also considered probable that breeding occurs within these tanks, although it could not be confirmed. Breeding is also considered likely in tanks 2 and 3 and the survey difficulties described above may have precluded the detection of larvae.

Metapopulation Structure

15.5.92 Using the definitions provided by Grayson (1994) as a starting point, all of the newts occurring on the site are considered as part of a large single metapopulation. The northern bomb stores and southern bomb store populations are linked by tank G. The nearest tanks of the southern bomb store and southeast population are at 586m apart, slightly farther apart than the 500m identified by Grayson. However, as this extra distance is minimal, it is considered that a significant level of dispersal (and therefore genetic interchange) between the populations is likely and therefore they have been considered as part of the same metapopulation. Likewise, the population at tank E (recorded in 2005) is 595m from the northern bomb store population and therefore also considered likely to be part of the same metapopulation. The Great Crested Newt population structure across the site is shown on Map E5.

15.5.93 A known “large” population of Great Crested Newts is present at Ardley Quarry Site of Special Scientific Interest (SSSI), approximately 800m to the east of the southern bomb store population and TVERC also returned records of Great Crested Newts 1km southeast. It is likely that a low level of dispersal occurs between these populations and the metapopulation present on the site. This is most likely to occur in the form of dispersing juvenile newts, which cover a greater distance than adults.

15.5.94 Throughout the course of the two surveys Great Crested Newts were confirmed present in 16 water bodies on site; 11 fire water storage tanks, four interceptors and the ditch; breeding was confirmed by the presence of eggs or larvae in 10 water bodies. The highest count of adult Great Crested Newts for a single water body was 68. Common Frog *Rana temporaria*, Common Toad *Bufo bufo*, Smooth Newt *Lissotriton vulgaris* and Palmate Newt *Lissotriton Helvetica* were also recorded on the site.

15.5.95 The site contains three populations of Great Crested Newts, one of which is a large population. When these are considered within the context of a wider population, encompassing those populations present on the site and beyond, the site is considered to be of at least County importance.

Nature Conservation Value: County

Reptiles

No reptiles were found on site. It is considered that this is due to the isolation of the site, surrounded by arable fields and the maintenance of a strict mowing/grazing regime across the site that maintains the grassland swards at low level. This ecological receptor is hence removed from this assessment.

Invertebrates

Baseline Description

Site Overview

15.5.96 An initial site inspection highlighted that generally the species-poor swards of the flying field area and the improved nature of the new settlement area would be of negligible value for invertebrates, with the exception of the County Wildlife Site and a limited number of south-facing banks with exposed soil within the flying field area. It was deemed that these areas would be likely to support more important species.

15.5.97 The site is very isolated for invertebrates – surrounded by arable land with limited hedgerows or scrub boundaries bordering mown, flat, species-poor grassland.

Survey Results

15.5.98 A total of 238 species of invertebrate were recorded during the survey (see Appendix E.A04). No invertebrates afforded protection under EU or UK legislation were encountered during the survey. No species listed in British Red Data Books were present.

15.5.99 No species formally placed in the Nationally Notable category Na were recorded, however two species that are formally placed in Nationally Notable category Nb were recorded:

- **The Flea Beetle *Longitarsus dorsalis*.** The Flea Beetle has a southern distribution in Britain and is associated with Ragwort plants. In spite of its noteworthy status, it is nevertheless rather widespread and common so that its intrinsic significance is low, although part of a wider assemblage of similarly noteworthy species, its value may be higher.
- **Rosel's Bush-cricket *Metrioptera roeselii*.** Rosel's Bush-cricket has in recent years undergone a very large expansion in its range that is almost certainly climate driven. The Nationally Notable status is probably no longer warranted.

Evaluation

15.5.100 Based on the survey work carried out to date, it appears that the site is in general, of low value for invertebrates. Some small areas of potentially higher value have been identified. It is likely that the County Wildlife Site supports some species of County value though the poor weather of 2007 hampered this survey and most likely reduced the species seen.

15.5.101 Overall the majority of the site is considered of Negligible value for invertebrates. The County Wildlife Site is considered likely to be of County Value for invertebrates.

Nature Conservation Value:

- **Settlement Area:** *Negligible*
- **Species poor grasslands:** *Negligible*
- **County Wildlife Site:** *County*

15.6 IMPLICATIONS OF POLICY AND GUIDANCE

Introduction

15.6.1 This section sets out the current policy and legislative framework against which this ecological impact assessment must be considered. The relevant sections of Government guidance for planning, local plans and national and local biodiversity guidance with respect to the ecological features of the zone of influence are examined.

Planning Policy Statement 9

15.6.2 Planning Policy Statement (PPS) 9 Biodiversity and Geological Conservation (August, 2005) sets out the Government's national policies on the protection of biodiversity and geological conservation through the planning system. This guidance replaces Planning Policy Guidance Note (PPG) 9 on nature conservation (October, 1994).

15.6.3 The Government's vision for conserving and enhancing biological diversity in England includes the broad aim that planning, construction, development and regeneration should have minimal impacts upon biodiversity and enhance it wherever possible.

15.6.4 In moving towards this vision, the Government's objectives for planning are:

- to promote sustainable development by ensuring that biological and geological diversity are conserved and enhanced as an integral part of social, environmental and economic development, so that policies and decisions about the development and use of land integrate biodiversity and geological diversity with other considerations;
- to conserve, enhance, and restore the diversity of England's wildlife and geology by sustaining, and where possible improving, the quality and extent of natural habitat and geological and geomorphological sites; the natural physical processes on which they depend; and the populations of naturally occurring species which they support;
- to contribute to rural renewal and urban renaissance by:

- o enhancing biodiversity in green spaces and among developments so that they are used by wildlife and valued by people, recognising that healthy functional ecosystems can contribute to a better quality of life and to people's sense of well-being; and
- o ensuring that developments take account of the role and value of biodiversity in supporting economic diversification and contributing to a high quality environment.

15.6.5 The planning system has a significant part to play in meeting the Government's international commitments and domestic policies for habitats, species and ecosystems. It is thus the aim of this ecological impact assessment, in accord with the above policy, to ensure that biodiversity features affected by these proposals are highlighted and the necessary steps put in place to maintain or restore such features to favourable condition.

Sites of Special Scientific Interest (SSSIs)

15.6.6 In particular PPS9 supports the national value of SSSIs:

'SSSIs should be given a high degree of protection under the planning system through appropriate policies in plans.

Where a proposed development on land within or outside a SSSI is likely to have an adverse effect on an SSSI (either individually or in combination with other developments), planning permission should not normally be granted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs. Local authorities should use conditions and/or planning obligations to mitigate the harmful aspects of the development and where possible, to ensure the conservation and enhancement of the site's biodiversity or geological interest.'

Networks of Natural Habitats

15.6.7 Connectivity of natural habitats across the landscape encourages genetic flow between populations of species by promoting movement, aiding their migration and dispersal. PPS9 highlights the need to maintain habitat networks by avoiding fragmentation and isolation of natural habitats, repairing connections wherever possible:

'...networks should be protected from development, and, where possible, strengthened by or integrated within it.'

In the British countryside, hedgerows typically provide this connective function but pockets of remnant chalk grassland dotted about a landscape may for example, equally facilitate movement of species dependent upon this habitat type.

Species Protection

15.6.8 Legislation protects many protected species but other species have been identified as requiring conservation action as species of principal importance for the conservation of biodiversity in England. Local authorities should take measures to protect the habitats of these species from further decline. Planning authorities should ensure that these species are protected from the adverse effects of development, where appropriate, by using planning conditions or obligations. Planning authorities should refuse planning permission where harm to the species or their habitats would result unless the need for, and the benefits of, the development clearly outweigh that harm.

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Legislative Framework

Overview

15.6.9 The legislative framework protecting ecology and nature conservation in the UK is set out in the following

Acts of Parliament and Regulations:

- Wildlife and Countryside Act, 1981 as amended;
- Countryside & Rights of Way Act 2000;
- Conservation (Natural Habitats and c.) Regulations 1994 as amended;
- Protection of Badgers Act 1992;
- Hedgerow Regulations 1997;

15.6.10 The following EC Directives and international conventions are also relevant, as applied in the above UK Acts and Regulations:

- EC Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna (Habitats Directive 1992) as amended (92/43/EEC);
- EC Directive on the Conservation of Wild Birds (Birds Directive 1979) as amended (79/409/EEC);

Principal Legislation

15.6.11 The principal legislation of relevance to the Scheme is discussed further below:

The Wildlife and Countryside Act 1981 (as amended)

15.6.12 The Wildlife and Countryside Act 1981 (WACA) is the principle legislation in Britain for the protection and conservation of wildlife and its habitat of national importance. The WACA offers protection to:

- Sites of Special Scientific Interest (SSSI);
- All wild birds and their eggs and nests;
- Birds listed on Schedule 1 are further protected from intentional or reckless disturbance whilst building a nest, or on or near a nest containing eggs or young. Dependent young of such birds are also protected from disturbance;
- Animals listed on Schedule 5 are protected from intentional killing, injury or being taken. This includes amongst others: all species of bats, Dormice, Adder, Viviparous Lizard, Grass Snake, Slow-worm and Water Vole habitat.

Countryside and Rights of Way Act 2000

15.6.13 The Countryside and Rights of Way Act 2000 (CRoW Act) gives the importance of biodiversity conservation a statutory basis, requiring government departments to have regard for biodiversity in carrying out their functions, and to the Secretary of State for Environment, Food and Rural Affairs to take positive steps to further the conservation of listed species and habitats.

15.6.14 Under the CRoW Act, further protection is provided to species protected under the WACA so that it is an offence to intentionally or recklessly disturb them, or to damage or destroy their habitat.

The Conservation (Natural Habitats & c.) Regulations 1994 ('The Habitats Regulations') (as amended)

15.6.15 The Habitats Regulations 1994 implements the EU Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive) in the UK.

15.6.16 The Regulations contain provisions relating to the protection of European sites and to the protection of European species of animals and plants, making it an offence, with certain exceptions, to:

- Deliberately capture or kill any wild animal of a European protected species;
- Deliberately disturb any such animal;
- Deliberately take or destroy eggs of any such wild animal;
- Damage or destroy a breeding site or resting place of such a wild animal;
- Deliberately pick, collect, cut, uproot or destroy a wild plant of a European protected species;
- Keep, transport, sell or exchange, or offer for sale or exchange, any live or dead wild animal or plant of a European protected species, or any part of, or anything derived from such a wild animal or plant.

15.6.17 Any activity that would result in a contravention of the above legislation would require a licence to avoid committing an offence.

15.6.18 Species protected under the Habitats Regulations 1994 include Great Crested Newts, Dormice and bats.

Local Policy and Plans***Oxfordshire Structure Plan 2016***

15.6.19 The relevant structure plan is the Oxfordshire Structure Plan 2016. The core strategy for protecting and enhancing the environment is presented in Chapter 5 of the plan.

15.6.20 Policy EN2 discusses biodiversity:

EN2 The following sites of at least national importance will be protected from damaging development:

- **Special Areas of Conservation;**
- **National Nature Reserves and Sites of Special Scientific Interest;**
- **Sites which support specially protected species.**

On other sites of acknowledged nature conservation importance development will be permitted only if there is an overriding need or if damage to the ecological interest can be prevented by the use of conditions or planning obligations.

In determining proposals for development local planning authorities will seek environmental measures and promote the use of conditions and management agreements to help protect, manage and expand the biodiversity resource of the County, in particular priority habitats and species.

Heyford Park Environmental Statement***RAF Upper Heyford, Revised Comprehensive Planning Brief 2007***

15.6.21 Cherwell District Council's vision for the Heyford Park site is set out in this supplementary planning document. The vision sets out the following policies with respect to ecology and nature conservation:

15.6.22 Policy H2 seeks environmental improvement of the whole site enabled by the construction of the new settlement. Section 5 of the RCPB goes on to state that:

- Removal of parts of the runway, the taxi ways and hard standings that are not of historic interest should be removed or scarified to enhance the ecological interest;
- Proposals to enhance and extend the ecological interest of the whole site will be required;
- The Council will permit sufficient low key reuse of retained buildings on the wider flying field to enable the heritage and ecological interest of the site to be preserved and enhanced;
- A management plan for the wider airfield will be required.

15.6.23 Appendix C7 of the RCPB sets out the ecological evidence for the site.

Nature Conservation Priorities***UK Biodiversity Action Plan***

15.6.24 The UK Biodiversity Action Plan (UK BAP) was published in 1994 in response to the international convention for the conservation of biological diversity, agreed at the Rio summit in 1992. The UK Steering Group's report (1995) contains a number of targets and proposals for the conservation of biodiversity in the UK. It identifies Local Biodiversity Action Plans (Local BAPs) as the best way forward for the conservation of biodiversity at all levels and the implementation of national targets.

UK Habitat Action Plans

There is a UK Habitat Action Plan for lowland calcareous grassland which occurs on the Heyford Park site.

UK Species Action Plans

Species Action Plans relevant to the Heyford Park site are:

- Great Crested Newt;
- Skylark;
- Linnet;
- Corn Bunting;
- Tree Sparrow;
- Song Thrush;
- Grey Partridge.

Local BAPs

15.6.25 Oxfordshire's BAP includes an action plan for lowland calcareous grassland and for Brown Long-eared and Common Pipistrelle bats.

15.7 THE DO NOTHING SCENARIO

Introduction

- 15.7.1 This section reflects upon the likely future position of the site with respect to ecology should the proposals not be built.

Conservation Management Plan

- 15.7.2 The step to manage the wider airfield for nature conservation would possibly be lost should the proposals not go ahead. It is likely that the farmer would request that the grasslands are improved in order to provide better nutrition for his livestock and thus the nature conservation value of the site would deteriorate as soils became more nutrient rich. This would then have a knock on effect for the site's biodiversity with a reduction in invertebrate and plant diversity with negative implications for the ground nesting birds and Great Crested Newts present on site.
- 15.7.3 If left ungrazed or uncut the grasslands within the wider airfield would soon become rank and the more common species of grasses would dominate leading again to a decline in species diversity. Alternatively the site may continue as it is with nature conservation interests preserved at their current level and the site operating as a light industrial park.

Habitats

Grasslands

- 15.7.4 As stated above, it is likely that should these proposals not go ahead that the grasslands would deteriorate in time, particularly if the ongoing light-industrial use of the site does not continue and the incentive and revenue for keeping the grasslands mown is removed. After rank grassland was established it would not be long before succession occurred and the grassland begin to become scrubbed over.
- 15.7.5 As discussed above if grazing was to continue, the farmer may decide to improve the swards to increase nutrition for his livestock and again the species richness of the flying field area would deteriorate.

Protected Species

Birds

- 15.7.6 Should development of the new settlement area not provide the revenue necessary to manage the site better for its nature conservation interest, the site would continue to provide suitable nesting habitat only as long as the management of the grasslands continued. Without management, in time, the grassland would become rank and useful for a more limited range of bird species. Should the light-industrial use of the site continue, bird populations would remain at good levels as they are as long as in addition public access to the site remained restricted, as currently.

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- 15.7.7** It is likely that a farmer would take on the site for grazing but for the reasons given above this, unless controlled, may also lead to a deterioration of species-richness of the grasslands.

Bats

- 15.7.8** Should use of the site continue as currently with some buildings used for commercial reasons and some for residential, it is likely that bat populations on site would continue at their present levels. However as time goes by the unoccupied/un-maintained buildings would deteriorate and allow the weather to penetrate, leading to eventual collapse. Thus for bats this would mean the loss of potential roosting habitat.
- 15.7.9** Without the management of the flying field area for nature conservation, the opportunity to enhance the local foraging habitat for bats would be lost and thus the possibility of increasing bat use of the site in terms of numbers and diversity of species may be lost.

