



**ENVIRONMENTAL STATEMENT**  
**VOLUME 1**  
**CHAPTER 9 - BIODIVERSITY**



## 9. BIODIVERSITY

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### 9.1. INTRODUCTION

- 9.1.1. This Chapter reports the outcome of the assessment of likely significant effects arising from the Proposed Development upon biodiversity. In particular it considers the likely effects upon sites designated for their nature conservation value, other habitats of conservation value such as woodland and waterbodies, and faunal species affected by the Proposed Development such as great crested newt and birds, during both the construction and operational phases.
- 9.1.2. The Chapter describes the assessment methodology, the baseline conditions at the Site and in the surrounding area, any primary or 'embedded' mitigation adopted for the purposes of the assessment, a summary of the likely significant effects taking into account national legislation and planning policy, the further secondary mitigation measures required to prevent, reduce or offset any significant negative effects, and the likely residual effects and any required monitoring after these measures have been employed.
- 9.1.3. This Chapter (and its associated figures and appendices) is intended to be read as part of the wider ES, with particular reference to **Chapter 12 Water Resources, Flood Risk and Drainage** and **Chapter 13 Landscape and Visual Impact, Chapter 14 Cumulative Effects**, and the following appendices:
- **Appendix 9.1** WSP (2018) Bicester Golf Course, Desk Study & Phase 1 Report
  - **Appendix 9.2** WSP (2019a) Bicester Golf Course, Bat Survey Report
  - **Appendix 9.3** WSP (2019b) Bicester Golf Course, Badger Report
  - **Appendix 9.4** WSP (2019c) Bicester Golf Course, Hazel Dormouse Report
  - **Appendix 9.5** WSP (2019d) Bicester Golf Course, Breeding Bird Survey Report
  - **Appendix 9.6** WSP (2019e) Bicester Golf Course, Reptile Survey Report
  - **Appendix 9.7** WSP (2019f) Bicester Golf Course, Great Crested Newt Survey Report
  - **Appendix 9.8** WSP (2019g) Bicester Golf Course, Predictive System for Multimetrics (PSYM) Report
  - **Appendix 9.9i** WSP (2019h) Bicester Golf Course, Invertebrate Habitat Assessment and Hairstreak Butterfly Survey Report
  - **Appendix 9.9ii** Jones, R.A. (2019i) Bicester Golf Course, A Preliminary Invertebrate Assessment During 2018 and 2019
  - **Appendix 9.10** WSP (2019j) Bicester Golf Course, Biodiversity Net Gain Assessment
  - **Appendix 9.11** WSP (2019k) Bicester Golf Course, Habitat Management and Monitoring Plan<sup>1</sup>

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<sup>1</sup> This will be submitted alongside the application form documents for the great crested newt District Licence administered by NatureSpace and may be subject to updates.

## 9.2. LEGISLATION, POLICY AND GUIDANCE

### LEGISLATIVE FRAMEWORK

9.2.1. The applicable legislative framework is listed below, with further detail in the appendices.

- The Conservation of Habitats and Species Regulations 2017 (as amended)<sup>2</sup>
- The Wildlife and Countryside Act 1981 (as amended)<sup>3</sup>
- The Natural Environment and Rural Communities Act 2006<sup>4</sup>
- The Protection of Badgers Act 1992<sup>5</sup>
- The Hedgerow Regulations 1997<sup>6</sup>
- The Wild Mammals (Protection) Act 1996

### PLANNING POLICY

- National Planning Policy Framework (2019)
- Cherwell Local Plan 2011-2031<sup>7</sup>

### GUIDANCE

9.2.2. The following guidance documents have been used during the preparation of this Chapter.

- Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater and Coastal, Chartered Institute of Ecology and Environmental Management (CIEEM) (2018)<sup>8</sup>.

9.2.3. Baseline surveys completed to inform this assessment have been carried out with regard to good practice guidelines where applicable, and in compliance with the scope agreed with Cherwell District Council (CDC). References to specific guidelines are contained within the respective technical reports contained in Appendices 9.1 to 9.11 and noted where applicable in Section 9.4 which summarises the ecological baseline surveys completed to inform this assessment

## 9.3. CONSULTATION, SCOPE, METHODOLOGY AND SIGNIFICANCE CRITERIA

### CONSULTATION UNDERTAKEN TO DATE

9.3.1. Table 9.1 provides a summary of the consultation activities undertaken in support of the preparation of this Chapter.

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<sup>2</sup> Her Majesty's Stationery Office (HMSO) (2017). The Conservation of Habitats and Species Regulations 2010 as amended (the Habitat Regulations), HMSO, Norwich.

<sup>3</sup> HMSO (1981). Wildlife and Countryside Act (as amended by the Countryside and Rights of Way Act 2000). HMSO, Norwich.

<sup>4</sup> HMSO (2006) Natural Environment and Rural Communities Act. HMSO, Norwich.

<sup>5</sup> HMSO (1992) The Protection of Badgers Act (The Badgers Act), HMSO, London.

<sup>6</sup> HMSO (1997) The Hedgerows Regulations, SI 1997/1160. HMSO, London.

<sup>7</sup> Cherwell District Council (2016). Cherwell Local Plan 2011-2031. Available at:

<https://www.cherwell.gov.uk/info/83/local-plans> [Accessed May 2019]

<sup>8</sup> CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd Edition. Chartered Institute for Ecology and Environmental Management, Winchester

**Table 9.1 - Summary of Consultation Undertaken to Date**

Body / organisation	Individual / stat body / organisation	Meeting dates and other forms of consultation	Summary of outcome of discussions
Natural England	Susan Fuller, Commercial Services Advisor	Email correspondence May 2019 and pre-screening meeting request form, specifically in respect of great crested newt	Natural England responded that capacity was not available to deal with the request.
Cherwell District Council	Dr Charlotte Watkins, Ecology Officer	Email correspondence May 2019  Teleconference meeting on 15 May 2019	The main points confirmed at the meeting were; <ul style="list-style-type: none"> <li>▪ That the LPA would expect the Proposed Development to achieve a Biodiversity Net Gain, in-keeping with planning policy</li> <li>▪ That the LPA would approve of the use of off-site District Level Licencing for great crested newts <i>Triturus cristatus</i> (scheme active in Cherwell as of Aug 2019)</li> <li>▪ That the LPA would expect the Proposed Development to demonstrate maintenance of habitat connectivity around the perimeter of the Site.</li> </ul>
NatureSpace Partnership	Mike Bull, Technical Lead	Email correspondence Aug 2019  Confirmation of eligibility and formal quote provided 5 Aug 2019	The main details confirmed via email were; <ul style="list-style-type: none"> <li>▪ Confirmed that the Site is eligible for District Level licencing.</li> <li>▪ Confirmed Site is located in a 'Red Zone' for great crested newt.</li> <li>▪ Confirmed approximate initial pricing, and that final costs can be reduced if efforts are made on-site to avoid and mitigate adverse effects on great crested newts.</li> <li>▪ Content of the Habitat Management and Monitoring Plan (Appendix 9.11).</li> </ul>
Natural England	Lauren Schofield, Adviser, Sustainable Development Team	Scoping Opinion Response Letter Aug 2019	Natural England stressed the need for a full set of environmental information to be provided as per case law and guidance, specifically informed by Schedule 4 of the Town & Country (Environmental Impact Assessment) Regulations 2017.

Body / organisation	Individual / stat body / organisation	Meeting dates and other forms of consultation	Summary of outcome of discussions
			<p>WSP will provide all required information in this chapter.</p> <p>In addition, Annex A, Section 2.2 on Internationally and Nationally Designated Sites stated that Wendlebury Meads &amp; Mansmoor Closes SSSI should be specifically assessed as it is adjacent to the Site. A review of mapping and all assessment work undertaken to date indicates that this SSSI is located approximately 3km from the Site and a thorough review has not identified an impact pathway. It has therefore been reasonably scoped out according to the search parameters and likely effects. This is in accordance with CIEEM guidance and the desk study methodology laid out in Appendix 9.1.</p>
Chesterton Parish Council	Chesterton Parish Path Warden	Scoping Report Response - Ecological Report Letter Aug 2019	<p>In response to the EIA Scoping Report Chesterton Parish Council submitted an informal ecological report detailing incidental results of walkovers along the Chesterton Footpath 161/6 which traverses the Site from north to south approximately,</p> <p>The report detailed floral and faunal species recorded variously, including some of interest not recorded during WSP surveys such as hedgehog and brown hare, both Species of Principal Importance.</p> <p>Other flora and fauna recorded were generally common and widespread or recorded during WSP surveys (e.g. grass snake, common lizard, great crested newt).</p>

Body / organisation	Individual / stat body / organisation	Meeting dates and other forms of consultation	Summary of outcome of discussions
Cherwell District Council	James Kirkham, Case Officer	Interim Pre-App Response Letter Aug 2019	<p>To date no information had been provided, so the Pre-App response references the direct communication ongoing with the LPA Ecologist, and mentions the requirement for:</p> <ul style="list-style-type: none"> <li>▪ A Biodiversity Impact Assessment using a suitable metric to show that a net gain can be delivered;</li> <li>▪ Inclusion of recreational effects to on-site habitat provision, and;</li> <li>▪ Production of a Landscape and Ecological Management Plan.</li> </ul>

## SCOPE OF THE ASSESSMENT

- 9.3.2. An EIA Scoping Report was submitted to Cherwell District Council in June 2019, as presented in **Appendix 2.1**. Further information can be found in **Chapter 2: Approach to the Assessment**.
- 9.3.3. This section provides an update on the scope of the assessment and re-iterates the evidence base for insignificant effects following further iterative assessment since submission of the EIA Scoping Report in June 2019.

### Potentially Significant Effects

- 9.3.4. Effects upon ecological features (habitats, species, ecosystems and their functions/processes) within the following categories are subject to assessment:
- Designated sites;
  - Habitats of Principal Importance (HPI) and other habitats of nature conservation value at a Local scale and above<sup>9</sup>; and,
  - Species of Principal Importance (SPI), protected species and other species of conservation concern<sup>9</sup>.
- 9.3.5. Effects upon the above features during the construction and operation phase within the following categories have been considered:
- Direct loss of habitat;
  - Direct loss (mortality and/or injury) of species;

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<sup>9</sup> Section 41 of the NERC Act identifies a list of Species of Principal Importance (SPI) and Habitats of Principal Importance (HPI) which are national conservation priorities for the conservation of biodiversity in England. Under this legislation, all government bodies (such as WSCC) have a 'biodiversity duty' to have regard to the conservation of biodiversity. HPI and SPI are identified to guide them in exercising this duty

- Degradation of habitat through various means (e.g. light, dust, pollution or water regime alterations);
- Disturbance to wildlife (e.g. light, visual and noise);
- Fragmentation of habitats; and,
- Creation and management (for enhancement) of habitats, also benefiting fauna.