Badgers

- 15.7.10** Should the proposals not go ahead and the site was to continue as it is then there would be little affect on the badger use of the site. Should the management of the grasslands not continue however, the availability of foraging habitat – short mown grassland - would be reduced and may have implications for the survival of badger populations around the site.

Great Crested Newts

- 15.7.11** If the site were to continue as it is then Great Crested Newts would continue to exist on site. Even lack of grassland management would benefit amphibians and facilitate their movement across the site. However the populations on site would remain constrained by the poor quality of the breeding habitat that they are currently using. The opportunity to enhance the water bodies and to create suitable new water bodies on site would be lost.

Invertebrates

- 15.7.12** Without management of the grasslands and continued plant diversity on site the value of the site for invertebrates would most likely decline with time. Should the site be maintained as it is, it is likely that invertebrate populations on site would remain at similar levels. However, the opportunity to increase invertebrate species richness through management of the site for nature conservation would be lost.

Summary

- 15.7.13** The Heyford Park site supports a good diversity of ecology of value on site and if the site continues to be used as it currently is, it is likely that there would be no change in the good value of the site. However with the revenue from development of the site the site could be more proactively managed for nature conservation benefit and thus improve the value of the site for nature conservation.
- 15.7.14** It is likely that this site will be developed at some point in the future as it is an existing brownfield site, covered in existing buildings and the availability of such sites for development will reduce with time. Thus the sooner

areas of nature conservation value are established, protected and managed to enhance their biodiversity the sooner the populations of protected species on site will benefit.

15.8 IMPACT IDENTIFICATION

Introduction

- 15.8.1** In order to be able to assess the impacts of the proposals it is necessary first in this section to identify the activities that may result in biophysical changes and thus lead to impacts upon features of ecological value. Following this assessment the specific impacts upon features of ecological value are identified.
- 15.8.2** There are three stages of the proposed development that include activities that may have an impact upon features of ecological value: site preparation, construction and operation. Development may result in impacts that extend beyond their geographical boundaries, therefore any biophysical changes within the zone of influence of the development will be considered.

Activities Associated with the Scheme and the Likely Biophysical Changes

Site Preparation

New Settlement Area

- 15.8.3** In order to prepare the site for the construction of the proposed development, the site will be cleared of a number of buildings whilst other buildings will be refurbished and remain (see Demolitions Schedule and Plan and Change of Use Schedule and Plan included in the Planning Documentation). Thus some roosting habitat used by bat species and breeding birds will be lost to the proposals. Habitats within the new settlement area such as mature trees, shrub planting and improved grassland may be removed or damaged by site preparation activity. These habitats sustain breeding birds, some invertebrate species and provide bat and badger foraging areas. Some areas also support low numbers of Great Crested Newts.
- 15.8.4** Demolition activity will necessitate a large number of machines and people being on the site and the potential for associated noise and dust may have impacts upon adjacent habitats and species.
- 15.8.5** Thus there will be some direct biophysical changes in terms of the removal of bat roosting and breeding bird habitat and habitat that may be used as movement corridors by Great Crested Newts. Species within proximity of the preparation activities may be disturbed as well as those directly within the new settlement area.
- 15.8.6** Without appropriate mitigation, protected species of ecological value would be disturbed and potentially injured or killed as part of this activity. There would thus be breaches of UK legislation and policy. Overall without mitigation therefore, there would be a net decrease in biodiversity.

Flying Field Area

- 15.8.7** Five former airfield structures to the north of the site are proposed for demolition – Four hardened aircraft shelters (buildings 3052, 3053, 3054, 3055 and one industrial shed (building 3135). This activity would thus

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cause indirect noise and dust impacts within the Flying Field and may potentially have impacts upon areas of improved grassland, trees and shrubs. Much of the demolition will however be containable within the hard standing areas and the noise would be a temporary disturbance only. The species most likely to be disturbed on site by such works are the ground nesting breeding birds. Works in close proximity to the ground nesting birds would be timed to avoid the bird breeding season – March – August inclusive where appropriate. The former POL system for holding and distributing fuel around the airfield is still in place and thus as part of the proposals this underground system of tanks will be stabilised. This would be a major positive impact upon ecology as future deterioration and contamination of the site will be avoided, safeguarding the future of the biodiversity present.

- 15.8.8** A limited amount of shrub/tree planting is proposed at the boundaries of the site to obscure the view of the former airfield. This planting will thus eventually replace areas of improved grassland with mature native trees and shrubs.

Construction Activities

- 15.8.9** In order to construct the scheme, a large number of people and machines delivering/removing material and constructing buildings will be present on site creating noise and dust. This will potentially have impacts upon adjacent habitats and species. The digging of foundations, drainage systems and establishment of the road structure will cause similar impacts. Given the previous developed nature of the site there would however be no overall increase in hard-standing on the site following completion.
- 15.8.10** Proposed partial restoration of runway within the County Wildlife Site to calcareous grassland will involve noise and dust impacts which may have impacts upon the grasslands and birds within the flying field.
- 15.8.11** There may be potential impacts from the use of water within the construction process which may if uncontrolled cause water run-off from the site into adjacent habitats. However, no building construction work is taking place near the species rich grasslands present on site, including the County Wildlife Site, considered most vulnerable to such impacts.
- 15.8.12** The biophysical change will be the permanent replacement of a number of disused buildings with new occupied buildings and use of retained, refurbished buildings on site, predominately within the New Settlement Area. Business use will remain within the new settlement area north of Camp Road where such business use is currently present.
- 15.8.13** Without the implementation of appropriate mitigation, construction may result in indirect impacts in terms of noise, dust and possible water run-off to adjacent habitats. It is however considered that the species-rich grasslands are unlikely to suffer from water run-off as the new settlement area is some distance away south

and slopes gently south. More mobile species such as bats, birds or Great Crested Newts may be disturbed/displaced by the noise impacts.

- 15.8.14** Construction activity may without appropriate mitigation therefore have the potential to disturb, injure or kill species within the vicinity of the proposed development and within whose regular feeding/commuting area the proposed development may be constructed. Overall though without appropriate mitigation there is likely to be a net decrease in biodiversity.

Operational Activities

- 15.8.15** Once the new settlement area is operational, a new residential area will exist alongside the retained existing residential areas and business use area. Thus the new settlement area will experience an increase in residential population from its current level and will include associated uses such as garden areas, car use, increased lighting and noise. However this human activity is likely to be no greater than that of the previous operational airbase. Use of the business area within the new settlement area will slightly increase as a number of vacant buildings are proposed for use and employment uses on the flying field will also slightly increase (for further information see transport and employment chapters). The proposed car storage activity will access the site via the new settlement area, resulting in an increase in traffic through this area. Noise levels nearer to the County Wildlife Site and around the wider airfield may however be reduced as the QEK car storage facility is proposed for consolidation nearer to the former technical area and there will be a reduction in vehicle use in closer proximity to the County Wildlife Site.
- 15.8.16** Without appropriate mitigation, such increased disturbance resulting from the proposed development within the New Settlement Area would have an impact upon species using the new settlement area including breeding birds, bats and Great Crested Newts.
- 15.8.17** The County Wildlife Site within the Flying Field Area would also be subject to impacts from the proposals without appropriate mitigation. Increased recreational pressure from people brought into the area by additional available housing may affect the quality of the grassland through trampling, litter and dog fouling. Open areas of grassland may also be subject to refuse dumping. The breeding success and survival of ground nesting birds using the grassland would suffer as a result of these impacts. However this public access would be controlled to some extent by the retention of existing fencing around the Flying Field Area and security patrols on site. Use of the peri road around the County Wildlife Site by low numbers of HGVs accessing the southern bombstores will continue with the resulting disturbance impacts concurrent with the baseline situation.

Impact Identification

Introduction

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15.8.18 The impacts of the proposed development upon the ecological resource within the zone of influence are detailed below. Features of Local ecological value or higher only are considered. Table E3 summarises the ecological impact assessment.

Designated Sites**SPA/SAC**

There are no sites of European importance affected by these proposals.

Ardley Quarry and Cuttings SSSI

15.8.19 This site is sufficiently far – approx. 1.5-2km - from the New Settlement Area, to not be impacted by the proposals. The site is an active quarry and alongside a railway line and therefore public access is prevented meaning this site would not be impacted by increased recreational pressure.

15.8.20 Confidence in Prediction: Certain.

RAF Upper Heyford County Wildlife Site

a) Construction Impacts

i. Direct Effects:

The Upper Heyford County Wildlife Site (CWS) is not directly affected by the construction phase of the . main development proposals for residential and commercial uses on the site. However as part of the mitigation proposals, parts of the former runway are to be scarified and broken up to allow the restoration of calcareous grassland within the CWS. This impact will remove concrete and tarmac from within the CWS and will overall have a positive impact upon the County Wildlife Site.

Confidence in prediction: Certain

ii. Indirect Effects:

Noise and potential for pollution in terms of surface water runoff and dust from the construction of the proposed development, without appropriate mitigation may have disturbance effects upon the County Wildlife Site (CWS) given the open, flat nature of the site. However, as the main proposals are some distance from the CWS (approx. 600-700 metres) such impacts are likely to be low level and temporary in duration. Noise generation may disturb ground nesting, breeding birds using the CWS and pollution in the form of construction dust, without appropriate mitigation in those areas closest to the CWS, which could result in negative impacts upon vegetation and species within the CWS. Such impacts would occur as part of the scarification of runways within the CWS.

Such indirect adverse effects are considered Probable and likely to be Low-Moderate in magnitude. These impacts would be temporary and may be for short periods but are likely to last for the construction period, however, the impacts are likely to be reversible and short-term. The Significance of this impact is uncertain and will depend upon species. Without appropriate mitigation, climatic factors and proximity of the works being undertaken may affect the breeding habits of bird species present. Confidence in Prediction: Probable.

Without appropriate mitigation it is Probable that there would be a Significant Negative Impact, however this would be temporary and reversible with time.

b) Operational Impacts

i. Direct Impacts:

There would be no direct impact from the operation of the proposals upon the CWS. However as mitigation for the potential indirect impacts cited below the CWS would be subject to a management regime to enhance and maintain its biodiversity as part of a management plan.

Confidence in Prediction: Certain.

ii. Indirect Impacts:

Without mitigation it is likely that there would be indirect impacts upon the CWS through public access. Impacts that may result include:

- grassland would be subject to higher levels of recreational activity through the increase in local population, brought about by the proposals, which may damage the grassland;
- Dog walking disturbance would be likely to have an effect upon the ability of ground nesting birds to breed successfully;
- Defecation by dogs may affect the fertility of the soils and lead to a decline in habitat quality;
- Open space such as the CWS may be subjected to dumping of rubbish which may degrade the quality of the grassland and pollute the site;
- Without appropriate mitigation domestic pets may roam onto the CWS and disturb/kill ground nesting birds or take eggs;
- Disturbance from a low number of HGVs using the peri road around the CWS to reach the southern bomb stores, estimated to be a maximum average of 4 HGV movements per day. However this disturbance is currently present on site and would thus be a maintenance of the status quo.

However, existing fencing retained on site as well as ongoing security patrols would reduce public access and thus the level of these impacts.

These negative effects are likely to be Variable in magnitude but may be cumulative and are considered Certain without mitigation. Given that this site is of County value, such an impact would be considered Significant. The effects will vary with the season.

Confidence in Prediction: Certain.

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Without mitigation it is Certain that this would have a Significant Negative Effect.

Rush Spinney County Wildlife Site

a) Construction Impacts

i. Direct Effects:

The Rush Spinney County Wildlife Site is not directly affected by the construction phase of the proposals.

Confidence in prediction: Certain.

ii. Indirect Effects:

Noise and pollution from the construction of the proposed development, without appropriate mitigation, may have disturbance effects upon the site given the open, flat nature of the Heyford Park site. However, as the main proposals are some distance from Rush Spinney CWS (approx. 1km) such impacts would be low level and temporary.

- iii. Potential impacts would be related to possible noise disturbance to birds using the wet habitats and pollution in the form of construction dust and water run-off, which may impact upon species, habitats present and the water level if not appropriately mitigated.

These potential indirect adverse effects are considered Probable without appropriate mitigation and Low in magnitude. These impacts would be temporary and may be for short periods but are likely to last for the construction period and are considered short-term. The Significance of this impact is uncertain and will depend upon species using Rush Spinney during this period.

Overall it is considered that there would not be a Significant Adverse Effect effect upon Rush Spinney any impacts would be temporary and reversible.

Confidence in Prediction: Probable.

b) Operational Impacts

i. Direct Impacts:

There would be no direct impact from the operation of the proposals upon the CWS.

Confidence in Prediction: Certain.

ii. Indirect Impacts:

It is unlikely that there would be indirect impacts upon the CWS through public access as this site is designated for its wetland habitat and access is controlled, though it is possible that use of

the footpath nearby would increase and increased disturbance nearby have an impact for birds using the wet habitat.

Such Negative effects are likely to be Variable in magnitude but may be cumulative and are considered Probable without mitigation. However the proposals at Heyford Park include provision of recreational areas and propose to reconnect large sections of footpaths across the landscape. Hence it is likely that new residents will use these facilities. Given that this site is of County value, such an impact would be considered Significant. The effects will vary with the season.

Without mitigation a Significant Adverse Impact is considered Probable.

Ecologically Important Landscape

a) Construction Impacts

i. Direct Effects:

The Ecologically Important Landscape (EIL) is not directly affected by the development but as part of the mitigation proposals, scarification of runways to recreate calcareous grassland is proposed. The CWS is within the EIL and hence removal of concrete and tarmac runway will be a positive impact upon the EIL, providing new habitat for ground nesting birds and Great Crested Newts.

Confidence in Prediction: Certain.

Indirect Effects:

Demolition of the four hangars and industrial shed in close proximity to the EIL would unmitigated have dust and noise impacts upon the EIL. Without appropriate mitigation noise and pollution from the construction of the proposed development may have disturbance effects upon the EIL given the open, flat nature of the site. However, as the proposals are some distance from the EIL such impacts would be low level and would be temporary. The hangars to be removed to the north are 1.6km away and the new settlement area approximately 600-700m away from the EIL. Noise may disturb ground nesting, breeding birds using the EIL and pollution in the form of construction dust may have negative consequences for vegetation and species within the EIL, however such impacts would be temporary.

These indirect adverse effects are considered Probable, Low-Moderate in magnitude, temporary and occur over short periods but will last for the construction period. These impacts will be reversible and short-term. The Significance of this impact is uncertain and is dependent upon species. Climatic factors and proximity of the works being undertaken may affect the breeding habits of bird species present.

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Removal of part of the runways to restore calcareous grassland would cause short-lived noise and dust impacts upon the EIL.

Without appropriate mitigation Significant Adverse Effects are considered Probable.

b) Operational Impacts

i. Direct Impacts:

There would be no direct impact from the operation of the proposals upon the EIL.

Confidence in Prediction: Certain.

ii. Indirect Impacts:

Without mitigation it is likely that there would be indirect impacts upon the EIL through public access as listed above for the County Wildlife Site.

These negative effects are likely to be Variable in magnitude but cumulative and are considered Probable without appropriate mitigation. Given that this site is of Local value, such an impact would be considered Significantly Adverse at the Local Level. The effects will vary with the season.

Vegetation

New Settlement Area

a) Construction Impacts

i. Direct Effects:

Within the new settlement area, unmitigated impacts upon habitats during the construction phase would include direct loss of habitat and damage due to construction vehicles and storage of building materials to:

- small areas of improved grassland;
- flowerbeds;
- largely young ornamental trees.