### **Scoping Report Changes**

- 9.3.6. The assessment in this chapter aligns with that recorded in the Scoping Report submitted for the for most features. The approach to great crested newt mitigation has changed to make use of the District Level Licencing introduced in Cherwell in September 2019 (see Section 9.5 and 9.6). Further information is included in the baseline assessment for invertebrates and badger following surveys conducted in late summer 2019 (see Section 9.4). The impact assessment remains the same following these additions however.

### **EXTENT OF THE STUDY AREA**

- 9.3.7. At the outset of the project, baseline survey coverage included all the land within the Bicester Hotel Golf and Spa (BHGS) site (as shown within Appendix 9.1 figures).
- 9.3.8. This was refined in 2019 to focus on the northern portion of the BHGS site which comprises the Site boundary (as shown in the Biodiversity Net Gain assessment figures at Appendix 9.10). Finally, the development footprint includes the footprint of the buildings, parking and access routes proposed. The remaining area within the Site will comprise the surrounding landscaping and vegetated areas.
- 9.3.9. In summary, the following study areas have been used:
- Bicester Hotel and Golf Course (BHGS) whole site – basis for original baseline surveys. Used for some of the phase 2 ecological surveys.
  - Site – red line boundary, including building works footprint and landscaped areas. Used for most of the ecological surveys.
  - Development Footprint – building works footprint (buildings, hardstanding, construction compound).
- 9.3.10. Larger study areas were utilised to search for features such as designated sites and notable habitats during the desk study, as detailed below in paragraph 9.3.11 onwards.

### **METHOD OF BASELINE DATA COLLATION**

#### **Desk Study**

- 9.3.11. An ecological desk study was completed in 2018 (Appendix 9.1) to collate and review existing information available in the public domain and to obtain information held by relevant third parties. The desk study focused primarily on obtaining records of legally protected species and habitats, species and habitats of conservation concern, and habitat designated for its nature conservation value.
- 9.3.12. Study Area radii used for the purposes of the ecological desk study undertaken are detailed in Table 9-2 below.





**Table 9-2 - Search Radii and Data Sources for Ecological Features**

<b>Ecological Feature</b>	<b>Study Area Radius</b>	<b>Data Source</b>
<b>Designated Sites</b>		
European Designated Sites (Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar Sites (wetlands of international importance)).	10km	Natural England Corporate datasets, citations and data held by the Joint Nature Conservation Committee (JNCC)
UK Statutory Designated Sites (Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Local Nature Reserves (LNR)).	2km	Natural England corporate datasets
Non-statutory Designated Sites Local Wildlife Sites (LWS)	2km	Thames Valley Environmental Records Centre (TVERC)
<b>Protected and Notable Habitats</b>		
Ancient Woodland	2km	Natural England corporate datasets
Habitats of Principal Importance (HPI)	2km	Natural England corporate datasets
Waterbodies (re. breeding great crested newt)	500m	Ordnance Survey corporate datasets
<b>Protected and Notable Species</b>		
Protected and Notable Species	2km	Thames Valley Environmental Records Centre (TVERC)

### Field Surveys

- 9.3.13. A summary of the ecological surveys and associated survey area undertaken to inform this assessment is provided below, with further detail provided in Appendix 9.1. Detailed information including survey conditions, surveyors, methodologies and limitations is included in the dedicated reports (Appendices 9.2- 9.9).

**Table 9-3 – Field Survey Method Summary**

<b>Feature Survey Type</b>	<b>Study Area Coverage</b>	<b>Dates of Survey</b>	<b>Field Survey Methods</b>
On-site habitats	BHGS Site	Jan 2018	<b>Phase 1 Habitat Survey:</b> Habitats were described and mapped following the standard Phase 1 habitat survey

Feature Survey Type	Study Area Coverage	Dates of Survey	Field Survey Methods
			methodology <sup>10</sup> . The dominant plant species are recorded, and habitats are classified according to their vegetation types. Where appropriate, consideration was given to whether habitats qualify, or could qualify, as an HPI following habitat descriptions published by the Joint Nature Conservation Committee <sup>11</sup> .
	Site	Aug 2018	<b>Update Botanical Walkover:</b> In addition, a botanical walkover survey was conducted in August 2018 by a competent botanist, during the peak flowering season. This provided an update to the botanical lists gathered within the Phase 1 habitat report and allowed mapped habitats to be reassessed and remapped as appropriate.
	Site	Aug 2018	<b>Predictive SYstem for Multimetrics (PSYM) Pond Survey:</b> Following the Phase 1 and invertebrate habitat assessment, a PSYM survey was undertaken. This involves macrophyte and invertebrate samples and metric calculations to indicate whether any given waterbody qualifies as HPI (note that the presence of protected or notable species such as great crested newt will also cause a pond to qualify as HPI).
Bats	Site	Jul 2018	<b>Preliminary Bat Roost Assessment (PBRA):</b> A ground-based visual inspection of the trees within the Site was completed using binoculars to search for Potential Roost Features (PRFs) which may provide suitable roosting opportunities for bats, and to grade the tree's suitability accordingly, in accordance with good practice guidelines <sup>12</sup> .  The buildings in the wider BHGS were scoped out of further bat survey as they are off-site and are unlikely to be affected by the Proposed Development.
	BHGS	May-Oct 2018	<b>Bat Activity Surveys:</b> A series of manual transect surveys were undertaken within the Survey Area as informed by good practice guidelines <sup>5</sup> . Each month a walked transect survey was completed at dusk, with a pre-dawn survey undertaken in August 2018.  In tandem with the walked transect surveys, additional bat activity data was gathered using automated bat detectors. Automated (static) bat detectors Song Meter 2+ (SM2+) were installed within the Survey Area in pre-determined locations during each of the survey months May – October 2018

<sup>10</sup> Joint Nature Conservation Committee (JNCC) (2010). Handbook for Phase 1 habitat survey – a technique for environmental audit. JNCC, Peterborough

<sup>11</sup> JNCC Biodiversity Reporting and Information Group (2008). UK Biodiversity Action Plan

<sup>12</sup> Collins J. (ed.) (2016). Bat Surveys for Professional Ecologists, Good Practice Guidelines (3rd Edition). The Bat Conservation Trust, London

Feature Survey Type	Study Area Coverage	Dates of Survey	Field Survey Methods
			(inclusive). The recordings of bat echolocation calls collected during the surveys were analysed using specialist computer software.
Badger <i>Meles meles</i>	Within 50m of the Site	May 2019	<b>Badger Walkover:</b> A walkover was undertaken to search for evidence of badger in the form of field signs, informed by best practice guidelines <sup>13</sup> .
Hazel dormouse <i>Muscardinus avellanarius</i>	Whole golf course	Jun – Nov 2018	<b>Dormouse Tube Survey:</b> To establish whether dormice are present or likely absent, 53 dormouse tubes were installed within suitable habitat in May 2018 and checked from June to November 2018. The survey work was completed in accordance with current good practice guidance <sup>14</sup> .
Birds	Whole golf course	May-Jun 2018	<b>Breeding Bird Survey:</b> To inform an evaluation of the on-site habitats for bird species, three breeding bird survey visits were completed. The survey work followed a standard method based on the British Trust for Ornithology's (BTO's) Common Bird Census (CBC), as summarised by best practice guidance <sup>15</sup> , involving walked transects.
Reptiles	Site	Aug-Oct 2018	<b>Reptile Survey:</b> A reptile survey was undertaken to determine presence/likely absence of reptile species and to infer population sizes. It comprised two main elements; the deployment and checking of 66 artificial refugia, and visual observation of habitats and natural refugia present. The survey was undertaken in line with published guidance <sup>16,17</sup> .
Amphibians – Great crested newt (GCN) <i>Triturus cristatus</i>	Whole golf course	Apr-Jun 2018	<b>Habitat Suitability Index (HSI) Scoring:</b> All water bodies within the Survey Area to which access was possible, were assessed for their suitability to support GCN, using the standard HSI assessment method which scores waterbodies' suitability based on a number of factors <sup>18</sup> .  <b>Manual GCN Surveys:</b> All waterbodies that were accessible and found to have suitable HSI score were subject to further survey. Four initial survey visits were conducted using a range of techniques (trapping, torching and egg-searching),

<sup>13</sup> Harris S, Cresswell P and Jefferies D (1991). (Report) Surveying Badgers. The Mammal. Society, Bristol

<sup>14</sup> Natural England [then English Nature] (2006). The Dormouse Conservation Handbook. 2nd Edition. Natural England, Peterborough

<sup>15</sup> Bibby C.J, Burgess N.D, Hill D.A, Mustoe S.H. (2000). Bird Census Techniques. Second Edition. Elsevier Ltd

<sup>16</sup> Froglife (1999). Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice sheet 10. Froglife, Halesworth

<sup>17</sup> Gent, A. and Gibson, S. (2003). Herpetofauna Workers Manual. JNCC, Peterborough

<sup>18</sup> Amphibian and Reptile Groups of the United Kingdom (2010). ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. ARG UK, UK

Feature Survey Type	Study Area Coverage	Dates of Survey	Field Survey Methods
			followed by a further two surveys if GCN were recorded to be present, in order to obtain a robust estimate of population size, as informed by good practice guidelines <sup>19</sup> .
Invertebrates	Whole golf course – invertebrate value areas	Sep 2018, May 2019 & Jun 2019	<b>Manual Invertebrate Surveys:</b> Following the Phase 1 and invertebrate habitat assessment, targeted invertebrate surveys were undertaken of areas identified as being of elevated value for this group. Invertebrates were located and collected by general methods using sweep net, beating tray and a stout trowel. Flowers, leaf surfaces, rocks, bare ground, logs and tree trunks were examined by visual searching (including for hairstreak butterfly eggs). Others were found by finger-tip grubbing in loose soil and plant roots, logs, stumps and animal dung. Voucher specimens of all but the most common and characteristic species were collected for examination under the microscope.

### Other Studies

- 9.3.14. In addition to the above surveys, a Biodiversity Net Gain (BNG) assessment was undertaken of the Proposed Development to inform and quantify the change in biodiversity value of the Site before and after development. This calculation was based on the Phase 1 habitat survey data collected, the final landscape proposals (see **Figure 4-9 of Chapter 4: The Proposed Development**) and uses the DEFRA Biodiversity Net Gain metric<sup>20, 21</sup> for calculations. Further details on the methodology are included at **Appendix 9.10**.

## ASSESSMENT METHODOLOGY

### Scoping and Evaluation of Ecological Features

- 9.3.15. The results from the above baseline surveys undertaken to date were used in conjunction with information on the Proposed Development design to assess the likely significant ecological effects that the Proposed Development could have during both the construction and operational phases.
- 9.3.16. The conservation value of each ecological feature was evaluated within a defined geographical context using the categories recommended in good practice<sup>1</sup>, extended to include the 'Site'. The following geographic scales are used:
- International and European;
  - National (England);
  - Regional (South-East England);
  - County (Oxfordshire);

<sup>19</sup> Natural England [then English Nature] (2001). Great Crested Newt Mitigation Guidelines. Natural England, Peterborough

<sup>20</sup> CIEEM, CIRIA & IEMA. (2016). Biodiversity Net Gain: Good practice principles for development

<sup>21</sup> DEFRA (2012). Technical Paper: The metric for the biodiversity offsetting pilot in England



- District (Cherwell);
- Local (Chesterton); and,
- The Site.

- 9.3.17. Habitats and species that are of value and/or significance below the Site scale have been assigned negligible value for the purposes of this assessment. That is, they do not have sufficient conservation importance to be considered of Site level importance or above.
- 9.3.18. Many characteristics are considered to contribute the importance of ecological features, including for example (but not exclusively); the rarity of a species or habitat, habitat/ assemblage diversity, local population status/ context, and proximity to the edge of a species' range, particularly where their distribution is changing as a result of global trends and climate change.
- 9.3.19. Conservation value does not necessarily equate directly to sensitivity, as a feature of high conservation value may comprise a robust ecosystem which is resilient to effects which may potentially be caused by external factors and therefore is not highly sensitive. Equally, a species may be highly sensitive to change but widespread and therefore the individuals representing the species within the zone of influence of a scheme may not be of high conservation value.
- 9.3.20. Those ecological features that are considered to be of at least Local importance are hereafter referred to as 'Important Ecological Features' (IEFs).

#### **Characterising the Potential Effect**

- 9.3.21. Based on an understanding of the baseline conditions and of the Proposed Development, potential effects on IEFs scoped into the assessment have been considered, taking into account construction (to include site preparation) and operational phases. The following parameters have been referred to in assessing effects on ecological structure and function:
- Impact: The physical change in the environment that may lead to an effect upon an ecological feature.
  - Effect: The consequence of an impact upon an ecological feature.
  - Direction: Positive or negative.
  - Magnitude: refers to the 'size' or 'amount' of an effect determined on a quantitative basis e.g. total or partial.
  - Extent: the geographical area over which the effect occurs.
  - Duration: the period over which the effect is expected to last prior to recovery or replacement of the resource or feature e.g. short-term or long-term.
  - Reversibility: whether recovery from the effect is possible or not e.g. irreversible (permanent) effects or reversible (temporary) effects.
  - Temporality: Timing and frequency.

### **Biodiversity Net Gain Assessment**

- 9.3.22. As is encouraged through planning policy including the latest NPPF<sup>22</sup> and Policy ESD10 of the Cherwell Local Plan<sup>7</sup>, the biodiversity net gain assessment (based on the DEFRA metric) has been used to guide the development of landscape designs. A finalised assessment has been undertaken and is presented in **Appendix 9.10**.

#### **Significance Criteria**

- 9.3.23. The geographical scale of significance has been used as specified within good practice guidelines both to evaluate the ecological feature and to assess the scale at which an effect is significant. An ecologically significant effect is defined as an effect that either supports or undermines biodiversity conservation objectives for IEFs or for biodiversity in general.
- 9.3.24. The significance of effects upon important ecological features is determined considering their value at a geographic scale (as noted above); however, any given effect may be significant at a reduced scale depending on the extent and magnitude of the effect. For example, although a habitat type may represent 20% of the resource at a County level and hence be considered of value at this scale, the proposed works might affect only a portion of the habitat representing 1% of the resource in the County hence the effect would not be considered significant at this scale. However, that 1% may represent 20% of the resource at a Local scale and therefore the effect at this geographic scale would be considered significant.

#### **Assigning a Threshold Value**

- 9.3.25. In the process of ecological impact assessment, it is important to select the appropriate features for inclusion in the assessment. For the purpose of this assessment ecological features have been scoped into the assessment where potential effects could be of significance at the Local scale or greater and, or where there are legal and/or planning implications associated with effects.

## **9.4. BASELINE CONDITIONS**

### **CURRENT BASELINE**

#### **Designated Sites**

- 9.4.1. No statutory or non-statutory designated nature conservation sites were recorded within the respective Study Areas (see **Appendix 9.1**).

#### **Ancient Woodland**

- 9.4.2. Low amounts of ancient woodland are present in the 2km Study Area, limited to two small parcels, the closest of which is approximately 1.6km south of the Site (see Figure 2 at **Appendix 9.1**).

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<sup>22</sup> Ministry of Housing Communities & Local Government (MHCLG) (2019). The National Planning Policy Framework (NPPF)

### Other Habitats of Conservation Importance

- 9.4.3. Other habitats of conservation importance within the 2km Study Area are dominated by lowland mixed deciduous woodland and wood pasture and parkland, both HPI. These are mainly concentrated to the north of the Site beyond the A4095 at Bignell Park. The closest deciduous woodland parcel lies approximately 10m north east separated from the Site by the A4095, whilst the closest mapped parkland habitat parcel is approximately 630m north east.
- 9.4.4. Three small (<1.5ha) parcels of ancient woodland are mapped within 2km of the Site, the nearest being approximately 1.7km south west beyond the M40 at Middleleys Spinney.
- 9.4.5. Within the Site, a single stand of approximately 1.2ha of deciduous woodland is mapped, as detailed below in Table 9-4.

### On-Site Habitats

- 9.4.6. The Site contains a variety of habitat types of ecological value including ponds, plantation and semi-natural woodland and species rich hedgerow, of which some are listed as HPI. Other habitat present included a variety of grasslands, dense scrub and tall ruderal. Overall, the habitats present may not be considered of significant value given they are of relatively recent origin, are heavily managed, are not of high botanical or structural diversity and comprise habitat types that are reasonably widespread in a landscape context. However collectively, particularly ponds, woodland, hedgerows and semi-neutral grassland provide a range of habitat to flora and fauna that is likely to be of significance at a Local level, some of which also constitute HPI. Summary descriptions of the habitats present are provided in Table 9-4 below, with full details and species lists provided in **Appendix 9.1**.

**Table 9-4 – On-Site Habitat Details**

Habitat Type	Description	HPI/ Oxfordshire Priority Habitat Qualification?
Plantation broadleaved woodland	<p>Two main plantation broadleaved woodland (PBW) parcels are located within the Site.</p> <p>PBW1 is dominated by semi-mature white poplar <i>Populus alba</i> all of similar age and structure. PBW2 forms a boundary to the Site in the north east and contains a variety of species including field maple <i>Acer campestre</i> and hawthorn <i>Crataegus monogyna</i>.</p> <p>The remaining parcels of plantation broadleaved woodland are mosaic habitats with poor semi-improved grassland. These parcels are comprised of younger trees predominately silver birch <i>Betula pendula</i>, white poplar and ash <i>Fraxinus excelsior</i>. They have coarse grassland ground cover, typically dominated by cock's foot <i>Dactylis glomerata</i></p>	No
Plantation mixed woodland	<p>There are two parcels of plantation mixed woodland within the Site. One parcel of mixed plantation was identified between the amenity grasslands of the golf course. This has some taller sward grassland and tall ruderal edges and has a uniform age and height structure and is somewhat</p>	No

Habitat Type	Description	HPI/ Oxfordshire Priority Habitat Qualification?
	dense. The other parcel is located in the west of the Site and is uniform in age and structure. It forms a boundary with the M40 motorway but also encroaches into the golf course. The dominant species within the woodland are Cypress species <i>Cypressus sp.</i> , ash and field maple <i>Acer campestre</i> .	
Dense scrub	One parcel of dense scrub was identified in the south-western corner of the Site next to a hedgerow. This parcel of scrub was approximately 1.5m in height and was dominated by bramble <i>Rubus fruticosus</i> .	No
Scattered scrub	Scattered scrub was identified over semi-improved neutral grassland in the west of the Site. Species were dominated by bramble, but also included species such as rose <i>Rosa sp.</i> and gorse <i>Ulex europaeus</i> .	No
Broadleaved/ coniferous/ mixed parkland & scattered trees	Scattered broadleaved, coniferous and mixed trees were located throughout the Site as part of the landscape design. These trees were planted to give the golf course structure and subsequently formed parcels of varying sizes and structure. A number of tree species were recorded within these parcels as detailed in <b>Appendix 9.1)</b>	No
Semi-improved neutral grassland	Semi-improved neutral grassland was recorded within the Site The sward in the two parcels appeared to have little management and was approximately 10-20cm in height at time of survey. The grassland exhibited a moderate diversity of grass and forb species including selfheal <i>Prunella vulgaris</i> , carrot <i>Daucus carota</i> and creeping cinquefoil <i>Potentilla reptans</i> , and there were a number of scattered trees and scrub within the parcel (noted above).	No
Poor semi-improved grassland	Two small parcels of poor semi-improved grassland were identified within the Site. These grassland parcels were located adjacent to the amenity grassland of the golf course and were identified by their increased sward height and abundance of coarse grass species including Yorkshire fog <i>Holcus lanatus</i> and cock's foot <i>Dactylis glomerata</i> . Scattered scrub, predominately bramble, was identified across the grasslands on occasion.	No
Standing water	<p>Standing water is located throughout the Site in the form of ponds. Ten waterbodies of a variety of shapes and sizes were identified during the Phase 1 habitat survey.</p> <p>The majority of the ponds appear to have been engineered as part of the golf course landscaping design. These ponds are generally deep with some marginal and emergent vegetation (including bulrush <i>Typhus latifolia</i> and rush species <i>Juncus sp.</i>). The marginal vegetation had been cut prior to the survey, indicating the regular management.</p>	<p>Yes</p> <p>(Standing Waterbody 6 based on PYSM, all others on account of great crested newt metapopulation presence, see below)</p>



Habitat Type	Description	HPI/ Oxfordshire Priority Habitat Qualification?
	<p>Standing Waterbody 9 is densely choked by bulrush but does contain water.</p> <p>Many of the ponds have shallow grassland banks with occasional trees (alder <i>Alnus sp.</i>, willow <i>Salix sp.</i> and silver birch <i>Betulus pendula</i>).</p> <p>The PSYM survey identified that most of the ponds were not of particularly high quality based on comparison of invertebrates and macrophytes with reference conditions. Only Waterbody 6, which was categorised as Good, qualifies as an HPI based solely upon species composition or habitat assemblage.</p>	
Running water	Running water was identified within the Site in the form of a small stream. This was recorded to be a narrow, straight/modified and shallow stream running from woodland south-east towards the main club house, where it flows underneath and to the south.	Yes
Amenity grassland	<p>Amenity grassland is the dominant habitat type identified within the Site. The grassland has been landscaped for the purpose of the golf course and has a very short sward height. Management does however vary between the sections of each golf hole, to form the different playing areas.</p> <p>The amenity grassland is dominated by perennial rye-grass <i>Lolium perenne</i>, with locally abundant red fescue <i>Festuca rubra</i> and occasional common daisy <i>Bellis perennis</i>.</p>	No
Intact species-poor hedgerow	One species poor hedgerow was identified adjacent a bare ground track leading to the main clubhouse from the north. The hedgerow is dominated by blackthorn <i>Prunus spinosa</i> and is approximately 2m in height and 2m in width.	Yes
Defunct species-poor hedgerow	Two defunct species poor hedgerows were identified within the Site. One is a hawthorn <i>Crataegus monogyna</i> dominated hedgerow connecting to the scattered trees and pond within the south of the Site. The other is a defunct, gappy hedge located on the east end of the car park and is dominated by beech <i>Fagus sylvatica</i> .	No
Species-poor hedgerow with trees	One species-poor hedgerow with trees was identified within the Site located to the east of the main car park, forming a boundary between the golf course and area of bare ground.	Likely yes
Building	A portion of the main clubhouse building lies within the Site.	No
Bare ground & hardstanding	Bare ground tarmac of the main car park is present within the Site, as well as an area to the west of the car park formed of crushed aggregate.	No

Habitat Type	Description	HPI/ Oxfordshire Priority Habitat Qualification?
Other habitat	Other habitats located within the Site include the sand bunkers, spoil heaps and compost/vegetation cuttings. Sand bunkers are located throughout the golf course.	No

## Protected Species

- 9.4.7. A summary of records of protected / notable species recorded within 2km is provided in **Appendix 9.1**. It should be noted that the absence of records does not provide confirmation that a species is absent from the study area.
- 9.4.8. Dedicated species surveys for the Site (and relevant surrounding habitat, where accessible and appropriate for the survey type) have been completed for the following species groups in 2018-2019; bat, ████████ hazel dormouse, breeding birds, reptiles, great crested newts and invertebrates. This information has been utilised to inform their associated baseline assessments.
- 9.4.9. For species groups for which targeted survey was not undertaken (e.g. other mammals), but which nevertheless may utilise the habitats present, the value of the Site is calculated based on the presence of local records and habitat suitability, area and connectivity.