However the proposals north of Camp Road largely remain within the existing developed footprint and the majority of such habitat will be retained. Areas of habitat to the south of Camp Road would also be retained where possible. Full details of tree loss is given within Chapter 14, with 313 trees proposed for removal but trees will be retained where at all possible. The majority of trees to be removed are young specimens and the significant lines of mature trees around the trident area are to be retained, though canopy elevation will be necessary to allow HGVs to pass below.,

Confidence in Prediction: Certain.

ii. Indirect Effects:

Construction and demolition without appropriate mitigation would create dust and potentially surface water run-off which may damage habitats on site. Such impacts would be potentially adverse but also temporary and reversible and be Local in extent. These habitats in themselves are of Low nature conservation value.

Confidence in Prediction: Probable.

b) Operational Impacts

i. Direct Impacts:

It is considered unlikely that there would be direct impacts upon these habitats from operation.

Confidence in Prediction: Certain.

ii. Indirect Impacts:

Unmitigated there may be indirect impacts upon habitats of low value through increased recreational use of habitat areas, impacts such as:

- soil compaction;
- waste dumping;
- dog fouling;
- tree damage.

Confidence in Prediction: Certain.

Flying Field Area

a) Construction Impacts

i. Direct Impacts:

It is considered that there would be no direct impacts from the proposals upon the non-designated grasslands of the EIL.

Confidence in Prediction: Certain.

ii. Indirect Impacts:

Indirect impacts without appropriate mitigation would be similar to those experienced by the designated grasslands with dust and noise impacts potentially extending across the grasslands from demolition of the four northern hangars, industrial shed and from scarification of concrete within the CWS. Such indirect negative impacts would also potentially result from the stabilisation of the underground POL system. This step would be a major positive step for the

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future biodiversity of this site, as future contamination of the site as the POL system deteriorates would be inevitable.

Confidence in Prediction: noise/dust Probable.

Stabilisation of POL Certain.

b) **Operational Impacts**

i. **Direct Impacts:**

There would be no direct impact upon the non-designated grasslands within the Flying Field.

Confidence in Prediction: Certain.

ii. **Indirect Impacts:**

As with the designated grasslands on site, without appropriate mitigation there would be recreational impacts upon the non-designated grasslands on site which may affect the quality of the grasslands. Though their value is already low, other species depend upon these habitats, particularly ground nesting birds.

Confidence in Prediction: Certain

Without mitigation there would be an adverse Effect.

Birds

New Settlement Area

a) **Construction Impacts**

i. **Direct Impacts:**

Within the new settlement area, before mitigation, there will be a loss of small areas of improved grassland, shrubbery beds and some small ornamental trees - typical vegetation of a residential area, used by the common garden birds of local value present for nesting and foraging. There will also be a loss of buildings used for nesting by common birds. The loss of such habitat without appropriate mitigation may have consequences for breeding success of common bird species within the settlement area. However such habitat will be retained where possible within the new settlement area and at the periphery of the site to provide some nesting/roosting habitat during the construction period.

Confidence in Prediction: Certain.

ii. Indirect Impacts:

Noise and vibration from construction activity may disturb common bird species trying to nest within the development area. Such disturbance may displace birds but would be temporary for the period of construction. Phasing of the development would also limit the indirect impacts to particular areas of the site at a time.

Confidence in Prediction: Certain.

b) Operational Impacts

i. Direct Effects:

The increase in residential dwellings at the site would lead to an increase in domestic pets, particularly cats, and this would have an impact upon common bird species, increasing mortality on the site. An increase in ownership of dwellings rather than rented property would most likely see the establishment of well-stocked gardens, providing replacement habitat for common garden birds.

Confidence in Prediction: Certain.

Unmitigated this would have an adverse Effect at the Local level. However there are already residential properties on site and thus such an effect will not significantly change the current situation.

ii. Indirect Effects:

Occupation of the proposed residential properties and from use of the business area within the new settlement area will lead to an increase in general noise but at no greater level than was present when the airbase was fully operational. It is considered likely that there would be a negative impact on operation but that this would be ameliorated with time as birds acclimatised to the changed environment and as residential gardens mature.

Confidence in Prediction: Probable.

Flying Field Area

a) Construction Impacts

i. Direct Effects:

There will be no direct impacts from construction upon birds on the wider airfield.

Confidence in Prediction: Certain.

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ii. Indirect Effects:

Construction noise and dust may without appropriate mitigation extend out over the relatively flat area and negatively affect breeding birds using the wider airfield, particularly from new offices proposed around the trident area within the new settlement area, approximately 140 metres from the flying field area. However, these effects will be Low and the substantial part of the new settlement area is south of Camp Road, some distance from the Flying Field area. Removal of the hangars to the north of the flying field area will cause some disturbance in closer vicinity to the open grassland but this will be immediate and temporary. Continued use of the Flying Field Area for car storage may continue to disturb breeding birds on the open grassland but this is as existing and the facility will be moved south from its present location to consolidate the area used near to the business area. Hence birds should experience less disturbance from the proposals and it is considered that birds at the site have become acclimatised to the presence of multiple cars and car movements on site.

Lighting of construction activity may without appropriate mitigation have impacts upon bird roosting in close proximity but this would be short-term over the construction period. The existing car storage facility already uses bright lighting and thus such disturbance is part of the baseline situation.

The proposed mitigation of runway scarification would cause temporary disturbance to ground nesting birds within the vicinity from noise and dust. In the long-term such restoration of calcareous grassland would have a positive impact upon birds through the provision of additional foraging and nesting habitat.

Confidence in Prediction: Probable.

b) Operational Impacts

i. Direct Effects:

Without appropriate mitigation domestic cats or dogs from the proposed residential property may roam onto the wider airfield and increase the mortality and hence breeding success of the ground nesting birds on the airfield. However the retention of existing fencing between the New Settlement Area and Flying Field is likely to reduce these effects.

Confidence in Prediction: Certain.

Unmitigated this would have a Significant Adverse Effect.

ii. Indirect Effects:

Public access to the CWS and wider grasslands may, without appropriate mitigation, disturb

Confidence in Prediction: Certain.

Without appropriate mitigation such impacts would have a Significant Adverse Effect upon bird life at a County Level. Timing and frequency would influence the severity of the impact, as during the bird breeding season (March-August) impacts would be significantly greater.

Bats

New Settlement Area

a) Construction Impacts

i. Direct Effects:

Without mitigation there would be direct effects upon twenty bat roosts within buildings in the new settlement area. Of particular importance is the loss of building 133 within the trident area, north of Camp Road, where a medium-sized Common Pipistrelle roost is currently located. The majority of building roosts are proposed for demolition, however building 74 is being refurbished for an alternative use. Hence without mitigation, demolition and renovation of these buildings would lead to the potential injury or death of bats using these roosts.

The bat roosts found are of Pipistrelle and Long-eared (most likely Brown) bats, which are some of the commoner bat species found in the UK. The majority of roosts found are considered to be occasional roosts of individual bats or small numbers of bats.

Confidence in Prediction: Certain

Without mitigation this would have a Significant Negative Effect.

ii. Indirect Effects:

Construction noise may have an impact upon bat roosts at the periphery of the site, although Heyford Park is largely surrounded by large, open agricultural fields and hence building roosts nearby outside the site boundary are likely to be limited. Removal of vegetation around the new settlement area may have an impact upon bat foraging across the site, though the majority of mature trees are being retained on site. Lighting of construction work at night may also dissuade bats from foraging on site but this would be short-term and on the whole bat foraging use of the site is at a low level.

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Confidence in Prediction: Probable.

b) Operational Impacts

i. Direct Effects:

Increased vehicular traffic and the introduction of domestic cats into the New Settlement Area by new occupants of the proposed residential area, may lead to increased mortality of bats within the vicinity. However bat use of the development area is largely at a low level.

Confidence in Prediction: Probable.

ii. Indirect Effects:

Occupied, heated properties offer good roosting habitat for bats and thus it is likely that with an increase in residential properties, bat roosting potential would increase on site in time following the proposals. The increased lighting emanating from buildings within the new settlement area would, without appropriate mitigation, decrease the level of bat foraging on site as bats use darkened areas in which to forage out of sight of predators. However foraging bat use of the majority of the development area is currently low level.

Confidence in Prediction: Certain

Flying Field Area

a) Construction Impacts

i. Direct Impacts:

Removal of 4 hangars and industrial sheds on the northern edge of the flying field would remove two structures used occasionally for sheltered foraging/commuting by small numbers/a single individual bat. It is considered that these hangars are not suitable for roosting bats.

Confidence in Prediction: Certain.

ii. Indirect Impacts:

Loss of the hangars on the flying field area may affect the foraging behaviour of low numbers of bats using this area as removal may affect the exposure of the site to the weather. However bat use of the Flying Field Area is currently very low because of the site's open nature.

Confidence in Prediction: Probable.

b) Operational Impacts

i. Direct Impacts:

It is considered that without mitigation there would be no direct impacts upon bats from the operation of the Flying Field area.

Confidence in Prediction: Certain.

ii. Indirect Impacts:

It is considered that there will be no indirect impacts upon bats from the operation of the Flying Field.

Confidence in Prediction: Certain.

Badgers

New Settlement Area

a) Construction Impacts

i. Direct Impacts:

Badger use of the new settlement area is considered low level but badgers are accessing the site in the south-west corner and thus may forage into the former school area (outside the new settlement area) (former school is not in 'settlement area') which is proposed for demolition or may venture further into areas proposed for construction. Should any foundations or pits be left exposed badgers may fall into them, not be able to escape and thus may be injured or killed as a result. Badgers may also collide with construction vehicles if works continue after dark leading again to injury or death of individuals. However the evidence found suggests that badgers are foraging in close proximity to the site boundary away from construction and thus these impacts are considered less likely to occur.

The confidence in this impact occurring without appropriate mitigation is Possible as badgers are likely to be foraging on site, however the majority of their activity is in association with the south-west boundary of the site, away from the proposals. Death of a badger would be a Significantly Adverse Effect on a badger group, however badgers are considered of Local value only.

ii. Indirect Impacts:

Short-term noise and physical habitat disturbance will occur to foraging badgers using areas of improved grassland in the south-west corner of the site, in particular during dark evenings in spring and autumn. However there are no setts within the new settlement area and thus these indirect impacts would be temporary and unlikely to more than slightly affect badgers.

Confidence in Prediction: Probable.

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b) Operational Impacts

i. Direct Impacts:

There is a low level chance of vehicle collision with badgers on operation of the proposals, though much of the badger foraging is likely to be focused upon the expanse of open space located to the south west of the proposals. Vehicles travelling within the new settlement area will also be travelling at low speed increasing the chance that collisions may be averted. As gardens of new residential properties mature it is possible that badgers may forage closer to the new settlement area.

Confidence in Prediction: Unlikely.

ii. Indirect Impacts:

Increased recreational use of the site by people may affect the foraging of badgers on site, though use of the open space area at night is likely to be limited. Domestic pets such as dogs brought in by new residents may disturb foraging badgers on site.

Confidence in Prediction: Unlikely.

Flying Field Area

a) Construction Impacts

i. Direct Impacts:

There will be no direct impacts from construction upon badgers using the Flying Field Area.

Confidence in Prediction: Certain.

ii. Indirect Impacts:

The proposed removal of the four hangars and industrial shed at the northern corner of the site would have indirect effects upon badgers as two outlying setts are located in close proximity to the hangars. It is possible that vibration from the demolition of these hangars may cause the collapse of these holes or the pillbox structures that support them. In the very least a short-term high level of disturbance would be caused to any badgers present, without appropriate mitigation.

Confidence in Prediction: Probable.

b) Operational Impacts

i. Direct Impacts:

It is considered unlikely that there would be direct impacts on badgers from the operation of the Flying Field Area. Potential badger road casualties may occur with continuing and slight increased

use of the access roads within the Flying Field Area to reach businesses but these are likely to be very limited given the large foraging area present, low level of badger use and because most vehicle journeys will be during the daytime, whereas badgers forage at night. Indeed nocturnal vehicle journeys will be lower than current levels as the car storage facility will be accessed directly from Camp Road.

Confidence in Prediction: Probable.

ii. Indirect Impacts:

Unmitigated indirect impacts upon badgers such as disturbance by dogs may occur in the Flying Field Area by people accessing the public rights of way and County Wildlife Site. However it is considered unlikely as dogs and owners would not be present at night and the badger setts are all on the periphery of the site in areas where access would be controlled by fencing and security.

Confidence in Prediction: Probable.

Great Crested Newts

New Settlement Area

a) Construction Impacts

i. Direct Impacts:

Without appropriate mitigation there may be injury or mortality to low numbers of Great Crested Newts (GCNs) as buildings are demolished and ground cleared for development within which newts are potentially resting, though suitable resting habitat is limited within the new settlement area. It is considered that Camp Road acts as a barrier to dispersal to some extent and that, as such, impacts are less likely within the new settlement area south of Camp Road.

Ditches or drains dug for the proposed development may without appropriate mitigation capture newts moving between habitats. Mortality may occur through collisions with machinery although limited work will take place outside daylight hours. However in the shorter days in early spring/late autumn, when newts are moving, impacts could potentially occur.

Confidence in Prediction: Probable.

ii. Indirect Impacts:

Construction noise or vibration may disturb low numbers of newts in resting places in close proximity to the works and without appropriate mitigation, dust may affect the habitat quality of water bodies present nearby.

Confidence in Prediction: Unlikely.

Heyford Park Environmental Statement**b) Operational Impacts****i. Direct Impacts:**

Increased vehicular movements in the settlement area, following operation of the proposals, may if unmitigated lead to an increase in road traffic mortality of GCNs. Particularly as some HGVs would as part of the proposals access the southern bomb stores where a large population of GCN exists. Some of these HGV movements would occur after dusk when GCNs are active, though the number of movements would be limited to a maximum average of 4 HGVs per day. However this use is as existing and hence such impacts would not increase with the proposals. Access by HGVs would be constrained to the hard standing. Car storage is also being consolidated in this area. In time, if increased numbers of GCNs continue to move westwards across the site then impacts may increase, though newt movement will largely be constrained to the vegetated edges of the site. Additionally domestic pets brought in by new residents without appropriate mitigation lead to the increased mortality of newts, though the retention of existing fencing on site would limit access.

Confidence in prediction: Probable.

Without appropriate mitigation this would be a Significant Adverse Effect.

ii. Indirect Impacts:

Increased use of the new settlement area north of Camp Road may disturb GCNs through increased traffic noise levels and through children gaining access to waterbodies containing GCN. However retention of existing fencing would considerably reduce this potential access.

Noise and disturbance of areas by recreational activity may deter terrestrial foraging by newts in some areas. Light pollution without appropriate mitigation may also affect the behaviour of the newts.

Confidence in Prediction: Probable.

Flying Field Area**a) Construction Impacts****i. Direct Impacts:**

The four hangars and industrial shed to the north of the site, which are to be removed, are in an area where no GCNs have been found, which is over 250m from the nearest GCN water body and over 500m from where newts were found in 2007. The four hangars and industrial shed to be removed are in good repair and are solid structures with very little potential to provide refuge for newts. Should the proposals be implemented promptly, it is considered unlikely that there

would be direct impacts upon GCNs. However as time elapses, GCNs may reach this far across the site.

Moving the car storage facility in closer proximity to the largest GCN population on site may lead to increased direct impacts upon individual GCNs from vehicle collision, however the vehicles are stored and moved on the hard-standing only and it is considered that GCNs would be moving through the vegetated boundary of the site here.

Removal of the Christmas Tree Hangars in the south-east of the flying field may have impacts upon GCNs by removing refuge/hibernation habitat in close proximity to the large population of GCNs in the Southern Bomb Stores. However these hangars are solid constructions and offer limited resting habitat suitable for GCNs.

Where permanent post fencing is proposed, for example along the reinstatement route of Aves Ditch, impacts upon GCNs may occur through compaction of substrata during fence erection where newts may have taken refuge between areas of concrete/tarmac.

Confidence in Prediction: Probable.

Without mitigation a Significant Adverse Effect would be Probable.

Stabilisation of the POL system may require excavation and this may without mitigation have negative impacts upon GCN where the POL system runs through habitat used by GCN. Stabilisation of the POL system will however have a major positive impact on the future biodiversity of the site as contamination by fuel of the habitats, including waterbodies used by GCN on site will be avoided.

Confidence in Prediction: Certain

A secure POL system would be a Significant Positive Effect for Future biodiversity on site.

ii. Indirect Effects:

Noise, vibration, dust and water run-off impacts from construction unmitigated may have impacts upon GCNs using the flying field, particularly if works are near to habitat suitable to support newts, such as water bodies. These impacts would be short-term.

Confidence in Prediction: Probable.

b) Operational Impacts

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i. Direct Impacts:

Unmitigated there may be direct impacts upon GCN from dogs being walked around the County Wildlife Site and Aves Ditch footpaths that disturb refuging newts and from domestic pets ranging from the New Settlement Area. However, the existing fencing around the site would be retained, maintained and prevent access to some degree. Movement of vehicles within the car storage area may impact upon GCN, though newts largely move at night and thus would avoid the period of most risk.

Confidence in Prediction: Probable.

ii. Indirect Impacts:

Increased public access may disturb newts through human recreation, dog walking etc. or may cause damage to habitats used by GCNs through litter accumulation (plastic bottles trap newts), fly-tipping of rubbish or motorbikes churning up the ground. Such actions may kill or injure newts or force them to move elsewhere.

However with the retention of existing fencing and security patrolling the site the likelihood of these impacts is considerably reduced.

Without mitigation it is considered Possible that there would be an adverse impact upon Great Crested Newts. It would be necessary to obtain a Natural England licence for works to proceed.

Terrestrial Invertebrates***New Settlement Area***

a) Construction Impacts

i. Direct Impacts:

As part of the proposals there would be some loss of trees, improved lawns and shrubbery within the development area. There would thus be the permanent loss of small areas of low value habitat for invertebrates. However where the lawns have been excavated by rabbits there is some bare ground used by ground nesting Hymenoptera. The area of central lawn within the trident area, within the New Settlement Area is to be retained as part of the proposals.

Confidence in Prediction: Certain.

ii. Indirect Impacts:

Construction dust, without appropriate mitigation may blow over habitats and cause damage to

plant food sources for invertebrates or to individuals themselves. Such impacts would be low level and short-term upon habitats generally of low value for invertebrates.

Confidence in Prediction: Probable.

b) Operational Impacts

i. Direct Impacts

There would be no direct impacts upon invertebrates from the operation of the new settlement area.

Confidence in Prediction: Probable.

ii. Indirect Impacts

Recreational use of the lawned areas within the new settlement area may negatively affect the habitat used by invertebrates

Confidence in Prediction: Probable.

Flying Field Area

a) Construction Impacts

i. Direct Impacts:

There would be no direct impacts as part of the development upon terrestrial invertebrates within the Flying Field Area. However removal of tarmac and scarification of some of the runways within the CWS are likely to have direct impacts upon some invertebrates. Machinery will however be constrained to moving on the hard standings. However such impacts would be temporary and restoration of calcareous grassland would be a positive impact upon invertebrates on site.

Confidence in Prediction: Certain.

ii. Indirect Impacts:

Demolition of hangars within the Flying Field Area would cause noise and dust impacts upon habitats of low/local value for invertebrates. Such impacts unmitigated may extend to affect more important invertebrate habitat such as the County Wildlife Site, however impacts would largely be contained within the footprint areas of the hangars. Noise impacts would be high but temporary.

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Noise and dust impacts from the proposed mitigation steps to scarify areas of the runway would have indirect impacts upon invertebrates in the short-term but long-term restoration of habitat would have a positive impact upon invertebrates.

Confidence in Prediction: Probable.

b) **Operational Impacts**

i. **Direct Impacts:**

Relatively low use of the flying field by vehicles would, given the large expanse of grassland habitat available, be unlikely to significantly impact the populations of invertebrates on site, though direct mortality will occasionally occur.

Confidence in Prediction: Certain.

ii. **Indirect Impacts:**

Unmitigated, high levels of recreational activity within the grasslands of the Flying Field would negatively affect the value of such grasslands, particularly the County Wildlife Site, for invertebrates. Potential impacts such as fly-tipping, dog fouling, motorbike riding and damage to flowering plants may all have negative impacts upon the quality of the grassland habitat available.

Confidence in Prediction: Certain.

Unmitigated this would have a Significant Adverse Effect.

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
CONSTRUCTION IMPACTS					
<p>RAF Upper Heyford County Wildlife Site</p> <p>Description flat area of species-rich calcareous grassland around eastern end of former airfield runways.</p> <p>Ecological value: County.</p> <p>Legal & policy framework: PPS9; SPD</p> <p>BAP priority habitats: Lowland Calcareous grassland</p> <p>Factors on which its integrity depends: Maintenance of the</p>	<p>Activities: Demolition of aircraft hangars within 100m and 600m of CWS. Demolition and refurbishment of buildings over 1km away. As part of mitigation scarification of areas of runway to restore calcareous grassland.</p> <p>Duration of activity: Short-term over construction period</p> <p>Biophysical change: Potential for dust created to cover important habitat; loss of tarmac/concrete to calcareous grassland</p> <p>Relevance to receptor: May</p>	<p>Type of impact: Adverse/Positive</p> <p>Extent: Potentially the whole of CWS</p> <p>Magnitude: Likely to be Low</p> <p>Frequency: Will occur over a brief period.</p> <p>Reversibility: Reversible.</p> <p>Duration of impact: Temporary-Permanent</p> <p>Confidence in impact occurring: Probable.</p>	<p>Effect on Integrity: Short-term negative effect on integrity. Site already open and flat – subject to wind and dust. Concrete in abundance on CWS – dust likely to assist colonisation in some hard-standing areas. Positive by increasing calcareous grassland habitat available.</p>	<p>Mitigation: The proposed works are focused away from the CWS with the main residential area over 1km away from the CWS. Care would be taken to minimise dust creation on site – keeping materials covered and damping down construction areas; Scarification of runway would be achieved through operating off hardstandings. Demolition of the hangars would be by implosion. Care would be taken to undertake this work on a still day to prevent winds carrying dust further afield – general</p>	<p>Residual Impact: Not significant</p>

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
favourable conservation status of the grassland habitat through appropriate management.	affect photosynthesis of plants in CWS grassland		<p>Significance & Scale of Impact: Significant adverse at the County level – Positive at the County Level</p> <p>Confidence in Prediction: Certain.</p> <p>Policy Implications: Potentially contrary to Policy without appropriate mitigation</p>	<p>implementation of good practice with respect to construction operations in line with construction industry guidance/regulations;</p> <p>Enforcement: Secured by legal agreement/ planning condition</p> <p>Confidence in success: Probable</p>	
OPERATIONAL IMPACTS					
RAF Upper Heyford County Wildlife Site	Activities: Recreational impacts – sporting activity,	Type of impact: Adverse Extent: May	Effect on integrity: Decline of habitat	Mitigation: Stock fencing would control access to the CWS and	Residual impact: Significant at the County

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
<p>Description: Open flat area of species-rich calcareous grassland around eastern end of former airfield runways.</p> <p>Ecological value: County.</p> <p>Legal & policy framework: PPS9</p> <p>BAP priority habitats: Lowland calcareous grassland</p> <p>Factors on which its integrity depends: Maintenance of the favourable conservation status of the grassland habitat through appropriate management.</p>	<p>dog fouling, fly-tipping, motorbike scrambling; disturbance from low number of HGVs moving around the peri road per day.</p> <p>Duration of activity: Permanent.</p> <p>Biophysical change: Physical impacts would damage and kill parts of the grassland. Waste materials may increase the fertility of soils.</p> <p>Relevance to receptor: Indirect effects may result in deterioration of the vegetation community – loss of quality, physical loss of species-rich areas, increased fertility of soils would lead to a decrease</p>	<p>affect whole of CWS.</p> <p>Magnitude: Low-High depending upon area affected.</p> <p>Frequency: Recurring</p> <p>Reversibility: Reversible if controlled</p> <p>Duration of impact: Permanent</p> <p>Confidence in impact occurring: Probable.</p>	<p>would be a negative impact on the integrity of the site.</p> <p>Significance & scale of impact: Significant adverse at the County level.</p> <p>Confidence in prediction: Probable.</p> <p>Policy Implications: Contrary to PPS9 and UK BAP without appropriate mitigation.</p>	<p>retain stock within the grasslands. Additional permanent fencing would be provided along the Aves Ditch footpath; vehicular access to the site would be controlled through site security for the industrial site and the permanent boundary fencing retained. The nature conservation management plan would control any negative impacts encountered.</p> <p>Enforcement: Secured by legal agreement/ planning condition</p> <p>Confidence in success: Probable.</p>	<p>Level.</p> <p>Compensation: The whole of the flying field would be subject to a nature conservation management plan to maximise biodiversity. Information boards would explain the importance of the site and the requirements of using this area for recreation.</p> <p>Policy Implications: Species rich calcareous grassland would be retained and managed to enhance its biodiversity. This measure is in</p>

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
appropriate management.	in species-richness.				keeping and in accordance with National and Local Planning Policy.
CONSTRUCTION IMPACTS					
<p>Ecologically Important Landscape</p> <p>Description: Flat open grassland, varying in quality from improved to species rich pockets. Largely within the central area around the former main runway. Associated species: Ground nesting birds e.g. Skylark, Curlew</p> <p>Ecological value: Local</p> <p>Legal & policy framework: PPS9,</p>	<p>Activities: Demolition of aircraft hangars within 250m of EIL. Demolition and refurbishment of buildings over 500m away; scarification of runways within the CWS within the EIL</p> <p>Duration of activity: Short-term over construction period</p> <p>Biophysical change: Potential for dust created to cover habitats.</p> <p>Relevance to receptor: May affect photosynthesis of plants</p>	<p>Type of impact: Adverse - Positive</p> <p>Extent: Potentially the whole of the EIL - CWS</p> <p>Magnitude: Likely to be Low</p> <p>Frequency: Will occur over a brief period.</p> <p>Reversibility: Reversible.</p> <p>Duration of impact: Temporary.</p> <p>Confidence in impact occurring: Probable.</p>	<p>Effect on Integrity: Short-term negative effect on integrity. Site already open and flat – subject to wind and dust. Concrete in abundance on the flying field – dust likely to assist plant colonisation in some hard-standing areas.; Positive long-term impact of</p>	<p>Mitigation: The main area for proposed works is focused away from the EIL with the residential area over 500m away from the EIL. Care would be taken to minimise dust creation on site – keeping materials covered and damping down construction areas. Demolition of the hangars would be by implosion. Care would be taken to undertake this work on a still day to prevent winds carrying dust further afield – general</p>	<p>Residual Impact: Not significant</p>

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
<p>UKBAP</p> <p>BAP priority habitats:</p> <p>Lowland calcareous grassland</p> <p>Factors on which its integrity depends:</p> <p>Maintaining favourable conservation of habitat through appropriate management.</p>	<p>in grassland, some areas of which are species-rich.</p>	<p>occurring: Probable.</p>	<p>calcareous grassland restoration.</p> <p>Significance & Scale of Impact:</p> <p>Significant adverse at the Local level.</p> <p>Confidence in Prediction:</p> <p>Probable.</p> <p>Policy Implications:</p> <p>Contrary to Planning Policy and Local Plan without appropriate mitigation</p>	<p>implementation of good practice with respect to construction operations in line with construction industry guidance/ regulations; scarification of runways would be undertaken from hard standings.</p> <p>Enforcement: Secured by legal agreement/ planning condition</p> <p>Confidence in success:</p> <p>Probable</p>	

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
OPERATIONAL IMPACTS					
<p>Ecologically Important Landscape</p> <p>Description: Flat open grassland, varying in quality from improved to species rich pockets. Largely within the central area around the former main runway</p> <p>Associated species: Ground nesting birds e.g. Skylark, Curlew.</p> <p>Ecological value: Local</p> <p>Legal & policy framework: PPS9, UKBAP</p> <p>BAP priority habitats:</p>	<p>Activities: Recreational impacts – sporting activity, dog fouling, fly-tipping, motorbike scrambling; increase in vehicle movement within EIL</p> <p>Duration of activity: Permanent.</p> <p>Biophysical change: Physical impacts would damage and kill parts of the grassland. Waste materials may increase the fertility of soils.</p> <p>Relevance to receptor: Indirect effects may result in deterioration of the vegetation community – loss of quality,</p>	<p>Type of impact: Adverse Extent: May affect all of grassland on site to some degree.</p> <p>Magnitude: 30% seriously affected.</p> <p>Frequency: Permanent</p> <p>Reversibility: Reversible if controlled</p> <p>Duration of impact: Permanent</p> <p>Confidence in impact occurring: Without mitigation – Probable.</p>	<p>Effect on integrity: significant adverse impact upon integrity of site.</p> <p>Significance & scale of impact: Significant adverse impact at Local level</p> <p>Confidence in prediction: Probable</p> <p>Policy Implications: Contrary to PPS9 and Local Plan without appropriate</p>	<p>Mitigation: Public/ vehicular access to the site would be controlled through site security for the industrial site and the permanent boundary fencing retained. The nature conservation management plan would control any negative impacts encountered.</p> <p>Enforcement: Secured by legal agreement/ planning condition</p> <p>Confidence in success: Probable.</p>	<p>Residual impact: Significant at the Local level. Compensation: The whole of the flying field would be subject to a nature conservation management plan to maximise biodiversity.</p> <p>Policy Implications: The EIL would be maintained to enhance its biodiversity. Species rich calcareous grassland would be retained and managed to enhance its biodiversity. This is in keeping and in</p>

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
Calcareous grassland Factors on which its integrity depends: Maintaining favourable conservation of habitat through appropriate management.	physical loss of species-rich areas, increased fertility of soils would lead to a decrease in species-richness.		mitigation		accordance with National and Local Planning Policy.
CONSTRUCTION IMPACTS					
Grasslands Outside Designated Areas within Flying Field Area	Activities: Demolition of aircraft hangars in close proximity to grassland; Demolition and refurbishment of buildings over 500m away; Duration of activity: Short-term over construction period. Biophysical change: Potential	Type of impact: Adverse Extent: Potentially all grasslands on site. Magnitude: Likely to be Low Frequency: Will occur over a brief period. Reversibility:	Effect on Integrity: Short-term negative effect on integrity. Site already open and flat – subject to wind and dust. Concrete in abundance on the flying field – dust	Mitigation: The main area for proposed works is focused away from the open grassland on site – largely over 500m away. Care would be taken to minimise dust creation on site – keeping materials covered and damping down construction areas. Demolition of the hangars would	Residual Impact: Not significant

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
	for dust created to cover important habitat. Relevance to receptor: May affect photosynthesis of plants in grassland.	Reversible. Duration of impact: Temporary. Confidence in impact occurring: Probable.	likely to assist plant colonisation in some hard-standing areas. Significance & Scale of Impact: Significant adverse at the Local level. Confidence in Prediction: Probable. Policy Implications: Contrary to Planning Policy and Local Plan without appropriate mitigation	be by implosion. Care would be taken to undertake this work on a still day to prevent winds carrying dust further afield – general implementation of good practice with respect to construction operations in line with construction industry guidance/ regulations; Enforcement: Secured by legal agreement/ planning condition Confidence in success: Probable	