**Table 9-5 - Baseline Protected Species Information Summary**

Species/ Group	Baseline Survey Result Summary
Bats	<p><b>Roosting:</b> The trees within the main body of the Site are dominated by young to semi-mature specimens of relatively recent origin, likely planted during landscaping for the golf course complex. Some more mature specimens are present at the peripheries. Within the Site one tree with low bat roosting suitability was noted, Tree 17 (See Figure 2 in Appendix 9.2).</p> <p>Natural England databases also show that a licence was granted in 2016 for destruction of a roost at the existing golf club house located approximately 10m from the Site boundary. This was for a non-maternity roost supporting brown long-eared bat <i>Plecotus auritus</i>, soprano pipistrelle <i>Pipistrellus pygmaeus</i> and common pipistrelle <i>Pipistrellus pipistrellus</i>. The planning application for these works (replacement of upper storeys on golf club, Application Ref 15/01068/F) did not record bats or suitability for bats during ecological surveys, thereby suggesting that licence was granted for bats found during the construction period. Given the lack of information available via the planning portal, details of mitigation or compensation roost provision are being sought from the golf club via the client.</p> <p><b>Foraging and commuting:</b> At least five bat species were recorded within the Site during the manual transect surveys, dominated by common and widespread species. The results of the activity surveys suggest that the value of the Site for bats is non-uniform, with the majority of high and medium/high activity being concentrated in the north-east, with species assemblages dominated by <i>Pipistrellus spp.</i> and noctule <i>Nyctalus noctule</i> (an SPI).</p> <p>The results of the activity surveys indicate that the Site is of most value to noctule bat, with call levels indicating it is of <b>District-County level value</b>. The Site is also of up to Local level value to Myotis bats, common pipistrelle, soprano pipistrelle and brown long-eared bat. Other species recorded but for which the Site is of Zone-of-Influence level value or below</p>

Species/ Group	Baseline Survey Result Summary
	includes barbastelle <i>Barbastella barbastellus</i> , serotine <i>Eptesicus serotinus</i> , Leisler's bat <i>Nyctalus leisleri</i> , Nathusius' pipistrelle <i>Pipistrellus nathusii</i> and brown long-eared bat.
[REDACTED]	[REDACTED]
Hazel dormouse	No evidence of dormouse was recorded during the course of surveys, and this species is considered to be absent from the Site, assigning it <b>negligible value</b> for this species.
Other mammals	<p>No records of hedgehog <i>Erinaceus europaeus</i> were returned in the biological data search, although this species is widespread in the southeast and was recorded anecdotally in the Chesterton Parish Council Scoping Report Letter (see Section 9.3). The Chesterton Parish Council letter also anecdotally recorded brown hare <i>Lepus europaeus</i>. Habitat within the boundaries of the Survey Area is considered suitable to support hedgehog, providing foraging, shelter and hibernation opportunities. Some habitat suitable for hare may also be present in the form of larger long grassland areas. Other mammals were recorded on the Site incidentally including roe deer <i>Capreolus capreolus</i>, and a wide range of small mammals such as bank vole <i>Myodes glareolus</i> and common shrew <i>Sorex araneus</i> are also likely to be present.</p> <p>On a precautionary basis, it is considered that hedgehog is likely to be present. As this species is an SPI and has undergone significant declines in recent decades (a third of populations lost since 2002 in rural areas<sup>23</sup>). Hare may also be present, a species which has also undergone declines, although remaining widespread and listed as 'Least Concern' by the IUCN<sup>24</sup>. As such the Site is considered to be of <b>Local level importance</b> for other mammals.</p> <p>Although there is a stream present within the Survey Area, no evidence of water vole <i>Arvicola amphibius</i> was recorded incidentally, and no local records were returned. The Site is therefore considered to be of negligible importance for water vole.</p>
Birds	<p>A total of 54 species were recorded within or over the Survey Area (golf course site) during the breeding bird survey, of these 40 are considered to breed within the Survey Area. Within the Site, a total of eight species considered to breed which are species of conservation concern:</p> <ul style="list-style-type: none"> <li>• Bullfinch <i>Pyrrhula pyrrhula</i> (SPI, UK BAP, Amber List<sup>25</sup>)</li> </ul>

<sup>23</sup> Wilson, E & Wembridge D. (2018). The State of Britain's Hedgehogs 2018. British Hedgehog Preservation Society, People's Trust for Endangered Species (PTES).

<sup>24</sup> <https://species.nbnatlas.org/species/NHMSYS0000080218>

<sup>25</sup> Amber or Red Listed birds based on the Birds of Conservation Concern (BoCC) in Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons, DW, Evans A and Gregory RD (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 102, pp296–341

Species/ Group	Baseline Survey Result Summary
	<ul style="list-style-type: none"> <li>• House martin <i>Delichon urbicum</i> (Amber List)</li> <li>• House sparrow <i>Passer domesticus</i> (SPI, UK BAP, Red List<sup>25</sup>)</li> <li>• Linnet <i>Carduelis cannabina</i> (SPI, UK BAP, Amber List)</li> <li>• Mistle thrush <i>Turdus viscivorus</i> (Red List)</li> <li>• Mute swan <i>Cygnus olor</i> (Amber List)</li> <li>• Song thrush <i>Turdus philomenos</i> (SPI, UK BAP, Red List)</li> <li>• Starling <i>Sturnus vulgaris</i> (SPI, UK BAP, Red List)</li> </ul> <p>Although species listed on Schedule 1 of the Wildlife and Countryside Act 1981 were recorded (red kite <i>Milvus milvus</i>, redwing <i>Turdus iliacus</i> and fieldfare <i>Turdus pilaris</i>), they are not considered to breed within the Survey Area.</p> <p>The bird community within the Survey Area is considered to be of <b>Local nature conservation importance</b>, given it supports common and widespread species including some species of conservation concern</p>
Reptiles	<p>The survey results indicate a 'low' population of grass snake, concentrated in the north easterly part of the Site. Two common lizard <i>Zootoca vivipara</i> were also recorded incidentally in 2019 on the western boundary of the Site, comprising a 'low' population.</p> <p>Overall, based on the survey results, habitats present and landscape context, the reptile population present is considered to be of <b>value at a Local level</b>, as the species recorded are widespread, and the populations supported are low in a rural area where suitable habitat is abundant.</p>
Amphibians (GCN)	<p>Approximately 1ha of standing water is present within the Site comprising 12 waterbodies. Surveys in 2018 recorded large populations in two of these, medium populations in six, a small population in one, eggs only in one and two with no great crested newts. Seven further waterbodies in the wider site (in the rest of the golf course which will remain unaffected) returned between large populations and eggs-only results.</p> <p>Moreover, the Site is situated in a 'red zone' for District-level licencing, indicating that it is of importance at a District scale.</p> <p>Populations of common toad <i>Bufo bufo</i> (an SPI), common frog <i>Rana temporaria</i> and smooth newt <i>Lissotriton vulgaris</i> were also identified.</p> <p>Overall, based on the populations recorded as well as the density of terrestrial and breeding habitat, the Site is considered to be of <b>District level importance</b> for amphibians. Moreover, the Site is situated in a 'red zone' for District-level licencing (supports elevated numbers of great crested newt and suitable habitat locally), further indicating that it is of importance at a District scale.</p>
Invertebrates	<p>There are three parcels of habitat within the Site which were identified as having the potential to be important to terrestrial invertebrates including waterbodies and scrub. The PSYM survey confirmed only one pond within the Site (Pond 6) as being HPI based solely on species composition or habitat assemblage.</p> <p>Brown hairstreak butterfly <i>Thecla betulae</i> (an SPI) was confirmed as being present, with eggs being found in suckering blackthorn along the northern boundary of the Site. Black hairstreak <i>Satyrrium pruni</i> and white-letter hairstreak butterfly <i>Satyrrium w-album</i> eggs were not recorded during the hairstreak survey, although this species could be present as it is mobile and known to exist locally. White-letter hairstreak is an SPI, and black hairstreak is a rare and declining related species now confined to only 50 sites in the East Midlands.</p> <p>Terrestrial invertebrate surveys identified a limited number of scarce invertebrates, indicating that the semi-natural habitats dominating the golf course have some value for</p>

Species/ Group	Baseline Survey Result Summary
	<p>invertebrate biodiversity. Scarce or notable species found included the nationally rare snail-killing fly <i>Dichetophora finlandicam</i> (about which little is known), mottled fly <i>Dorycera graminum</i> (which is closely associated herb-rich unimproved meadows) and picture-winged fly <i>Oxyna parietina</i> (which relies on mugwort <i>Artemisa vulgaris</i> in disturbed and waste places).</p> <p>The invertebrate habitats on the Golf Course are relatively limited including some semi-improved grassland, scrub, marginal trees, small ponds. These are all fairly recent habitats and have had only a limited time to develop complex flora and fauna. Where these adjoin the fairways, they are unsympathetically managed for wildlife. A limited number of unusual invertebrates found during the visits indicates that areas of semi-natural habitats have some value for invertebrate biodiversity, with several scarce or interesting species found. In sum the Site is considered to be of <b>Local level importance</b> for invertebrates.</p>

## FUTURE BASELINE

- 9.4.10. No change in land use or management is anticipated at the Survey Area prior to clearance for construction of the Proposed Development. As such, the future baseline is considered likely to be closely similar to that of the current baseline. The effect of other nearby significant developments is considered in **Chapter 14 - Cumulative Effects**.

## SENSITIVE ECOLOGICAL FEATURES

- 9.4.11. Table 9-6 below lists the ecological features identified during the baseline assessment and summarises the scoping of potential effects which are to be taken forward in the ecological impact assessment.

**Table 9-6 – Sensitive Ecological Features Scoping Table**

Ecological Feature	Nature Conservation Importance	Scoping (In/ Out)	Potential Pathway of Effect
Statutory sites	N/A	Out	No such sites are located within distances over which impact pathways may cause an effect to them.
Non-statutory sites	N/A	Out	No such sites are located within distances over which impact pathways may cause an effect to them.
Off-site habitat of ecological importance	Local	In	Woodland and parkland to the north constitute HPI. These may be affected by: - Degradation associated with pollution or disturbance during the construction and/or operational phase
On-site habitat of ecological importance	Local	In	Woodland, hedgerow and running water habitats within the Site are of elevated value. These may be affected by: - Direct loss during the construction phase

Ecological Feature	Nature Conservation Importance	Scoping (In/ Out)	Potential Pathway of Effect
			<ul style="list-style-type: none"> <li>- Fragmentation during the construction phase</li> <li>- Degradation associated with pollution or disturbance during the construction and/or operational phase</li> </ul>
Bats	District	In	Bats using the Site could be affected by: <ul style="list-style-type: none"> <li>- Direct loss of foraging and commuting habitat such as woodland edges</li> <li>- Disturbance (noise and light) during the construction and/or operational phases</li> <li>- Habitat degradation (fragmentation/ other alteration during the construction and/or operational phases</li> <li>- Habitat creation and management of retained habitat during the operational phase.</li> </ul>
Hazel dormouse	N/A	Out	Surveys concluded likely absence of hazel dormouse from the Site.
Other mammals	Local	In	Hedgehog and brown hare may be present in suitable habitat on-site, and may therefore be affected by: <ul style="list-style-type: none"> <li>- Direct loss (mortality and injury) during the construction and operational phases.</li> <li>- Direct habitat loss (sett destruction and reduction in foraging area) during the construction phase.</li> <li>- Disturbance (noise and light) during the construction and/or operational phases.</li> <li>- Habitat degradation (fragmentation / other alteration) during the construction and/or operational phases</li> <li>- Habitat creation and management of retained habitat during the operational phase</li> </ul>
Birds	Local	In	Birds using the Site may be affected by:

Ecological Feature	Nature Conservation Importance	Scoping (In/ Out)	Potential Pathway of Effect
			<ul style="list-style-type: none"> <li>- Direct loss (mortality and injury) during the construction and/or operational phases</li> <li>- Direct habitat loss during the construction phase</li> <li>- Disturbance (noise, visual and light) during construction and/or operational phases.</li> <li>- Habitat degradation (fragmentation / other alteration) during the construction and/or operational phases.</li> <li>- Habitat creation and management of retained habitat during the operational phase.</li> </ul>
Reptiles	Local	In	<p>Low populations of grass snake and common lizard may be affected by:</p> <ul style="list-style-type: none"> <li>- Direct loss (mortality and injury) during the construction and/or operational phases</li> <li>- Direct habitat loss during the construction phase</li> <li>- Disturbance (noise, visual and light) during construction and/or operational phases.</li> <li>- Habitat degradation (fragmentation / other alteration) during the construction and/or operational phases.</li> <li>- Habitat creation and management of retained habitat during the operational phase.</li> </ul>
Amphibians	District	In	<p>The population of great crested newt at the Site, as well as other amphibians including the SPI common toad maybe affected by:</p> <ul style="list-style-type: none"> <li>- Direct loss (mortality and injury) during the construction and/or operational phases</li> <li>- Direct habitat loss during the construction phase</li> <li>- Disturbance (noise, visual and light) during construction and/or operational phases</li> <li>- Habitat degradation (pollution, drainage or other alteration) during the construction and/or operational phases</li> <li>- Habitat fragmentation</li> <li>- Habitat creation and management of retained habitat during the operational phase</li> </ul>
Invertebrates	Local	In	<p>The assemblage of invertebrates using the habitats within the Site may be affected by:</p> <ul style="list-style-type: none"> <li>- Direct habitat loss during the construction phase</li> <li>- Direct effects (killing and injury and, or disturbance) during the construction phase</li> </ul>

Ecological Feature	Nature Conservation Importance	Scoping (In/ Out)	Potential Pathway of Effect
			<ul style="list-style-type: none"> <li>- Habitat degradation (pollution, drainage or other alteration) during the construction and/or operational phases</li> <li>- Habitat fragmentation</li> <li>- Habitat creation and management of retained habitat during the operational phase.</li> </ul>

## 9.5. RELEVANT ELEMENTS OF THE PROPOSED DEVELOPMENT AND ESTABLISHING THE PRE-MITIGATION SCENARIO

### OVERVIEW

- 9.5.1. The Proposed Development comprises redevelopment of part of the golf course to provide a new leisure resort (sui generis) incorporating a waterpark, family entertainment centre, hotel, conferencing facilities and restaurants with associated access, parking and landscaping.
- 9.5.2. The Proposed Development and the elements described below are what planning consent is sought for and must be considered the pre-mitigation scenario. That is, mitigation measures embedded within designs e.g. landscape strategy are detailed under the relevant headings below.
- 9.5.3. Other mitigation actions to be undertaken during construction, for example the seasonal timing of works to avoid effects upon nesting birds, are detailed in Section 9.6.

### CONSTRUCTION PHASE

#### Programme

- 9.5.4. A detailed programme of work will be agreed with the Principal Contractor in advance of any works commencing, however an overview of the anticipated programme is outlined below:
  - Planning submission – November 2019.
  - Committee Resolution – End of March 2020.
  - S106 agreement – End of June 2020.
  - Discharge of pre-commencement conditions / planning obligations by – End of June 2020.
  - Tender action completed by – end of May 2020.
  - Start enabling works on site mid/end June 2020.
  - Completion – Soft opening May 2022.
  - Go live – July 2022.





9.5.5. It is anticipated, during this time that construction will be, more or less, continuous throughout the development programme, with all works to be conducted during day-time hours, anticipated to be industry standard hours: 08:00-18:00 Monday to Friday, and 08:00-13:00 Saturday<sup>26</sup>.

#### **District Level Great Crested Newt Licence**

- 9.5.6. The Site is located within the South Midlands District-Level Licencing area for great crested newt. It is also classed as a large-scale major development and lies within a 'red zone' which indicates high habitat suitability and significant populations of this species.
- 9.5.7. The Proposed Development will be undertaken under the District-Level Licencing Scheme for Cherwell to derogate from legislation which protects great crested newt and their habitats from loss or damage.
- 9.5.8. In order to minimise impacts upon great crested newts, specific provision for great crested newt within the Proposed Development design has been made, including the following measures:
- Creation of 8 new ponds and sensitive management of 7 existing ponds using methods such as selective scrub removal, invasive species management and low-intensity mowing of banks. Reduced fertiliser use on the surrounding habitat will also benefit ponds.
  - Retention and sensitive management of approximately 10.6ha of suitable habitat, plus creation of 1.1ha of new suitable habitat on-site (mainly through enhancement of low-value amenity grassland) arranged to provide a varied mosaic of foraging near to waterbodies and wooded habitats.
  - Installation of brush piles and hibernacula for refuge and hibernation.
  - Maintenance of peripheral vegetated corridors to maintain connectivity.
  - Inclusion of 'stepping stone' ponds sited strategically along peripheral corridors.
  - Dropped kerbs and fence cut-outs to maintain permeability at the Site.
- 9.5.9. Nevertheless, residual impacts will occur, but these will mainly be addressed through the payment for off-site compensation.
- 9.5.10. Off-site compensation costs are calculated by the third party offset provider (NatureSpace) using their own metrics taking into account the Site location, likely impacts and on-site mitigation and compensation (as detailed in the Habitat Management and Monitoring Plan (HMMP) produced for the Proposed Development, see Appendix 9.11, which is subject to agreement by NatureSpace). Through staged payments the Site obtains a certificate once planning has been permitted, and the Local Planning Authority (Cherwell District Council) can then authorise the development under the district licence which is then legally binding.
- 9.5.11. Off-site compensation serves to maintain the great crested newt conservation status at a District scale for at least 25 years. The requirement for specific on-site safeguards such as translocation and destructive search will thereby be reduced significantly, although some measures such as amphibian rescue from pond drain-down, or ecological supervision of works, will still be required.

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<sup>26</sup> Arcadis (2019), Great Wolf Lodge, Draft Construction Management Plan, Great Lakes UK Limited

## Compounds

- 9.5.12. The location and size of site compounds has not been confirmed but will be agreed between the Principal Contractor and CDC prior to works commencing. The Draft Construction Management Plan<sup>26</sup> states:
- 'With the extent of Ecology and Biodiversity on site, it will be key to ensure that all areas of interest and securely fenced off. This will form part of the enabling works package that will occur before the commencement of the main works.'*
- 9.5.13. It is assumed that the compounds will therefore be located on areas of comparatively low value existing habitat such as amenity grassland or bare ground/hardstanding and away from other sensitive receptors such as ponds or vegetated corridors at the Site boundary.
- 9.5.14. Temporary habitat loss for construction site compounds or haul routes will be re-instated within 6 months of completion of the Proposed Development to maximise habitat availability for fauna, in-line with the District-Level licence agreement for great crested newt at the Site. This timescale must be adhered to in order to qualify for the District-Level licence, and will be confirmed in the detailed construction management plan.

## Habitat Creation

- 9.5.15. A large portion of the Site has been allocated to landscaped habitat creation. The layout of these areas have been informed by iterative Biodiversity Net Gain assessment (see **Appendix 9.10**) in collaboration with the design team. More detail is also included in **Chapter 13 Landscape and Visual Impact**. New habitat will be created, and existing habitat (e.g. amenity grassland) will be enhanced in order to benefit the species recorded at the Site, for example blackthorn and wych elm will be included in woodland mixes to benefit butterflies (more species or group-specific detail is provided in Section 9.6).
- 9.5.16. The layout of habitats is shown in the landscape general arrangement plans<sup>27</sup>. Planting schedules<sup>28</sup> have been designed to include locally native species. In addition, plants to benefit specific fauna have been incorporated, for instance blackthorn for brown and black hairstreak, and disease-resistant wych elm *Ulmus 'Sapporo Autumn Gold'* for white-letter hairstreak. The Biodiversity Net Gain assessment (**Appendix 9.10**) provides quantitative detail on the habitat loss and creation. As the habitats created will take time to establish, their effect has been accounted for in the operational phase effects in Section 9.6. Specific detail of habitat management (e.g. grassland mowing regime etc.) is also provided in the Landscape Maintenance and Management Plan (LMMP)<sup>29</sup> which has incorporated ecological measures provided in the HMMP (subject to agreement with NatureSpace) and this chapter.
- 9.5.17. In addition, a number of wildlife installations will be created and placed in suitable locations within the landscaped area, also shown in the landscape general arrangements. These include:

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<sup>27</sup> BMD (2019) Overall Landscape General Arrangement Ref. BMD.19.010.DR.P001 &

<sup>28</sup> BMD (2019) Planting Schedule, Ref BMD.19.010.DR.P305

<sup>29</sup> BMD (2019) 5 Year Landscape Maintenance and Management Plan, Ref. BMD.19.010.RP.P002A



- Hibernacula for reptiles and amphibians (5 no.)
- Brash piles for reptiles and invertebrates (4 no.)
- Swift nest boxes (4 no.)
- House martin nest boxes (4 no.)
- Sparrow terraces (3 no.)
- Other tree-hung bird box (13 no.)
- Tree-hung bat box (9 no.)
- Sandy scrapes for invertebrates (3 no.)