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
OPERATIONAL IMPACTS					
Grasslands Outside Designated Areas within Flying Field Area	<p>Activities: Recreational impacts – sporting activity, dog fouling, fly-tipping, motorbike scrambling; slight increase in vehicular movements within the flying field</p> <p>Duration of activity: Permanent.</p> <p>Biophysical change: Physical impacts would damage and kill parts of the grassland. Waste materials may increase the fertility of soils.</p> <p>Relevance to receptor: Indirect effects may result in deterioration of the vegetation</p>	<p>Type of impact: Adverse. Extent: May affect majority of remaining grassland on site – although some grassland is inaccessible behind chain-link fencing.</p> <p>Magnitude: 50% seriously affected.</p> <p>Frequency: Permanent</p> <p>Reversibility: Reversible if controlled</p> <p>Duration of impact: Permanent</p> <p>Confidence in impact occurring: Without</p>	<p>Effect on integrity: significant adverse impact upon integrity of site.</p> <p>Significance & scale of impact: Significant adverse impact at Local level</p> <p>Confidence in prediction: Probable</p> <p>Policy Implications: Contrary to Local Plan policy without appropriate</p>	<p>Mitigation: Public/vehicular access to the site would be controlled through site security for the industrial site and the permanent boundary fencing retained. The nature conservation management plan would control any negative impacts encountered.</p> <p>Enforcement: Secured by legal agreement/ planning condition</p> <p>Confidence in success: Probable.</p>	<p>Residual impact: Not Significant</p>

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
	community – loss of quality, physical loss of species-rich areas, increased fertility of soils would lead to a decrease in species-richness.	mitigation – Probable.	mitigation		
CONSTRUCTION IMPACTS					
<p>Improved Lawns, Flowerbeds and Trees Within New Settlement Area</p> <p>Description: small areas of improved grassland, flowerbeds and young trees typical of landscaping of urban areas.</p> <p>Ecological value:</p>	<p>Activities: Direct loss and damage to small areas of improved grassland, flowerbeds and trees, though the majority of these areas will be retained; indirect impacts on retained areas of construction noise, dust and water run-off. Loss of 313 trees on site</p> <p>Duration of activity: Short-</p>	<p>Type of impact: Adverse</p> <p>Extent: Within development area</p> <p>Magnitude: Low-High</p> <p>Frequency: Temporary to permanent</p> <p>Reversibility: Potentially reversible-Permanent.</p> <p>Duration of impact:</p>	<p>Effect on conservation status: Temporary adverse effect upon habitats of negligible-Local value.</p> <p>Significance & scale of impact: Not Significant</p> <p>Confidence in</p>	<p>Mitigation: The majority of these areas within the development area would be retained and fenced with heras fencing to reduce the likelihood of impacts. Works would be phased to allow progressive removal and replacement of habitats. New landscaping areas would be replaced following completion to provide</p>	<p>Residual impact: Not Significant</p>

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
<p>Negligible-Local</p> <p>Legal & policy framework: PPS9</p> <p>Factors on which its conservation status depends: retention and appropriate management</p>	<p>term - Permanent</p> <p>Biophysical change:</p> <p>Disturbance from construction upon urban habitats. Direct removal of habitat.</p> <p>Relevance to receptor:</p> <p>Permanent loss of habitat from some areas, although equivalent area will be replaced across the proposals. New tree planting proposed across the site. Temporary disruption to breeding birds using the habitats.</p>	<p>Temporary-Permanent</p> <p>Confidence in impact occurring: Probable.</p>	<p>prediction: Certain</p> <p>Policy Implications:</p> <p>Contrary to PPS9 without appropriate mitigation.</p>	<p>equivalent habitats and flowering/fruited tree and shrub species would be used to provide wildlife with food resources (see Chapter 14)</p> <p>Enforcement: Planning Condition</p> <p>Confidence in success: Certain</p>	

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
OPERATIONAL IMPACTS					
<p>Improved Lawns, Flowerbeds and Young Trees Within New Settlement Area</p> <p>Description: small areas of improved grassland, flowerbeds and young trees typical of landscaping of urban areas.</p> <p>Ecological value: Negligible.</p> <p>Legal & policy framework: PPS9.</p> <p>Factors on which its conservation status depends: N/A</p>	<p>Activities: potential damage to habitat from recreational use; damage from vehicle incursion; indirect impacts of noise</p> <p>Duration of activity: Permanent</p> <p>Biophysical change: Damage and disturbance likely in an urban situation</p> <p>Relevance to receptor: Reduced use of limited urban habitat by wildlife.</p>	<p>Type of impact: Adverse</p> <p>Extent: Within Development Area.</p> <p>Magnitude: Low</p> <p>Frequency: Temporary to permanent</p> <p>Reversibility: Reversible with control</p> <p>Duration of impact: Temporary-Permanent</p> <p>Confidence in impact occurring: Probable</p>	<p>Effect on conservation status: Adverse effect upon features of negligible conservation status.</p> <p>Significance & scale of impact: Not Significant.</p> <p>Confidence in prediction: Certain</p> <p>Policy Implications: Contrary to PPS9 without appropriate mitigation.</p>	<p>Mitigation: Recreational areas would be provided to the south-west of the site to focus impacts upon a particular area but also to spread out potential impacts over a wider area, reducing their local impact. The site would be subject to a management plan that would maintain the landscaping on site.</p> <p>Enforcement: Section 106 agreement.</p> <p>Confidence in success: Probable</p>	<p>Residual impact: Not Significant</p>

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
CONSTRUCTION IMPACTS					
<p>Birds (New Settlement Area) Description: common garden birds Ecological value: Local Legal & policy framework: PPS9 Factors on which its conservation status depends: Maintenance and management of habitat.</p>	<p>Activities: Loss of/damage to tree/scrub/grassland habitat; noise Duration of activity: Temporary-Permanent. Biophysical change: Removal and replacement of urban habitats; increased disturbance. Relevance to receptor: Possible reduction in wildlife use of urban habitats.</p>	<p>Type of impact: Adverse Extent: Development area Magnitude: Low-High Frequency: Once-continuous Reversibility: Reversible-Permanent Duration of impact: Temporary-Permanent Confidence in impact occurring: Probable.</p>	<p>Effect on conservation status: Temporary adverse effect upon negligible conservation value. Significance & scale of impact: Significant at the Local level. Confidence in prediction: Certain Policy Implications: contrary to PPS9 without appropriate mitigation</p>	<p>Mitigation: Retention of the majority of urban habitats within the development area. Replacement grassland and landscape planting including trees and shrubs over a greater area than that lost. Protection of habitats with heras fencing. Use of flowering and fruiting planting to provide wildlife foraging within the urban environment on completion. Enforcement: Section 106, planning condition. Confidence in success: Certain</p>	<p>Residual impact: Not Significant</p>

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Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
OPERATIONAL IMPACTS					
<p>Birds (Settlement Area)</p> <p>Description: common garden birds</p> <p>Ecological value: Local</p> <p>Legal & policy framework: PPS9</p> <p>Factors on which its conservation status depends: Maintenance and management of habitat.</p>	<p>Activities: Noise/disturbance from increased use of residential and light industry areas; increase in domestic pets due to increase in residential property.</p> <p>Duration of activity: Permanent.</p> <p>Biophysical change: Increase in noise /physical disturbance</p> <p>Relevance to receptor: potential reduction in number and success of common birds on site.</p>	<p>Type of impact: Adverse</p> <p>Extent: Development area</p> <p>Magnitude: Low</p> <p>Frequency: Continuous</p> <p>Reversibility: Permanent</p> <p>Duration of impact: Permanent</p> <p>Confidence in impact occurring: Probable</p>	<p>Effect on conservation status: Adverse effect upon feature of local value</p> <p>Significance & scale of impact: Significant adverse upon feature of Local value.</p> <p>Confidence in prediction: Probable</p> <p>Policy Implications: Contrary to PPS9 without appropriate</p>	<p>Mitigation: Retention of the majority of urban habitats within the development area. Replacement grassland and landscape planting including trees and shrubs over a greater area than that lost. Use of flowering and fruiting planting to provide wildlife foraging within the urban environment on completion.</p> <p>Enforcement: Section 106, planning condition.</p> <p>Confidence in success: Certain</p>	<p>Residual impact: Not Significant</p>

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
			mitigation		
CONSTRUCTION IMPACTS					
<p>Birds (Flying Field Area)</p> <p>Description: Very high numbers of ground nesting breeding birds within grassland and limited scrub habitats.</p> <p>Ecological value: County Value</p> <p>Legal & Policy framework: Breeding birds protected under WACA 1981. Schedule I birds given greater protection; Birds</p>	<p>Activities: Construction noise, light pollution, demolition of hangars in close proximity to breeding bird habitat; dust polluting breeding bird habitat; scarification of runways to restore calcareous grassland</p> <p>Duration of activity: Temporary.</p> <p>Biophysical change: Increased disturbance over open grassland; restoration of concrete/tarmac to calcareous grassland</p> <p>Relevance to receptor:</p>	<p>Type of impact: Adverse-Positive</p> <p>Extent: Flying Field</p> <p>Magnitude: Low-High</p> <p>Frequency: Temporary</p> <p>Reversibility: Reversible</p> <p>Duration of impact: Short-term – construction period - Permanent</p> <p>Confidence in impact occurring: Probable - Certain</p>	<p>Effect on conservation status: Negative – Positive effect on conservation status.</p> <p>Significance & scale of impact: Significant negative impact at a County scale.</p> <p>Confidence in prediction: Probable</p> <p>Policy Implications:</p>	<p>Mitigation: Demolition of hangars in close proximity to the flying field/scarification of runways will be undertaken outside the bird breeding season; works undertaken outside dusk/dawn periods; no lighting to extend over flying field; control of dust as best practice.</p> <p>Enforcement: WACA, Birds Directive, planning condition.</p> <p>Confidence in success: Probable.</p>	<p>Residual impact: Significant impact.</p> <p>Compensation: CWS and EIL managed as part of a nature conservation management plan to produce a range of grassland sward heights to improve the diversity of breeding/foraging habitats available.</p> <p>Policy Implications: In accordance with planning policy</p>

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
Directive lists birds of EU importance. BAP species present on site? Factors on which its conservation status depends: Retention of breeding and foraging habitats; appropriate management of such habitats.	Noise/dust/light disturbance may dissuade birds from breeding on the grasslands.		Potentially contrary to WACA, Birds Directive, Local Policy, UK BAPs without appropriate mitigation.		
OPERATIONAL IMPACTS					
Birds (Flying Field Area) Description: Very high numbers of ground nesting breeding birds within grassland and limited scrub habitats.	Activities: Recreational activity – dog walking, sports. Fly-tipping, motorbike scrambling; slight increase in vehicle movements on the flying field, Duration of activity: Permanent	Type of impact: Adverse Extent: Flying Field Magnitude: Low-High Frequency: Intermittent -Constant Reversibility:	Effect on conservation status: Negative effect on conservation status. Significance & scale of impact:	Mitigation: Public access would be controlled through fencing and security on site for the industrial activity; public access to the CWS would be limited through stock fencing and fencing along the Aves Ditch	Residual impact: Significant impact Compensation: The flying field grasslands would be subject to a nature conservation management plan

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Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
<p>Ecological value: County Value</p> <p>Legal & Policy framework: Breeding birds protected under WACA 1981. Schedule I birds given greater protection; Birds Directive lists birds of EU importance. BAP?</p> <p>Factors on which its conservation status depends: Retention of breeding and foraging habitats; appropriate management of such habitats.</p>	<p>Biophysical change: Greater levels of physical and noise disturbance than currently. Damage to habitat.</p> <p>Relevance to receptor: Noise and physical disturbance may decrease breeding success or lead to increased bird mortality; damage to habitat may reduce the number of birds able to successfully breed on site.</p>	<p>Permanent</p> <p>Duration of impact: Permanent</p> <p>Confidence in impact occurring: Certain.</p>	<p>Significant negative impact at a County scale</p> <p>Confidence in prediction: Certain.</p> <p>Policy Implications: Contrary to WACA, Birds Directive, Local Policy without appropriate mitigation.</p>	<p>footpath. Enforcement: WACA, Birds Directive, planning condition.</p> <p>Confidence in success: Probable</p>	<p>designed to maximise biodiversity. The EIL grasslands would be managed to produce a range of sward heights to provide diverse breeding/foraging habitat on site.</p> <p>Policy Implications: IN accordance with PPS9, Local Plan</p>

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
CONSTRUCTION IMPACTS					
<p>Bats (New Settlement Area)</p> <p>Description: Nineteen building bat roosts, one of which is a Common Pipistrelle maternity roost.</p> <p>Ecological value: Local</p> <p>Legal & policy framework: WACA, EU Habitats Directive, PPS9, Local Plans</p> <p>Factors on which its conservation status depends: Retention of roosting and foraging habitats; management of</p>	<p>Activities: Loss of seventeen bat roosts used by individual/small numbers of bats. Loss of medium-sized Common Pipistrelle roost; refurbishment of a small Long-eared roost; Construction noise would indirectly affect the Long-eared roost to be refurbished; light pollution from construction may disturb bat use of the development area.</p> <p>Duration of activity: Temporary to Permanent.</p> <p>Biophysical change: Complete removal of bat</p>	<p>Type of impact: Adverse</p> <p>Extent: Development Area</p> <p>Magnitude: Medium-High</p> <p>Frequency: Permanent.</p> <p>Reversibility: Permanent.</p> <p>Duration of impact: Permanent.</p> <p>Confidence in impact occurring: Certain</p>	<p>Effect on conservation status: Adverse effect on conservation status</p> <p>Significance & scale of impact: Significant adverse impact upon feature of Local value</p> <p>Confidence in prediction: Certain</p> <p>Policy Implications: Contrary to WACA, EU Habitats Regs, Local</p>	<p>Mitigation: Bat boxes would be erected on site to provide temporary roosting habitat; Works would be undertaken under a Natural England bat licence. Emergence checks would be undertaken and bats excluded where possible/necessary prior to demolition. Likely roosting places would be stripped by hand and the exposed building structure left for 24 hours prior to removal. New bat roosts would be created in the new buildings in locations similar to where they occur currently. The</p>	<p>Residual impact: Not Significant</p>

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
habitats for bat foraging.	roosting habitat; disturbance/removal of foraging habitat. Relevance to receptor: Unmitigated would cause mortality or injury of bats or displace species through disturbance.		Plan and PPS9 without appropriate mitigation.	maternity Common Pipistrelle roost would be replaced in exactly the same position with a new building. This building would require construction between August and May to ensure that roosting habitat was re-available the following maternity season. This roost would be heated; landscape planting would need to ensure connectivity of landscape for bats. Enforcement: WACA, EU Habitats Directive, planning condition, Natural England licence. Confidence in success: Probable.	