### **Kerbs**

- 9.5.18. In order to facilitate the movement of great crested newt (and other wildlife) through the Site and to prevent individuals becoming trapped, flush kerbs will be installed within car park areas and dropped kerbs will be installed throughout at 25m intervals in the perimeter areas. These will be installed along the new access road from the A4095 and throughout the new car park area, in order to maintain connectivity with the wider landscape, including the remaining golf course area to the south.

### **Fence Gaps**

- 9.5.19. New 1.8m high weld-mesh fencing will be installed around the periphery of the Site as part of the fencing strategy shown in the Landscape General Arrangement also<sup>27</sup>. Gaps at the base of this fencing will be installed to allow continued movement of animals such as badger, hedgehog, hare and other fauna.
- 9.5.20. Large gaps to allow passage of badger (30cm x 30cm) will be installed on all corners and edges of the Site, approximately every 300m, with gaps focussed at the intersection of habitat corridors.
- 9.5.21. Smaller gaps (13cm x 13cm) for hedgehog and other fauna will be installed at more frequent intervals, approximately every 75m, also located around the fencing but concentrated more frequently at the corners and corridor links.

### **Construction Lighting**

- 9.5.22. There is currently no construction lighting strategy in place for the construction phase, however, the principles set out below with regards to operational lighting will be adhered to when designing this, namely avoidance of night-time lighting and avoiding positioning near sensitive receptors such as tree T17 and the off-site known roost.

## **OPERATIONAL PHASE**

### **Habitat Management**

- 9.5.23. During the operational phase, new and retained habitats will be managed and maintained to optimise their value for biodiversity. Detailed methods are provided in the HMMP produced for the Proposed Development (**Appendix 9.11**). Measures are summarised below:
- Allowing deadwood and leaf litter to remain on the ground in woodland and scrub/ introduced shrub areas;
  - Low-intensity mowing regimes (early spring and late autumn) for grassland and grassland floor of parkland areas;

- Minimal use of artificial pesticides, herbicides or fungicides, instead removing weeds by hand and considering other control methods;
- Checking and removal of invasive non-native species, e.g. in waterbodies; and
- Removal of litter.

9.5.24. Wildlife installations will also be maintained through measures such as:

- Topping-up brash piles with new vegetation;
- Loosening soil and clearing colonising weeds from sandy scrapes; and,
- Checking and replacement of broken or fallen bird or bat boxes (external only).

### **Drainage Design**

9.5.25. An interim drainage design for the Proposed Development has been generated<sup>30</sup> with ecological features in mind and will include the below measures:

- Retention of existing ditches over the Site where possible (although some length will be lost to culverts);
- No use of pumping stations;
- Retention of existing outfalls; and,
- Use of above-ground attenuation systems.

9.5.26. In order to avoid the risk of animals (in particular amphibians such as great crested newt) becoming trapped in drains, gully pots will be avoided and if required will be covered with a fine-gauge grille.

### **Lighting Design**

9.5.27. The lighting design strategy<sup>31</sup> has taken into account ecologically sensitive receptors and includes the following elements;

- The minimal necessary lighting required will be used;
- No lighting will be used on pathways within the landscaped areas;
- Directional cowls and louvres will be used to prevent backwards, upwards or other light spill onto retained or created habitats;
- Where possible, low-level luminaires will be used to light the Site, e.g. along pathways. In some instances, higher columns (no more than 6m) will be used such as in the carpark due to the uniformity and light level requirements;
- Warm light LEDs will be used (2700-3000 Kelvin) in order to minimise impacts upon nocturnal wildlife;
- Lighting control will be used to minimise when the lighting is on, only delivering target illumination levels at peak use times. In low use times lighting will be dimmed back further; and,
- Light spill from the interior of the Proposed Development has been minimised with blinds, decorative façade illumination has been minimised (e.g. none on southerly or westerly façade),

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<sup>30</sup> Curtins (2019) Great Wolf Lodge, Proposed Surface Water Drainage Strategy, Drawing Ref. 06535-CUR-00-XX-DR-C+-92000-P03

<sup>31</sup> Hoare Lee (2019) Proposed Great Wolf Lodge, Lighting Design, Exterior Lighting Concepts Report



and the slides on the south-westerly side will not be lit which will minimise lightspill onto surrounding habitat.

## 9.6. ASSESSMENT OF EFFECTS, MITIGATION AND RESIDUAL EFFECTS

### CONSTRUCTION PHASE

#### Off-site habitat of ecological importance

<p><b>Element of topic under consideration:</b></p> <p><b>Off-site habitat of ecological importance</b></p>	<p>Woodland and parkland located to the north of the Site could be affected indirectly by dust, airborne pollution or waterborne pollution during the construction phase.</p> <p>All habitats are sensitive to changes in soil pH or toxicity from deposition or runoff of chemicals, to light blocking from dust in the air or on leaves, and to changes in drainage regime which may increase or decrease available water and its quality.</p> <p>Pollution may occur at chronic levels from day-to-day construction activities, or at acute levels from a pollution event such as a fire or chemical spill. A pollution event could cause significant loss of habitat therefore.</p> <p>In this instance, the wood pasture/ parkland identified is likely to be sufficiently separate from the Proposed Development so as to negate chronic low-level effects. Deciduous woodland lining the A4095 may be affected by air quality changes (also considered chronic but short-term) from construction traffic. However, the woodland appears to be sycamore dominated adjacent to the road (low-quality, secondary non-native woodland), and any effects are likely to be highly localised.</p> <p>As such, in the absence of mitigation there could be a <b>permanent adverse effect</b> at a <b>Local Scale</b> from an acute pollution event, or a <b>short-term temporary adverse effect</b> at the <b>Site scale</b> from chronic traffic-related pollution.</p>
<p><b>Secondary Mitigation</b></p>	<p>An updated Construction Management Plan (CMP) will be produced detailing how pollution will be minimised and controlled in the construction phase; both airborne and waterborne. This will be agreed with the Principal Contractor who will be responsible for implementing it. Measures will follow industry standard guidance and include measures such as:</p> <ul style="list-style-type: none"> <li>▪ appropriate dust management measures such as ‘damping down’;</li> <li>▪ safe storage of chemicals; and,</li> <li>▪ suitable and regular personnel training.</li> </ul> <p>Hoarding or fencing will be installed around all construction works to protect the surrounding retained habitats.</p> <p>Further detail is included in the draft CMP, and in <b>Chapter 7 Air Quality</b> and <b>Chapter 12 Water Resources, Flood Risk and Drainage</b>.</p> <p>No mitigation to remove the effects of construction traffic on woodland adjacent to the B4030 are proposed.</p>
<p><b>Residual effects and monitoring</b></p>	<p>Implementation of the above mitigation measures will significantly reduce the likelihood of habitat degradation associated with acute construction phase pollution, but traffic-related effects remain.</p> <p>Therefore, there is a residual <b>short-term temporary adverse effect</b> of <b>Site scale</b> significance following the implementation of mitigation measures during the construction phase.</p>

## On-site habitat of ecological importance

<p><b>Element of topic under consideration:</b></p> <p><b>On-site habitat of ecological importance</b></p>	<p>The construction phase of the Proposed Development will remove some areas of habitats of ecological value including hedgerow and waterbodies. Approximately 60m of intact species-poor hedgerow, 9m of species-rich hedgerow with trees and 0.14ha of standing water will be lost to the proposals (see the BNG Assessment at <b>Appendix 9.10</b> for the extent of habitat affected). Pond 6 which was identified as 'good' in the PSYM survey is being retained. Of the three ponds to be lost, SW11 and SW13 were classed as 'poor' in the PSYM, and SW12 was found to be dry. Great crested newt eggs were found in SW11, a medium population was found in SW12, and great crested newt were not recorded in SW13.</p> <p>Retained habitats such as woodland, hedgerows and waterbodies on Site could be affected indirectly by dust, airborne pollution or waterborne pollution during the construction phase. This applies to retained habitats and to newly created ones installed during the early stages of construction.</p> <p>All habitats are sensitive to changes in soil pH or toxicity from deposition or runoff of chemicals, to light blocking from dust in the air or on leaves, and to changes in drainage regime which may increase or decrease available water and its quality. The waterbodies are particularly sensitive to chemical runoff, including to nourishing runoff which could cause a eutrophication event.</p> <p>Pollution may occur at chronic levels from day-to-day construction activities, or at acute levels from a pollution event such as a fire or chemical/ fertiliser spill.</p> <p>In sum, based on the habitats that would be lost, there could be a <b>permanent adverse effect</b> at a <b>Local scale</b> upon the receptor prior to the implementation of mitigation measures.</p> <p>Direct loss will be unavoidable but will be compensated for by new and enhanced habitats (also detailed in <b>Appendix 9.10</b>), although it is acknowledged that these may take time to establish and function. Accordingly, the positive effect of habitat creation is considered in the operational phase assessment.</p>
<p><b>Secondary Mitigation</b></p>	<p>An updated Construction Management Plan (CMP) will be produced detailing how pollution will be minimised and controlled in the construction phase; both airborne and waterborne. This will be agreed with the Principal Contractor who will be responsible for implementing it. Pollution prevention measures will follow industry standard guidance and include measures such as;</p> <ul style="list-style-type: none"> <li>▪ appropriate dust management measures such as 'damping down';</li> <li>▪ safe storage of chemicals; and,</li> <li>▪ suitable and regular personnel training.</li> </ul> <p>Hoarding will be installed around all construction works to protect the surrounding retained habitats.</p> <p>Further detail is included in the draft CMP, and in <b>Chapter 7 Air Quality</b> and <b>Chapter 12 Water Resources, Flood Risk and Drainage</b>.</p>
<p><b>Residual effects and monitoring</b></p>	<p>Implementation of the above mitigation measures will significantly reduce the likelihood of habitat degradation associated with construction phase pollution.</p> <p>Due to the unavoidable loss of small areas of valuable habitats, and the delay for compensation areas to establish, there will be a <b>residual adverse temporary short-term effect</b> at the <b>Site scale</b> during the construction phase.</p>

## Bats

<p><b>Element of topic under consideration:</b></p>	<p>A single tree of low bat roost potential was recorded at the Site, which will be retained by the Proposed Development (most of the trees present are young and lack potential roost features). A known roost at the existing golf club house was the</p>
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<p><b>Bats</b></p>	<p>subject of licenced works in 2016 also (supporting three common species, including soprano pipistrelle which is an SPI). Works under licence were undertaken on the north-east corner of the existing golf club building facing away from the Site. Information on any compensatory roost provision is being sought.</p> <p>With respect to foraging and commuting habitat, the Proposed Development requires the direct loss of some habitat. However, whilst a proportion (approximately 15%) of suitable foraging habitat at the golf course will be removed, the majority is retained.</p> <p>The Site is of District level value to noctule bat which forage and commute at high altitudes so are somewhat more tolerate to fragmentation but would still suffer from loss of foraging habitat with invertebrate prey such as woodland. Other species such as pipistrelle and myotis bats may be more susceptible to fragmentation effects due to their lower flight habit, but the Site is of lower (Local) value to these groups based on the relative abundance of calls recorded.</p> <p>The effects of construction phase disturbance could have some negative effects upon bats. Whilst night working will not generally be undertaken and therefore disturbance will be minimised, some degree of lighting during the construction phase (such as security lighting) will be required. This could lead to avoidance of habitats by foraging and commuting bats, roosts being abandoned, and survival of individual bats being affected. These effects will be minimised by following lighting design principles outlined in Section 9.5 above to be implemented through the final CMP by the appointed contractor.</p> <p>Overall, in the absence of mitigation, construction phase impacts are could cause <b>adverse effects</b> upon bats at a <b>Local scale</b>. The loss of roosting/ foraging and commuting habitat would be <b>permanent</b> whilst disturbance related effects would be <b>temporary</b> for the duration of the construction (short-term).</p> <p>Some habitat creation will be progressed on-site whilst construction is ongoing, which will compensate for the loss of habitat. It is however acknowledged that such habitats will take some time to become established, and is therefore accounted for in the construction phase.</p>
<p><b>Secondary Mitigation / Enhancement</b></p>	<p>Measures will be taken to conserve and protect the retained tree which has potential to support roosting bats, as well as the retained tree, scrub and hedgerow habitat which provides a foraging/commuting resource for bats. This will include the installation of protective fencing in line with BS5837:2012.</p> <p>The CMP will include measures to minimise the effects of construction phase lighting and noise, including ensuring that light spill on to adjacent habitats, woodland, hedgerows and waterbodies, is minimised.</p>
<p><b>Residual effects and monitoring</b></p>	<p>Overall, it is concluded that disturbance and habitat loss (foraging/ commuting habitat) could result in <b>residual temporary short-term adverse effects</b> at a <b>Site scale</b> during the construction phase.</p> <p>Disturbance effects will occur for the duration of the construction phase whilst the habitat loss effects will last until compensatory planting has established and colonisation has occurred (which will occur later in the operational phase).</p>

<p><b>Secondary Mitigation</b></p>	<p>Although no active badger setts were recorded at the Site, badger can make new setts or colonise old ones in sort timescales. A walkover of the Proposed Development footprint and a 30m buffer will also be undertaken to check for any new setts prior to commencement of works.</p> <p>If the setts are found to be in current use, it will be necessary to close these setts prior to construction works commencing, under a licence from Natural England. Licenced works are seasonally constrained (July - November inclusive), in order to avoid the badger breeding season and will require submission and implementation of a suitable mitigation strategy (e.g. using one-way gates and supervised excavation).</p> <p>Badgers use the Site for foraging and commuting purposes and therefore measures will be put in place during the construction phase to minimise effects upon badger movement and foraging activity. These will include fencing dangerous areas of the construction site (e.g. deep excavations) or providing a means of egress from shallow excavations, whilst ensuring other construction fencing is raised 180mm above ground level to enable badgers to pass beneath.</p> <p>Storage of plant and materials on areas of potential foraging habitat (e.g. retained grassland) will be avoided. In addition, appropriate good practice measures will be implemented to reduce noise during construction and there will be no night works unless specifically needed.</p> <p>These measures will be incorporated into the final CMP.</p>
<p><b>Residual effects and monitoring</b></p>	<p>The above mitigation will reduce the risk of increased injury and/or mortality of badgers associated directly with construction activities.</p> <p>Following the implementation of mitigation, a <b>residual temporary short-term adverse effect</b> at a <b>Site scale</b> is likely to occur during the construction phase through foraging habitat loss and fragmentation.</p>

## Other mammals

<p><b>Element of topic under consideration:</b></p> <p><b>Other mammals</b></p>	<p>A range of mammals (as well as bats and badger) may be present within the on-site habitats, including hedgehog and brown hare, both SPI.</p> <p>Construction works could cause a mortality risk to individuals e.g. from becoming trapped in open trenches, or consuming toxic materials. Individuals could become trapped or asphyxiated during clearance works also, e.g. under leaf piles or brush.</p> <p>In addition, the works will result in a loss of habitat, and could cause degradation of retained habitats through disturbance or pollution. Slight fragmentation of habitats may occur during construction. As for badger, disturbance and temporary habitat loss may cause individuals to exploit other resources, thereby risking traffic mortality as they move. Disturbance in itself may also compromise feeding and/ or breeding effectiveness and thereby reduce population success temporarily.</p> <p>In the absence of mitigation, <b>permanent adverse effects</b> at a <b>Site scale</b> could occur upon other mammals.</p> <p>Some new compensatory habitat creation will be started during the construction phase, but it is acknowledged that this will take time to establish.</p>
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<p><b>Secondary Mitigation</b></p>	<p>Pollution prevention methods and precautions during construction will serve to minimise the mortality or injury risk to other mammals, including fencing open trenches and ensuring means of egress, secure storage of chemicals and swift clean-up of spills. Careful clearance methods should be utilised including avoiding removal of brash or leaf piles during winter (as disturbing hibernating individuals may kill them), and hand-removal of leaf and brash piles during the active season.</p> <p>These safeguarding measures will be incorporated into the final CMP.</p>
<p><b>Residual effects and monitoring</b></p>	<p>The above mitigation will remove the risk of increased injury and/or mortality of other mammals associated directly with construction activities.</p> <p>There will still be a reduction in habitat available to the local mammal population during the construction phase due to the time needed for compensatory habitat to establish.</p> <p>Following the implementation of mitigation there will be a <b>residual short-term temporary adverse effect</b> at a <b>Site scale</b> during the construction phase.</p>

## Birds

<p><b>Element of topic under consideration:</b></p> <p><b>Birds</b></p>	<p>In the absence of mitigation, if construction activity occurs during the primary bird nesting season (March to August inclusive) it highly likely that active birds' nests would be damaged or destroyed and probable young would be injured or killed during the removal of vegetation (including hedgerows, trees, woodland and scrub).</p> <p>In particular, based on 2018 surveys, nests of starling, bullfinch, mistle thrush (all SPI, or Red Listed as detailed in Table 9-5) are most at risk, as these were recorded within the Development Footprint. The five remaining notable species would be less likely to be affected by works as their nests were located within retained habitats in the northern landscaping.</p> <p>Approximately 0.75ha of suitable breeding habitat (0.27ha plantation woodland, 0.48ha parkland/ scattered trees) and 69m of hedgerow and will be removed during the construction phase, removing breeding opportunities. Further suitable habitat (0.05ha of poor semi-improved grassland and 0.14ha of standing water) of value for foraging would be removed. Loss of foraging habitat could also reduce breeding viability of populations independent of nesting habitat availability.</p> <p>Construction activities will lead to disturbance of retained habitats through visual and noise disturbance. This could contribute to the reduction of breeding activity within retained habitats during the construction phase, as well as reducing foraging success for bird species utilising the Site during the construction phase.</p> <p>The removal and degradation of habitat, and likely direct loss of individuals from the bird assemblage would likely result in a <b>permanent negative adverse effect</b> at a <b>Local scale</b> as a few notable species would be affected.</p> <p>It is however acknowledged that such habitats and installations will take some time to become established. Habitat creation will include habitats for general species, as well as targeted habitats for legally protected and notable species (SPI).</p>
<p><b>Secondary Mitigation</b></p>	<p>Clearance of vegetation will be avoided during the main bird nesting season (March to August inclusive) wherever possible, to avoid damage or destruction of nests.</p> <p>If partial clearance of small areas is unavoidable during the main nesting bird season a suitably qualified ecologist will inspect the area within 24hrs prior to clearance; should any nests be present a suitable sized buffer zone in which no works occur will be put in place around the nest until the young have fledged or the nest has become otherwise inactive.</p> <p>These safeguarding measures will be incorporated into the final CMP.</p>

	<p>Prior to and during the construction phase, habitat creation will be progressed, which will compensate for the habitat that requires clearance to facilitate construction. This will include installation of the bird boxes detailed in Section 9.5.</p>
<p><b>Residual effects and monitoring</b></p>	<p>The above mitigation will reduce the risk of increased injury and/or mortality of nesting birds associated with construction activities, and levels of disturbance of adjacent retained habitat. There will still be an unavoidable small reduction in suitable nesting habitat for birds, albeit affecting only three of the species of conservation concern.</p> <p>Accordingly, acknowledging the delay for compensatory habitat to establish, there will be a <b>residual temporary short-term adverse</b> effect upon birds at a <b>Site scale</b> during the construction phase.</p>

## Reptiles

<p><b>Element of topic under consideration:</b></p> <p><b>Reptiles</b></p>	<p>Low populations of grass snake and common lizard were recorded at the Site, although all records were from habitat patches that will be retained. Although this suggests the population will not be affected significantly, reptiles could still pass through the Development Footprint during construction and be affected.</p> <p>The majority of the habitat with reptile value (2.17ha) will be retained and enhanced, although approximately 0.8ha will be lost to facilitate construction.</p> <p>In the absence of mitigation, direct loss of animals from the population as a result of mortality and/or injury during clearance works is possible. Clearance of habitats such as waterbody margins and long grassland during the summer risks encountering active animals, whilst during the hibernation season clearance of habitats such as woodland, hedgerows and any refugia or habitat piles are more likely to disturb, injure or kill individuals.</p> <p>In addition, habitat removal required during the construction phase will reduce the area of habitat available to support the reptile population present and fragment retained areas of suitable habitat; inhibiting population movement. Pollution, including vibration and noise as well as chemical and airborne pollution could also degrade reptile habitats within and adjacent to works.</p> <p>In the absence of mitigation, construction works could result in <b>permanent adverse effects</b> of importance at a <b>Site scale</b>.</p> <p>New compensatory habitat will be created during the operational phase but it is acknowledged that this will take time to establish.</p>
<p><b>Secondary Mitigation</b></p>	<p>Mitigation to reduce risks to reptiles during construction will involve precautionary methods of clearance. These are summarised below and will be detailed in the finalised CMP for the Proposed Development.</p> <p>Mitigation will entail the gradual phased and directional removal of suitable reptile habitats affected by construction activities in which reptiles have been recorded. The clearance will be completed outside of the hibernation season (hibernation typically occurs between mid-October and mid-March inclusive weather dependent) it will be followed by a destructive search under supervision of a suitably qualified ecologist. Any reptiles found during the habitat manipulation and destructive search will be captured by hand and released into adjoining retained and protected habitat (i.e. retained habitat in the north).</p>
<p><b>Residual effects and monitoring</b></p>	<p>The above mitigation will reduce the risk of injury and/or mortality of reptiles during construction activities. There will still be an unavoidable reduction in habitat available to the local reptile population during construction activities.</p> <p>As such, following the implementation of mitigation measures, there are likely to be residual <b>temporary short-term adverse effects</b> at a <b>Site scale</b> for reptiles during the construction phase.</p>