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
OPERATIONAL IMPACTS					
<p>Bats (New Settlement Area)</p> <p>Description: Eighteen small bat roosts within buildings on site. One medium-sized Common Pipistrelle maternity roost.</p> <p>Ecological value: Local</p> <p>Legal & policy framework: WACA, EU Habitats Directive, PPS9, Local Plans</p> <p>Factors on which its conservation status depends: Retention of roosting and foraging</p>	<p>Activities: increased road traffic within development area; introduction of cats by residents; increased light pollution from residences</p> <p>increase in heated loft spaces</p> <p>Duration of activity: Permanent</p> <p>Biophysical change: General overall increase in building use on site – residential and commercial.</p> <p>Relevance to receptor: May increase direct mortality or may dissuade species from feeding here; may offer increased building roost</p>	<p>Type of impact: Adverse</p> <p>Extent: Within new settlementt area, some impacts may extend onto Flying Field</p> <p>Magnitude: High</p> <p>Frequency: Variable.</p> <p>Reversibility: Permanent.</p> <p>Duration of impact: Permanent.</p> <p>Confidence in impact occurring: Certain.</p>	<p>Effect on conservation status: Adverse effect on conservation status</p> <p>Significance & scale of impact: Significant adverse impact upon feature of Local-District value</p> <p>Confidence in prediction: Probable</p> <p>Policy Implications: Potentially contrary</p>	<p>Mitigation: Replacement roosting habitat; new native species planting.</p> <p>Enforcement: WACA, EU Habitats Directive, planning condition.</p> <p>Confidence in success: Probable.</p>	<p>Residual impact: Not Significant</p> <p>ponds are proposed on site.</p> <p>Policy Implications: In accordance with PPS9, Local Plan, BAP</p>

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
habitats; management of habitats for bat foraging.	habitat.		to WACA, EU Habitats Regs, Local Plan and PPS9 without appropriate mitigation.		
CONSTRUCTION IMPACTS					
<p>Bats (Flying Field Area)</p> <p>Description: Sheltered foraging within open hangars.</p> <p>Ecological value: Local</p> <p>Legal & policy framework: PPS9, Local Plans</p> <p>Factors on which its conservation status</p>	<p>Activities: Loss of sheltered foraging used by individual/small numbers of bats. Loss of dark foraging at the boundary of the site.</p> <p>Duration of activity: Permanent.</p> <p>Biophysical change: Two hangars found to contain bat dropping evidence but considered not to be roosting</p>	<p>Type of impact: Adverse</p> <p>Extent: Limited areas of the Flying Field</p> <p>Magnitude: Low</p> <p>Frequency: Permanent.</p> <p>Reversibility: Permanent</p> <p>Duration of impact: Permanent.</p> <p>Confidence in impact</p>	<p>Effect on conservation status: Adverse effect on conservation status</p> <p>Significance & scale of impact: Adverse impact upon feature of Local value. Low significance.</p>	<p>Mitigation: New native species planting would be undertaken in limited positions around the periphery of the Flying Field Area. This planting would provide new foraging habitat for bat species.</p> <p>Enforcement: planning condition, Natural England Licence.</p> <p>Confidence in success:</p>	<p>Residual impact: Not Significant.</p>

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
depends: Retention of roosting and foraging habitats; management of habitats for bat foraging.	habitat are to be demolished. Relevance to receptor: Low numbers of bats may be displaced from the site and forced to forage elsewhere.	occurring: Certain.	Confidence in prediction: Certain Policy Implications: Contrary to, PPS9 without appropriate mitigation	Probable.	
OPERATIONAL IMPACTS					
Bats (Flying Field Area) Description: Sheltered foraging along vegetation boundaries/above emergency water storage tanks. Ecological value: Local Legal & policy framework: PPS9, Local	Activities: Loss of sheltered foraging used by individual/small numbers of bats. Loss of dark foraging at the boundary of the site. Duration of activity: Permanent. Biophysical change: Areas of rank grassland and concrete devoid of use or lighting used	Type of impact: Adverse Extent: Limited areas of the Flying Field Magnitude: Low Frequency: Permanent. Reversibility: Reversible Duration of impact: Permanent.	Effect on conservation status: Adverse effect on conservation status Significance & scale of impact: Adverse impact upon feature of Local value. Low	Mitigation: New native species planting would be undertaken in limited positions around the periphery of the Flying Field. This planting would provide new foraging habitat for bat species; use of lighting on the Flying Field would be minimised with use of movement sensors where possible. Enforcement: planning	Residual impact: Not Significant.

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
Plans Factors on which its conservation status depends: Retention of roosting and foraging habitats; management of habitats for bat foraging.	by bats for low level foraging are to be used for car storage. Relevance to receptor: Low numbers of bats may be displaced from the site and forced to forage elsewhere.	Confidence in impact occurring: Certain	significance. Confidence in prediction: Certain Policy Implications: Contrary to PPS9 without appropriate mitigation.	condition, Natural England Licence. Confidence in success: Probable.	
CONSTRUCTION IMPACTS					
Badgers (New Settlement Area) Description: Badger use of south-western edge of development area; potential foraging. Ecological value: Local Legal & policy	Activities: Disturbance to potential foraging area through demolition of former school area. Duration of activity: Temporary. Biophysical change: Removal of buildings to provide open	Type of impact: Adverse Extent: former school and recreation area Magnitude: Low-High Frequency: Temporary/ occasional. Reversibility:	Effect on conservation status: Short-term negative effect on conservation status. Significance & scale of impact: Temporary	Mitigation: Fencing would be used to ensure badgers do not enter the demolition zone. All pits would be covered at night and include escape ramps. Land would be restored to improved grassland/open space; Enforcement: Planning	Residual impact: Not Significant

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
<p>framework: WACA, Badgers Act, Local Plan, PPS9.</p> <p>Factors on which their conservation status depends: maintenance of setts and territories with adequate foraging habitats.</p>	<p>space area of improved grassland.</p> <p>Relevance to receptor: Badgers may suffer mortality/displacement as they try to forage and maintain territorial boundaries during construction.</p>	<p>Permanent</p> <p>Duration of impact: Temporary</p> <p>Confidence in impact occurring: Probable.</p>	<p>significant adverse impact at the Local Scale.</p> <p>Confidence in prediction: Certain</p> <p>Policy Implications: Contrary to PPS9 and Local Plan without appropriate mitigation.</p>	<p>condition</p> <p>Confidence in success: Certain.</p>	
OPERATIONAL IMPACTS					
<p>Badgers (New Settlement Area)</p> <p>Description: Badgers using the south-western corner of the site in which to forage.</p>	<p>Activities: Disturbance caused by use of the recreational area after dusk; potential lighting impacts of recreational area; use of recreational area by domestic pets.</p>	<p>Type of impact: Adverse</p> <p>Extent: Former school and recreational areas of the development area.</p>	<p>Effect on conservation status: negative effect on conservation status</p> <p>Significance &</p>	<p>Mitigation: There would be no lighting on the open space area; additional native planting would be undertaken to thicken the western boundary to provide extra forage and cover; open</p>	<p>Residual impact: Not Significant</p>

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
<p>Ecological value: Local</p> <p>Legal & policy framework: WACA, Badgers Act, Local Plan, PPS9.</p> <p>Factors on which their conservation status depends: maintenance of habitat for setts and territories with adequate foraging grounds.</p>	<p>Duration of activity: Permanent.</p> <p>Biophysical change: Potential displacement of foraging badgers</p> <p>Relevance to receptor: Badgers may suffer mortality/reduced food intake as they cannot access foraging grounds.</p>	<p>Magnitude: Low-High</p> <p>Frequency: Periodic/regular</p> <p>Reversibility: Temporary-Permanent</p> <p>Duration of impact: Variable</p> <p>Confidence in impact occurring: Probable.</p>	<p>scale of impact: Significant adverse impact at the Local Scale.</p> <p>Confidence in prediction: Probable. Policy Implications: Potentially contrary to PPS9 and Local Plan without appropriate mitigation.</p>	<p>space area offers much larger foraging area than badgers have in that area at the moment.</p> <p>Enforcement: Planning condition.</p> <p>Confidence in success: Probable.</p>	
CONSTRUCTION IMPACTS					
<p>Badgers (Flying Field Area)</p> <p>Description: Ten badger setts at the northern</p>	<p>Activities: Disturbance and possible damage to two setts in close proximity to hangars to be removed;</p>	<p>Type of impact: Adverse</p> <p>Extent: northern extent of site.</p>	<p>Effect on conservation status: Short-term but potentially</p>	<p>Mitigation: Prior to demolition of the hangars in the northern corner of the Flying Field, these setts would be temporarily</p>	<p>Residual impact: Not Significant</p>

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
<p>setts at the northern edge of the Flying Field; badger foraging in proximity to this boundary.</p> <p>Ecological value: Local</p> <p>Legal & policy framework: WACA, Badgers Act, Local Plan, PPS9.</p> <p>Factors on which their conservation status depends: Maintenance of setts and territories with adequate foraging habitats.</p>	<p>to be removed;</p> <p>Duration of activity: Temporary.</p> <p>Biophysical change: Removal of hangars in close proximity to pill boxes containing outlying setts to leave concrete bases.</p> <p>Relevance to receptor: Without mitigation, badgers may suffer mortality, injury, sett loss or displacement as buildings built to withstand bomb attack are demolished within metres.</p>	<p>extent of site.</p> <p>Magnitude: High</p> <p>Frequency: Temporary</p> <p>Reversibility: Permanent</p> <p>Duration of impact: Temporary</p> <p>Confidence in impact occurring: Probable.</p>	<p>but potentially significant negative effect on conservation status.</p> <p>Significance & scale of impact: Significant adverse impact at the Local Scale.</p> <p>Confidence in prediction: Probable.</p> <p>Policy Implications: Contrary to PPS9 and Local Plan without appropriate mitigation.</p>	<p>setts would be temporarily closed under a Natural England licence and then opened following demolition. Any damage to setts during demolition would be repaired following completion with the creation of artificial setts; Fencing would be used to ensure badgers do not enter the demolition zone.</p> <p>Enforcement: Planning condition</p> <p>Confidence in success: Certain.</p>	

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
OPERATIONAL IMPACTS					
<p>Badgers (Flying Field Area)</p> <p>Description: Ten badger setts at the northern edge of the Flying Field Area; badger foraging in proximity to this boundary.</p> <p>Ecological value: Local</p> <p>Legal & policy framework: WACA, Badgers Act, Local Plan, PPS9.</p> <p>Factors on which their conservation status depends: Maintenance of setts and territories with</p>	<p>Activities: Potential disturbance caused by recreational use of the Flying Field – dog walking in particular; slight increase in vehicle use of the flying field</p> <p>Duration of activity: Permanent/intermittent</p> <p>Biophysical change: Damage to setts, interference with setts from dogs; disturbance to foraging badgers.</p> <p>Relevance to receptor: Badgers may suffer mortality, displacement from setts and foraging grounds. Hence the population would suffer a</p>	<p>Type of impact: Adverse Extent: North-eastern corner of the Flying Field/CWS/EIL</p> <p>Magnitude: Low-High.</p> <p>Frequency: Periodic.</p> <p>Reversibility: Reversible.</p> <p>Duration of impact: Variable.</p> <p>Confidence in impact occurring: Probable.</p>	<p>Effect on conservation status: negative effect on conservation status</p> <p>Significance & scale of impact: Significant adverse impact at the Local Scale.</p> <p>Confidence in prediction: Probable.</p> <p>Policy Implications: Contrary to PPS9 and Local Plan</p>	<p>Mitigation: The sett area is protected through existing fencing around the northern bomb store area; dog walkers around the CWS would be kept to the peri road by stockproof fencing and kept on Aves Ditch footpath by fencing; public access to the remainder of the site would be controlled as part of the secure measures implemented for the industrial site operation; the whole of the Flying Field would be managed as part of a nature conservation management plan which would enhance the foraging available</p>	<p>Residual impact: Not Significant</p>

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
adequate foraging habitats.	decline.		without appropriate mitigation.	for badgers on site. Enforcement: Planning condition. Confidence in success: Probable.	
CONSTRUCTION IMPACTS					
<p>Great Crested Newts (New Settlement Area)</p> <p>Description: Small numbers of GCN in tanks within new settlement area but considered Medium population.</p> <p>Ecological value: EU</p> <p>Legal & policy framework: WACA, EU</p>	<p>Activities: loss of flowerbeds, mown, improved grassland within existing technical area but the majority of this habitat would be retained; loss of buildings and hard standing; introduction of new access road past one of the water tanks containing GCN with HGV movements day and night.</p> <p>Duration of activity:</p>	<p>Type of impact: Adverse</p> <p>Extent: Development area north of Camp Road</p> <p>Magnitude: Low-High</p> <p>Frequency: Permanent</p> <p>Reversibility: Permanent</p> <p>Duration of impact: Permanent</p> <p>Confidence in impact</p>	<p>Effect on conservation status: adverse impact upon conservation status</p> <p>Significance & scale of impact: Significant adverse impact at County Level.</p> <p>Confidence in prediction:</p>	<p>Mitigation: Newt fencing would be erected around the new settlement area to keep small number of newts out of the construction area. Any building footings or paving deemed to be suitable for refuging amphibians would be removed by destructive search under the supervision of a licensed newt worker; simple enhancements would be made to the poor</p>	<p>Residual impact: Not Significant.</p>

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
Habitats Directive Factors on which their conservation status depends: Maintenance of favourable conservation status of aquatic and terrestrial habitats within 250m of breeding pond.	Temporary – length of construction Biophysical change: Loss/disturbance of poor quality habitats potentially used by GCN; Relevance to receptor: Some refuge sites may be affected; increase in mortality possible due to increase in traffic and location of access road.	occurring: Probable.	Probable. Policy Implications: Contrary to PPS9 and Local Plan without appropriate mitigation.	quality water tanks in order to improve their use by amphibians; works would be undertaken under a Natural England licence. Confidence in success: Probable	
OPERATIONAL IMPACTS					
Great Crested Newts (New Settlement Area) Description: Small numbers of GCN in	Activities: operational access road used by HGVs day and night close to habitats used by amphibians; increased general use of redeveloped industrial	Type of impact: Adverse Extent: Development Area Magnitude: Low-High	Effect on conservation status: Negative impact upon amphibians of Local	Mitigation: Close board fencing would be maintained around the water bodies on site; emergent tree vegetation would be reduced around the water tanks	Residual impact: Significant Impact Confidence in prediction: Probable Compensation: In order

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
<p>tanks within development area but considered Medium population.</p> <p>Ecological value: EU</p> <p>Legal & policy framework: WACA, EU Habitats Directive</p> <p>Factors on which their conservation status depends: Maintenance of favourable conservation status of aquatic and terrestrial habitats within 250m of breeding pond.</p>	<p>park/residential area; increased number of domestic pets.</p> <p>Duration of activity: Permanent</p> <p>Biophysical change: Increase in barriers to dispersal, principally increased traffic on site; increase in predation risk from domestic cats; potential increase in pollution – noise/litter etc.</p> <p>Relevance to receptor: Possible increase in mortality on road and from domestic pets thus affects population sustainability; indirect effects may reduce quality of ponds;</p>	<p>Frequency: Variable</p> <p>Reversibility: Reversible if controlled.</p> <p>Duration of impact: Permanent</p> <p>Confidence in impact occurring: Probable.</p>	<p>value; GCN of National value</p> <p>Significance & scale of impact: Significant adverse impact upon medium GCN population</p> <p>Confidence in prediction: Probable.</p> <p>Policy Implications: Contrary to PPS9 and Local Plan without appropriate mitigation.</p>	<p>to increase light reaching the water bodies; kerbs along the access road would be dropped and newt friendly gully pots incorporated into the development area; enhancements would be made to the vegetation corridors on site to allow better movement on site between water bodies; simple enhancements would be made to the water bodies on site to make them better suited for amphibian use; works would be undertaken under a Natural England licence.</p> <p>Confidence in success: Probable</p>	<p>to compensate for the disturbance to GCN on site steps would be taken to improve the habitat for the Large GCN population focused to the east of the site. This would include the creation of two ponds within the CWS designed for use by amphibians.</p> <p>Enforcement: DEFRA licence; WACA, planning permission; section 106, management agreement.</p> <p>Confidence in success: Probable.</p> <p>Policy Implications: In accordance with PPS9,</p>

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
					Local Plan
CONSTRUCTION IMPACTS					
<p>Great Crested Newts (Flying Field Area) Description: Large population of GCN in southern bomb stores, medium population in northern bomb stores and medium population stretching from southern edge of Flying Field Area into new settlement area. Ecological value: EU Legal & policy framework: WACA, EU</p>	<p>Activities: Demolition of hangars and stabilisation of POL system in close proximity to medium population where refuge is possible; scarification of runways within CWS active management of rank grassland areas; dust/noise/light pollution effects upon water bodies and GCN movement; other hangars to be removed over 250m from nearest known GCN water body. Duration of activity: Temporary – length of</p>	<p>Type of impact: Adverse - Positive Extent: Flying Field. Magnitude: Low-High Frequency: Temporary-Permanent Reversibility: Reversible-Permanent Duration of impact: Reversible-Permanent Confidence in impact occurring: Probable.</p>	<p>Effect on conservation status: Adverse - Positive impact upon conservation status Significance & scale of impact: Significant –Positive adverse impact at County Level. Confidence in prediction: Probable. Policy</p>	<p>Mitigation: Works would be undertaken under a Natural England newt licence; scarification of runways would be undertaken under the supervision of a licensed newt worker; Newt fencing would be erected around the demolition area to keep newts out of the area. Steps would be taken to clear soil from the footings of the hangars in the presence of a licensed newt worker to ensure that no newts were present i.e. destructive search undertaken,</p>	<p>Residual impact: Not Significant.</p>

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
Habitats Directive Factors on which their conservation status depends: Maintenance of favourable conservation status of aquatic and terrestrial habitats within 250m of breeding pond.	construction Biophysical change: Disturbance/damage to poor quality habitats used by medium population of GCN Relevance to receptor: Some refuge sites may be affected; increase in mortality possible due to increase in traffic and location of access road.		Implications: Contrary to PPS9 and Local Plan without appropriate mitigation.	prior to demolition; water bodies would be temporarily covered to limit dust impacts. Confidence in success: Probable	
OPERATIONAL IMPACTS					
Great Crested Newts (Flying Field Area) Description: Large population of GCN in southern bomb stores, medium population in northern bomb stores	Activities: focus of car storage moved to within close proximity of medium population of GCN; recreational use of CWS/EIL grasslands by increased residential population;	Type of impact: Adverse. Extent: Flying Field Magnitude: Low-High. Frequency: Variable. Reversibility: Reversible if controlled.	Effect on conservation status: Negative impact upon amphibians of Local value; GCN of National value	Mitigation: Water bodies within the Northern and Southern bomb stores are protected from public access through fencing – this would remain; hibernacula would be created in close proximity to the	Residual impact: Significant Impact Confidence in prediction: Probable Compensation: In order to compensate for the disturbance to GCN on

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
<p>and medium population stretching from southern edge of Flying Field Area into new settlement area.</p> <p>Ecological value: EU</p> <p>Legal & policy framework: WACA, EU Habitats Directive</p> <p>Factors on which their conservation status depends: Maintenance of favourable conservation status of aquatic and terrestrial habitats within 250m of breeding pond.</p>	<p>increased number of domestic pets accessing grasslands.</p> <p>Duration of activity: Permanent.</p> <p>Biophysical change: Increase in barriers to dispersal, principally increased traffic in proximity to GCN water body; increase in predation risk from domestic cats; potential disturbance/damage from increased recreational use of the grasslands; increase in automotive use of the area in the vicinity of the GCN water bodies may increase pollution of habitats.</p> <p>Relevance to receptor: Possible increase in mortality</p>	<p>Duration of impact: Permanent</p> <p>Confidence in impact occurring: Probable.</p>	<p>Significance & scale of impact: Significant adverse impact upon medium/Large GCN populations.</p> <p>Confidence in prediction: Probable.</p> <p>Policy Implications: Contrary to PPS9 and Local Plan without appropriate mitigation.</p>	<p>water bodies to provide suitable refuge habitat within close proximity potentially reducing the need for movement across the car storage area; the CWS grassland would be fenced with stock proof fencing to control access by people and dogs to this area; all drainage manholes would be checked and replaced where faulty to prevent amphibian mortality; kerbs and gully pots would be changed within this area to be newt friendly; vegetation in the areas around the newt water bodies would be allowed to grow longer and form a tussocky structure, enabling refuge for</p>	<p>site steps would be taken to improve the habitat for the Large/Medium GCN populations focused to the east of the site. This would include the creation of two ponds within the CWS designed for use by amphibians; all water bodies would be enhanced for use by amphibians through the inclusion of simple measures like the installation of ramps into the water; the grasslands on site would be managed to increase</p>

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
	on hard standing and from domestic pets or from damage to resting habitat, thus affects population sustainability; indirect effects may reduce quality of ponds;			newts on migration. Confidence in success: Probable	diversity and hence food availability for GCN should increase; grasslands in the EIL would be managed to provide a diversity of sward heights and hence longer grassland better suited for use by amphibians would be created. Enforcement: DEFRA licence; WACA, planning permission; section 106, management agreement. Confidence in success: Probable. Policy Implications: In accordance with PPS9,

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
					Local Plan.
CONSTRUCTION IMPACTS					
<p>Terrestrial Invertebrates</p> <p>Description: Local value invertebrates of grassland, potentially species of County value. Some Notable species present.</p> <p>Ecological value: Local-County</p> <p>Legal & policy framework: None</p> <p>BAP priority species involved: None</p> <p>Factors on which their</p>	<p>Activities: loss of small areas of improved grassland, trees and flowerbeds but majority of these urban habitats retained; disturbance to invertebrates using grassland by construction dust; potential mortality through scarification of runways.</p> <p>Duration of activity: Temporary.</p> <p>Biophysical change: Removal of small areas of poor quality urban habitat; potential interruption to flight caused</p>	<p>Type of impact: Adverse.</p> <p>Extent: Development Area/Flying Field.</p> <p>Magnitude: Low.</p> <p>Frequency: Temporary.</p> <p>Reversibility: Reversible if controlled</p> <p>Duration of impact: Temporary</p> <p>Confidence in impact occurring: Probable.</p>	<p>Effect on conservation status: Adverse effect</p> <p>Significance & scale of impact: Not significant at the Local-County level</p> <p>Confidence in prediction: Probable</p> <p>Policy Implications: Contrary to PPS9</p>	<p>Mitigation: The majority of the urban habitats around the buildings are to be retained. More improved grassland would be created than lost within the open space area. Hibernacula created for GCN on site would offer spoil banks for use by invertebrates; dust would be controlled through damping down and similar best practice methodologies of construction.</p> <p>Enforcement: Planning Condition</p> <p>Confidence in success:</p>	<p>Residual impact: Not Significant</p>

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Table E.03: Ecological Impact Assessment Summary Table

Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
<p>conservation status depends: Maintenance of the favourable conservation status of the habitats upon which these species depend – semi-natural grassland.</p>	<p>by accumulation of construction dust.</p> <p>Relevance to receptor: Displacement of invertebrates, negative impacts from construction dust may cause injury/mortality.</p>		<p>and Local Plan without appropriate mitigation.</p>	<p>Probable</p>	
OPERATIONAL IMPACTS					
<p>Terrestrial Invertebrates</p> <p>Description: Local value invertebrates of grassland, potentially species of County value. Some Notable species present.</p> <p>Ecological value: Local-County</p>	<p>Activities: potential recreational impacts upon the grasslands would have impacts upon invertebrates using the site.</p> <p>Duration of activity: Permanent</p> <p>Biophysical change: Habitats where invertebrates exist may be damaged by recreational</p>	<p>Type of impact: Adverse</p> <p>Extent: Flying Field</p> <p>Magnitude: Low-High</p> <p>Frequency: Variable but Permanent.</p> <p>Reversibility: Reversible if controlled.</p> <p>Duration of impact: Permanent</p>	<p>Effect on conservation status: Adverse impact upon species.</p> <p>Significance & scale of impact: Significant impact upon species of Local-County value.</p>	<p>Mitigation: Public access to the CWS would be controlled through fencing; access to other areas of the Flying Field would be limited to the use by light industry controlled through fencing and on site security;</p> <p>Enforcement: Planning condition</p> <p>Confidence in success:</p>	<p>Residual impact: Not Significant</p>

Table E.03: Ecological Impact Assessment Summary Table					
Characterisation of feature or resource	Proposed activity, biophysical change and relevance to receptor	Characterisation of unmitigated impact	Ecological impact significance	Mitigation	Residual impact significance and compensation
<p>Legal & policy framework: None</p> <p>BAP priority species involved: None</p> <p>Factors on which their conservation status depends: Maintenance of the favourable conservation status of the habitats upon which these species depend – semi-natural grassland.</p>	<p>use – dog fouling increasing soil fertility, fly-tipping polluting the soil.</p> <p>Relevance to receptor: May lead to decline in habitats upon which species depend.</p>	<p>Confidence in impact occurring: Probable.</p>	<p>Confidence in prediction: Probable.</p> <p>Policy Implications: None.</p>	<p>Probable.</p>	

15.9 MITIGATION

Introduction

15.9.1 This section outlines the mitigation strategy proposed for the scheme. Firstly how avoidance of ecology has been incorporated into the development proposals is considered and then the measures which would be undertaken to reduce adverse impacts upon ecology and nature conservation are set out. Any positive implications of the proposals for nature conservation are also highlighted.

Scheme Design

15.9.2 The North Oxfordshire Consortium has liaised with Cherwell District Council as part of the compilation of the Design Brief for the Heyford Park site. As part of this process the County Ecologist and Local Sites Officer were consulted and were met on site to discuss the forthcoming planning application.

15.9.3 In order to minimise impacts upon ecology and nature conservation, the new settlement area proposed was chosen outside and away from the areas of greatest ecological importance, the County Wildlife Site and Ecologically Important Landscape, and comprises land already with an existing built footprint.

Mitigation Strategy

Overview

15.9.4 A comprehensive mitigation strategy has been developed to address the potential impacts of the development proposals upon ecology and nature conservation. Given the focus of the ecological value within the flying field area on site, away from the new settlement area, much of the mitigation strategy minimises effects largely brought about through the proposed increase in residential population and recreational use of the site, rather than direct impacts. A Base Management Plan has been produced (Volume I, Supporting Statements) which includes the measures put forward to ameliorate ecological impacts.

RAF Upper Heyford County Wildlife Site

15.9.5 It is proposed to continue the ongoing management of the County Wildlife Site (CWS) through livestock grazing but to set a controlled regime to ensure that the grassland is grazed to maximise its biodiversity.

Public Access

15.9.6 In order to control public access onto the CWS, the proposed reinstated Aves Ditch footpath will be fenced with dog proof fencing along its length. In order to minimise the direct impact of the reinstated footpath, the southern end will be reduced in width to avoid species-rich grassland patches in this location. The 'peri road' will be retained around the periphery of the CWS to provide an accessible route around the edge of the CWS but its use will be controlled. The CWS will be fenced with stock fencing of at least 1 metre high around the peri-road to allow the grassland to be grazed and to prevent dog access onto the grassland. Signs will be erected to request that dogs be kept on leads and to explain why this is required. Stiles will be installed where Aves Ditch meets the 'peri' road at its northern and southern crossing points.

Heyford Park Environmental Statement**Grazing Management**

- 15.9.7** The County Wildlife Site will be grazed with low numbers of sheep (30-40) to enhance the nature conservation value of the site. Grazing will be undertaken from August through to March. With animals moved around sub-units of the grassland within this time to ensure overgrazing/excessive poaching does not take place. From April to July the grassland herbs will be allowed to flower and set seed. No fertilisation of the grassland to improve the grassland or additional feeding of stock will be allowed on the CWS. These requirements will form part of the Section 106 Agreement for the site.

Runways

- 15.9.8** An area of concrete/tarmac will be removed from the eastern and western nibs of the runway and this area in time restored to species-rich calcareous grassland. Green hay techniques will be used, introducing native seed from the site, to establish a similar grassland sward on the former runway. The remaining tarmac within the CWS will be removed and where necessary any shortfall filled with a crushed concrete/top-soil mixture to reinstate a calcareous substrate suitable for grassland colonisation. All materials will be obtained from within the site. Remaining concrete runways within the CWS will be scarified to break up the surface and top-soil mixed in to again form a calcareous substrate suitable for grassland colonisation. All hard surface removal will take place without impacting upon the CWS grassland, with machinery reversing from substrate removal using the existing hard-standing. Success of the grassland restoration will be monitored post-completion to ensure success – this requirement will form part of the Section 106 Agreement.
- 15.9.9** It is considered Certain that these measures would have a Significant Positive Effect upon the County Wildlife Site.

Ecologically Important Landscape**Grazing Management**

- 15.9.10** As with the management of the County Wildlife Site the Ecologically Important Landscape will be managed through livestock grazing but a replacement cutting regime will take place where grazing is not possible. The grasslands will be grazed/cut to provide a greater variety of sward heights to provide more diverse habitats for ground nesting birds and Great Crested Newts both present on site. Any grassland cuttings will be removed from the site to progressively reduce the fertility of the soil and thus gradually improve the species-richness of the grasslands. This management regime will thus in turn increase the nature conservation value of the grasslands. Mitigation measures for protected species present within the EIL are discussed within their own sections.
- 15.9.11** It is considered Certain that these measures would have a Significant Positive Effect upon the Ecologically Important Landscape.

Vegetation

Grasslands

- 15.9.12** Management of the designated areas of grassland on site are dealt with above. The remainder of the grasslands on site will be managed to enhance their nature conservation value in the same manner as the designated areas. Where grazing is not possible, grassland will be cut to the same timetable and grass cuttings removed from on site. A detailed management plan will ensure that a variety of sward heights are maintained on site for enhanced wildlife use.
- 15.9.13** Tenancies for buildings within the flying field would include restricted recreational access to the open grasslands on site in order to ensure minimal impacts upon the habitats and species present.

Trees

- 15.9.14** The vast majority of trees on site are to be retained as the site is largely devoid of trees and those that are present are not old enough to be considered veterans. Within the development area new landscape planting will include native trees and shrubs to enhance wildlife use of the built-up areas and to facilitate the movement of wildlife across the site. To the south of the new settlement area new native species landscape planting will provide additional habitat for wildlife such as birds and invertebrates. This new planting will more than compensate for the trees lost to the proposals.
- 15.9.15** It is considered Certain that these measures would have a Significant Positive Effect upon vegetation on site.

Great Crested Newts

Natural England Licence

- 15.9.16** In order for works on the development site to proceed, a licence from Natural England will be necessary to ensure that the favourable conservation status of Great Crested Newts on the Heyford Park site is maintained post-development. The mitigation/compensation steps outlined below will therefore form part of this licence application.

Water bodies

- 15.9.17** The water bodies used by GCN within the site would be retained and safeguarded through the retention of the existing protective measures - close-board fencing, where water bodies are in close proximity to people; and chain-link fencing in areas on the flying field area used for light industrial purposes. All such fencing would be kept in good order as part of the site management plan to ensure that children and domestic pets do not gain access to the water bodies. Within the close-boarded water bodies there is substantial young tree growth and this would be reduced by 2/3 to give better light to the water bodies and to reduce the amount of leaf litter falling into the water. This would enhance these water bodies for use by amphibians.

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- 15.9.18** As the water bodies present on site are far from ideal amphibian habitat, simple measures would be undertaken to enhance these structures for use by amphibians. High-grade plastic egg strips would be installed in each tank to enhance the egg laying habitat and where possible native aquatic plants suspended into the water tanks, again to provide better egg-laying habitat. Ramps would be installed into each water body to allow wildlife to escape from the tanks. –
- 15.9.19** Two new ponds would be created on site, constructed to be suitable for use by amphibians - shallow, with moderate planting and with an open aspect to receive good levels of sunshine. These ponds would be created within areas where tarmac/concrete is prepared for removal within the County Wildlife Site. Here, in the eastern part of the site, is where the population of Great Crested Newts is concentrated and movement is considered to occur between the site and populations of newts in Ardley Quarries to the east. Movement also occurs between the Northern and Southern Bomb Store populations and thus these ponds would be located centrally between these two most important populations to facilitate newt movement between them. This location is thus positive for the creation of better quality water bodies and would be protected within the proposed fencing for the County Wildlife Site.

Hibernacula

- 15.9.20** Space would be created to the side of one of the enclosed water bodies within the new settlement area to create a hibernacula adjacent to the water body. This structure would be a mound over a slight hollow in the ground, constructed of concrete rubble and soil and would provide some refuge for amphibians within the new settlement area. Access points would be created into the structure using sections of plastic pipe. Three further hibernacula, to provide newt refugia/hibernation habitat, would be created, one within the County Wildlife Site adjacent to the newly created ponds, one within the Northern Bomb Stores in the north-eastern corner of the site and one within the Southern Bomb Stores to the south-east of the site.

Terrestrial Habitat

- 15.9.21** Management of the grasslands on site for nature conservation would in time improve the invertebrate use of the grasslands on site and thus increase the food available for GCN. Managing the grassland to provide differing sward heights would encourage the development of some areas of longer, tussocky grassland, more suitable for use by newts than open, grazed grassland. This step would enable newts to move more easily across the site than they currently can. Grassland within the Northern and Southern Bomb Stores would be allowed to grow longer to provide resting and foraging habitat for newts.
- 15.9.22** The vegetation corridors present on site would be retained and enhanced to facilitate amphibian and other wildlife movement across the site.

Physical Controls

- 15.9.23** The proposals include a change to the access route used by HGVs to deliver cars to the car storage facility on the former technical site. Such deliveries will take place throughout the 24 hour period but that deliveries would be limited (see Chapter 6). In order to mitigate for the increased HGV traffic here in close proximity to

a small number of GCN, a permanent newt fence would be installed to the east of this access road within the vegetation boundary. This measure would prevent newt death through preventing individuals crossing a busy access road. Vegetation lines would guide the newts away from this access road. Road kerbs to the east of the newt corridor would be replaced to be low level and newt friendly gully pots would be installed throughout this area to prevent newt capture and death. Measures would also be taken to ensure the integrity of all drain covers on site to prevent them acting as pit-fall traps for newts and to install newt friendly gully pots within the eastern part of the Flying Field Area where the newt populations are highest.

Construction Mitigation

15.9.24 Within the new settlement area, temporary newt fencing would be used to keep newts outside the construction zone. All habitat suitable for use by GCN within the new settlement area i.e. loose kerb stones, paving slabs and cracked concrete, would be checked prior to removal by a licensed herpetologist. This destructive search work would be undertaken in the active newt season, March – October, in order that once cleared of potential newts, works could continue through the hibernation period. Any animals found would be released into the protected area within the temporary newt fencing. Hibernacula created on site would be installed prior to the loss of suitable refugia on site.

Monitoring

15.9.25 Throughout the proposals it will be necessary for ongoing monitoring of the newt population and such monitoring would continue post-development to ensure success of the mitigation/compensation steps.

15.9.26 It is considered Certain that these measures would have a Significant Positive Effect upon the Great Crested Newts on site.

Bats

Natural England Licence

15.9.27 In order for works on the development site to proceed, a licence from Natural England will be necessary to carry out certain demolition works to ensure that the favourable conservation status of bats on the Heyford Park site is maintained post-development. The mitigation/compensation steps outlined below will therefore form part of the licence application.

Provision of Bat Roosts

15.9.28 In mitigation for the loss of buildings containing bat roosts, twenty-five bat boxes of a variety of designs suitable for different bat species will be erected on mature trees on site. This provision will provide temporary roosting habitat for any bats displaced by the works.

15.9.29 Twenty buildings on site will be designed to contain lofts suitable for use by bats. The roofs of these buildings will be of traditional pitched construction (not truss roofs) and use traditional black, non-shiny, sarking felt. Bat access points in the form of bat tiles, soffit and ridge access points will be incorporated into the design. These buildings will be located in similar positions to those roosts to be lost to the scheme.

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15.9.30 The Common Pipistrelle maternity roost on site, north of Camp Road, would be incorporated within the replacement building proposed for the current site of that roost. Works would ensure that the mitigation building is in place between mid August and early May to provide suitable habitat for use during the next maternity season. The loft space of this building would be heated.

Building Demolition Works

15.9.31 Demolition works to buildings on site highlighted as bat roosts would not take place during the hibernation season - November to March inclusive - but would be timed to be undertaken during the active bat season – April to October. As no further maternity roosts have been identified on site, it will be possible for works to proceed through the maternity period for the majority of buildings on site.

15.9.32 Prior to demolition all the buildings highlighted as being bat roosts would be surveyed again internally and emergence checks undertaken. As part of the Natural England bat licence, bats would be excluded from re-entering known roost buildings where possible through closure of the access points. The roofs of buildings would be removed by hand under the supervision of a licensed bat worker and once exposed the structure of the building left for at least 24 hours for any bats present to disperse.

15.9.33 Demolition works of the buildings would be phased to ensure that all the bat roosts are not removed in one fell swoop but are lost and replaced gradually. Hence the bat licence would need to cover a number of years.

Positive Habitat Creation

15.9.34 As part of the mitigation for works on the site, three pill boxes to the north of the flying field area would be converted for use as hibernation sites by bats. This would involve restricting access to these structures, blocking up some gun sights and installing roughened timbers internally for bats to roost behind.

15.9.35 Mature trees and vegetation corridors within the site would be retained, particularly the line of mature Horse Chestnut trees which provide emerging cover and commuting lines for the maternity Common Pipistrelle roost within the new settlement area. These vegetation lines would also be enhanced with new native species planting.

Monitoring

15.9.36 Works under the Natural England Bat Licence would be monitored during implementation and post completion of the development for at least 3 years.

15.9.37 It is considered Certain that these measures would have a Significant Positive Effect upon bats on site.

Birds***Grassland Management***

15.9.38 The proposed management of the flying field area grasslands on site to maximise biodiversity would provide a range of sward heights to offer different habitats for the needs of different ground nesting bird species. The County Wildlife Site would be grazed short, whilst other areas would be allowed to reach knee height. Thus

bird breeding success would increase on site as birds would have a better choice of niche in which to nest and may be able to better avoid predators. Grazing and cutting of the grass would not be undertaken between March and July in order to allow birds to breed successfully and to adhere to UK legislation with respect to breeding birds.

- 15.9.39** New planting on site would be kept to a minimum in order to ensure the maintenance of an open landscape preferred by ground nesting bird species on site and in keeping with the existing landscape around the site. Such an approach also minimises the availability of tall tree/shrub habitat used by predatory bird species such as Corvidae. Planting would be restricted to the southern boundary of the site and to within the new settlement area itself.
- 15.9.40** Public access to the runway area would be limited through the continued operation of the flying field area as a secure light industrial site with retained fencing and security, which would limit disturbance to nesting birds on the flying field area. Tenancies for buildings within the flying field would include restricted recreational access to the open grasslands on site.
- 15.9.41** In order to prevent impacts brought about by a possible increase in domestic pets near to the flying field as the number of residents increases, there will be a cat proof fence to the north of the new settlement area on the boundary between it and the flying field. As much of the proposed new settlement area is located south of Camp Road, this road will in itself form a barrier to some degree for pet movement.
- 15.9.42** It is considered Certain that these measures would have a Significant Positive Effect upon the bird population on site.

Badgers

Public Access

- 15.9.43** Public access to areas where badger setts occur will be controlled through existing fencing, restricting access to the flying field area and security present on site for light industrial operations.

Terrestrial Habitat

- 15.9.44** Short grassland will be maintained on site in parts of the flying field for badger foraging. This will be maintained in close proximity to badger setts to the periphery of the site. Where the former school site stands, south of Camp Road, an area of open space is proposed. This open space provision is in an area used by badgers and hence grassland will be maintained here for foraging.

Monitoring

- 15.9.45** Badger use of the site post-development will be monitored for three years in order to ensure that the badger population on site has been successfully retained.
- 15.9.46** It is considered Certain that these measures would maintain the existing use of the site by badgers.

Heyford Park Environmental Statement***Invertebrates******Grassland Management***

- 15.9.47** The management of the grasslands of the flying field area to maximise their biodiversity interest would over time lead to an increase in the presence of invertebrate species on site, as the number and quantity of flowering herbs and the differing habitat types present increased. The banks of open soil would be retained on the flying field area and the grassland restoration proposals would create bare ground of value to some invertebrates such as Hymenoptera. The creation of new aquatic habitats on site with planting would also enhance use of the site by invertebrates.
- 15.9.48** It is considered Certain that these measures would have a Significant Positive Effect upon the invertebrate population on site.

15.10 SIGNIFICANCE OF THE RESIDUAL IMPACTS**Residual Impacts*****Overview***

- 15.10.1** Following the mitigation strategy set out in the previous section, in this section any residual impacts are considered and the compensation measures proposed to ameliorate those impacts are stated. The significance of the residual impacts is given on a regional scale: International, UK, National, Regional, County, District, Local and within zone of influence only. Given the difficulties in evaluating ecological significance, the conservation status of the ecological receptor being considered is assessed and confidence in this prediction stated.
- 15.10.2** In order for this Chapter to be comparable to others within this ES the significance of the residual impacts is also assessed according to the following four-point scale: insignificant, major, moderate, minor

Designated Sites***RAF Upper Heyford County Wildlife Site******Residual Impacts***

15.10.3 Following the mitigation strategy proposed there would be some negative residual effects from the development proposals upon the County Wildlife Site. This would be the effects upon the species-rich calcareous grassland of public access despite the mitigation steps implemented.

15.10.4 It is considered unlikely that these residual impacts would affect the integrity of the site or affect its conservation status. However it is likely that some recreational impacts would occur. These impacts may have consequences for some of the species which depend upon these habitats, such as ground nesting birds and invertebrates. There would therefore remain a negative effect, significant at the County Level.

Compensation Proposed

15.10.5 In order to compensate for these residual impacts the whole of the Flying Field Area would be subject to nature conservation management to maximise biodiversity (see Base Management Plan, Volume I, Supporting Statements). Information boards would be installed to explain the importance of the site and the requirements from visitors needed in order to visit this site.

15.10.6 In time this management would enhance the sward diversity of the County Wildlife Site increasing the herb diversity within it. Monitoring would be undertaken to ensure that enhancement does indeed occur. Along with the mitigation strategy proposed it is considered Probable that this compensation would remove the significance at the County level of the residual impacts given time – to Not Significant.

Ecologically Important Landscape

Residual Impacts

15.10.7 Following the mitigation strategy proposed there would be negative residual effects from the development proposals upon the Ecologically Important Landscape. These would be the effects upon the varied grassland on site of public access despite the mitigation steps implemented.

15.10.8 It is considered unlikely that these residual impacts would affect the integrity of the site or affect its conservation status. However it is likely that some recreational impacts would occur. These impacts may have consequences for some of the species which depend upon this habitats, such as ground nesting birds and invertebrates. There would therefore remain a negative effect, significant at the Local Level.

Compensation Proposed

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15.10.9 In order to try to compensate for these residual impacts the whole of the Flying Field Area would be subject to a nature conservation management plan to maximise biodiversity (see Base Management Plan, Volume I, Supporting Statements). Information boards would be installed to explain the importance of the site and the requirements from visitors needed in order to visit this site.

15.10.10 In time this management would enhance the sward diversity of the Ecologically Important Landscape increasing the herb diversity and grassland structure within it. Monitoring would be undertaken to ensure that enhancement does indeed occur. Along with the mitigation strategy proposed it is considered Probable that this compensation would remove the significance of the residual impact to Not Significant.

Vegetation**Residual Impacts**

15.10.11 It is considered that following the mitigation strategy proposed and with time, there would be no residual impacts upon other areas of vegetation – Not Significant.

Birds**Residual Impacts**

15.10.12 Despite the mitigation steps proposed the demolition of hangars in close proximity to large numbers of ground nesting birds and the likelihood of recreational impact upon the grassland habitat would produce significant residual negative effects. It is considered that these effects may dissuade birds from using the site and may lead to bird mortality and thus would be of significance at a County Level.

Compensation Proposed

15.10.13 In compensation it is proposed that the Flying Field would be managed as part of a nature conservation management plan. Grassland within the Ecologically Important Landscape would be managed to be a variety of lengths to provide for the differing breeding and foraging needs of bird species present on site. This management regime would be rotated and no cutting would occur between March and July.

15.10.14 Along with the mitigation strategy proposed it is considered Probable that this compensation would remove the significance of the residual impacts – Not Significant.

Bats**Residual Impacts**

15.10.15 It is considered Probable that following the mitigation strategy proposed and with time, there would be no residual impacts upon bats from the proposals.

15.10.16

Badgers

Residual Impacts

15.10.17 It is considered Certain that there would be no residual impacts upon badgers from the proposed development and hence, following implementation of the mitigation strategy, impacts would– be Not Significant.

Great Crested Newts***Residual Impacts***

15.10.18 It is considered that following the mitigation strategy significant negative residual impacts at the County Level would still remain upon Great Crested Newts on site. These impacts include the increased disturbance from recreational activity and increased possibility of mortality from vehicles and domestic pets on site.

Compensation Proposed

15.10.19 In order to compensate for residual effects of the proposals steps would be taken to improve the habitat for GCN on site. Two new ponds would be created, designed specifically for newt use and hibernacula would be created in close proximity to the breeding water bodies. Simple measures would be undertaken to enhance the currently poor aquatic habitat present on site. This would include the installation of ramps into the water, provision of durable plastic laying strips and where possible inclusion of aquatic marginal plants. The Flying Field would be managed for nature conservation to increase plant diversity and grassland habitat structure on site and this should lead to an increase in invertebrate numbers and diversity on site and hence increased foraging opportunities for newts on site.

15.10.20 Along with Implementation of the mitigation strategy it is considered that the significant adverse impacts at a County Level would be reduced to insignificant and in time should lead to a Minor Positive impact upon Great Crested Newts on site.

Terrestrial Invertebrates***Residual Impacts***

15.10.21 It is considered probable that following implementation of the mitigation strategy proposed there would be no residual impacts of the mitigated proposals upon invertebrates.

15.11 SUMMARY**Ecological Receptors at Heyford Park**

15.11.1 Though there are significant ecological receptors of County value at Heyford Park these are largely confined to the flying field area, away from the new settlement area where construction and operational impacts will

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largely occur. Though removal of hangars in two locations will cause some temporary disturbance for a brief period on the Flying Field Area, use of the Flying Field Area will largely continue as it is now.

County Wildlife Site/Ground Nesting Birds

- 15.11.2** The main effects of the proposals upon the County Wildlife Site and ground-nesting birds of County value on the flying field are those brought about by public access and domestic pets. The proposals put forward a series of measures to control and restrict public access to the County Wildlife Site and to physically separate the new settlement area from the Flying Field Area in order to control pet and human access.

Great Crested Newts

- 15.11.3** A large population of Great Crested Newts is present on site but this is largely concentrated away from the new settlement area, within the flying field area. Impacts upon this species are therefore limited as use of the flying field is to continue as now. The proposals put forward a strategy to mitigate for impacts upon this species, focusing on the provision of new, better designed breeding habitat for the newts within their stronghold area and making additions to existing water bodies to improve their use by amphibians.

Maternity Bat Roost

- 15.11.4** A medium-sized Common Pipistrelle roost would be temporarily removed as part of the proposals but this roost would be re-homed in a building in the same location on site. Such works would need to be undertaken under licence from Natural England and directed by a mitigation strategy.

Conservation Management Plan

- 15.11.5** In order to mitigate and compensate for the potential ecological impacts of the proposals, a management plan to enhance the biodiversity on site will be implemented. This management will improve the species-richness of the grasslands on site, moving them towards more favourable condition, and in doing so increase the availability of food resources for the wildlife present on site. Overall as a result of these proposals there would be a net positive gain for ecology on the Heyford Park site.