## Amphibians

<p><b>Element of topic under consideration:</b></p> <p><b>Amphibians</b></p>	<p>Across the waterbodies on the Site, low to high populations of great crested newt were recorded, which can be interpreted as a metapopulation. The metapopulation will make use of the suitable terrestrial habitat (including woodland and taller grassland) as well as the waterbodies. The results suggest the majority of the population is located in the northern portion of the Site which will be retained.</p> <p>Only three waterbodies will be lost (one medium population score, one absent and one with eggs only), as well as approximately 0.8ha of suitable terrestrial habitat (and also approximately 3.05ha of amenity grassland which is of low value to great crested newt). The majority of the habitat with amphibian value (2.17ha) will be retained and enhanced meanwhile.</p> <p>Nevertheless, the construction works could risk killing individual amphibians, as well as some degradation (via pollution and disturbance) and accordant fragmentation of habitat.</p> <p>In sum, given that the highest population ponds will be retained, in the absence of mitigation (or compensation) the Proposed Development construction phase would result in <b>permanent adverse negative effects</b> at a <b>Local scale</b>.</p> <p>New habitat creation will be progressed during the construction phase, however it is acknowledged that this would take time to establish.</p>
<p><b>Secondary Mitigation</b></p>	<p>Measures described in relation to mammals and reptiles will serve to safeguard individual amphibians during the construction phase. Other measures may be specifically recommended by NatureSpace (the District-Level licence administrator). Such measures could include destructive search and amphibian rescue through supervised pond drain-down. However, no translocation exercise is thought to be required.</p> <p>Use of the District Level Licencing scheme will contribute to robust off-site schemes to maintain the population status of great crested newt at this scale.</p>
<p><b>Residual effects and monitoring</b></p>	<p>Taking into account the above mitigation (and off-site compensation), it is considered that there will be a <b>temporary short-term adverse effect</b> at a <b>Site scale</b> upon amphibians during the construction phase.</p>

## Invertebrates

<p><b>Element of topic under consideration:</b></p> <p><b>Invertebrates</b></p>	<p>The majority of areas of suitable habitat will also be retained and protected (3.1ha). The single pond which was identified as meeting HPI criteria in the PSYM report (P6) will be retained, although three other ponds of lower quality will be removed. Scrub removal will be limited, reducing likely effects upon hairstreak butterflies.</p> <p>Nevertheless, during construction, some habitats capable of supporting the invertebrate assemblage will be lost and could be damaged including three low-quality waterbodies (0.14ha), 0.27ha plantation woodland, 0.48ha parkland/ scattered trees, 0.04ha sandy bunkers and bare ground and 0.05ha poor semi-improved grassland.</p> <p>In addition to habitat loss, there is also the risk that pollution events may occur that could affect the ecological integrity of retained habitats, which may negatively affect invertebrate populations. Although it is unlikely to occur, it could in particular alter the chemical and hydrological integrity of linked waterbodies, reducing the habitat value for invertebrates</p> <p>The loss of habitat and potential degradation of retained habitat, in the absence of mitigation, could result in <b>permanent negative adverse effects</b> at a <b>Local scale</b>.</p>
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	New suitable habitat will be created in the landscaped area during the construction phase, including waterbodies, but it is acknowledged that it will take time to establish and be colonised.
<b>Secondary Mitigation</b>	<p>Pollution prevention measures will be detailed in the CMP which will minimise habitat degradation via pollution.</p> <p>During the removal of ponds, macrophytes (and invertebrates on them) will be retained and transferred to newly created ponds to facilitate colonisation there.</p>
<b>Residual effects and monitoring</b>	Taking into account the above mitigation measures, there will be a <b>residual temporary adverse effect</b> at a <b>Site scale</b> upon invertebrates during the construction phase.

## OPERATIONAL PHASE

### Off-site habitat of ecological importance

<p><b>Element of topic under consideration:</b></p> <p><b>Off-site habitat of ecological importance</b></p>	<p>Off-site habitat of ecological value is located in private land and cannot therefore be accessed by guests at the Proposed Development, minimising the risk of adverse recreational effects.</p> <p>Pollution from the Proposed Development is unlikely via water or air during operation based on the drainage regime and the nature of the development (leisure rather than industry/ waste etc.).</p> <p>Increased traffic flows nearby may however cause chronic low-level pollution or nitrogen deposition upon woodland adjacent to the A4095. Potential effects include for example NOx deposition which may affect growth rates and other factors such as soil diversity and loss of lichens<sup>32</sup>. Traffic related effects are likely to be confined to the area around the access junction where vehicles will accelerate away, generating most pollutants.</p> <p>The woodland adjacent to the road which may be does not appear to be of significant ecological value (being apparently dominated by sycamore adjacent to the road). Furthermore, the extent of effects would likely small (limited to within a few metres of the road), and NOx levels are likely to be high already in habitat near the intersection of the M40 and the A4095.</p> <p>Overall therefore operational effects upon off-site habitat of ecological value are likely to be <b>negligible</b>.</p>
<b>Secondary Mitigation</b>	No specific mitigation measures in respect of off-site habitats are proposed
<b>Residual effects and monitoring</b>	Therefore, there are likely to be <b>residual negligible effects</b> upon the feature.

<sup>32</sup> Air Pollution Information System (APIS), Habitat/ Pollutant Impacts, Nitrogen Deposition, Broadleaved, Mixed and Yew Woodland <http://www.apis.ac.uk/node/965> [Accessed 19/09/19]

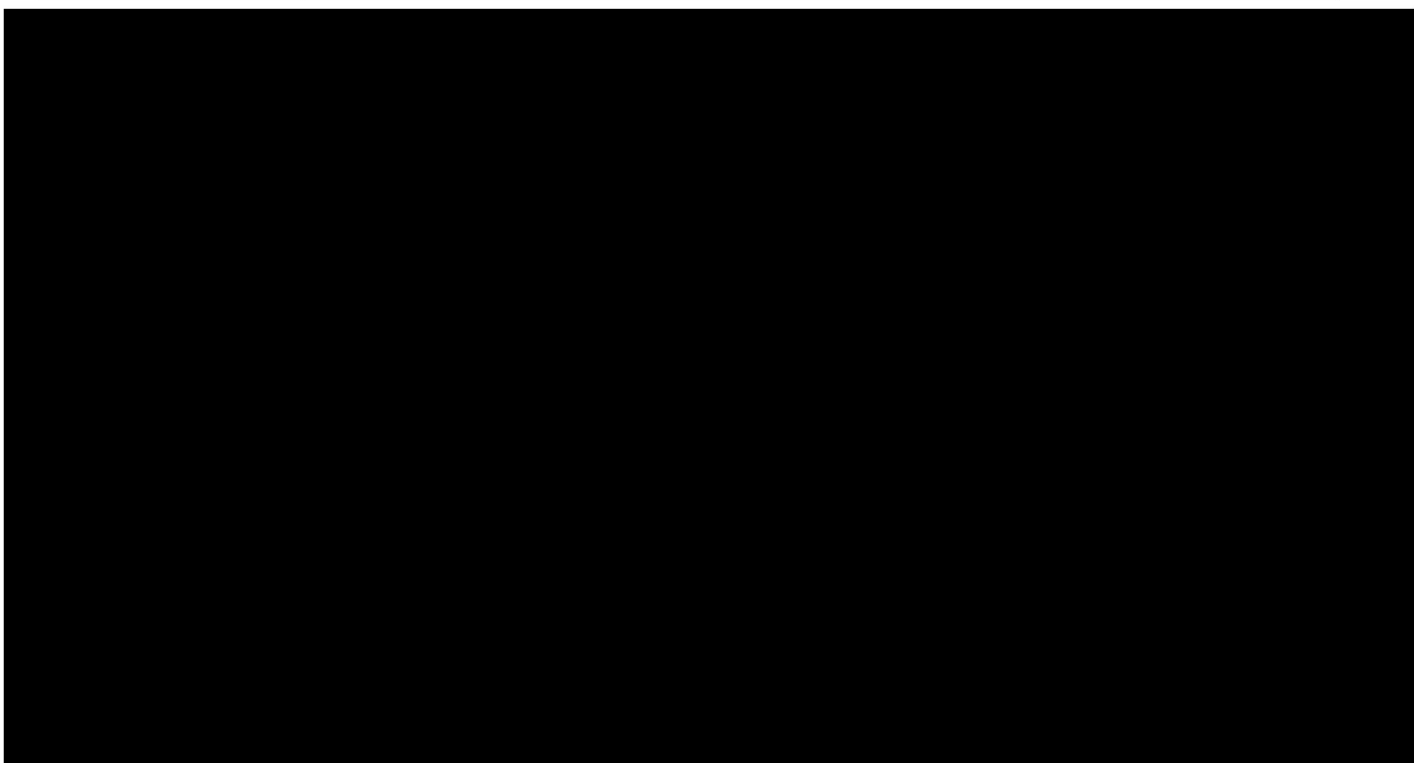
## On-site habitat of ecological importance

<p><b>Element of topic under consideration:</b></p> <p><b>On-site habitat of ecological importance</b></p>	<p>Landscaping elements will focus around habitats of ecological importance and use replacement tree planting, grassland verges, rain gardens and small hedges to form buffer habitats. These will serve to further protect retained habitats from adverse effects such as disturbance, dust, pollution and lighting.</p> <p>The drainage strategy (see <b>Chapter 12 Water Resources, Flood Risk and Drainage</b>) details measures to ensure that surface water drainage does not have significant negative effects relating to pollution upon the water environment, and in turn the ecologically valuable habitats during the operational phase.</p> <p>Traffic-related effects on-site are unlikely due to the site speed limit that will be imposed, and the fact that most new and retained habitats of value are separated from vehicle areas and contained in the northern landscaped area.</p> <p>Visitor pressure upon on-site habitats of value will be managed by construction of designated paths, and management of habitats in a low-intensity way to discourage pedestrians traversing/ entering them.</p> <p>Habitats created during the construction phase on site will be extended and become established, thereby improving the quality, connectivity and volume of ecologically important habitats within the local area.</p> <p>In the absence of mitigation, there would be a <b>negligible</b> effect on on-site habitats.</p>
<p><b>Secondary Mitigation</b></p>	<p>Management of these habitats, as detailed within the respective landscape plans, LMMP and the HMMP for the Proposed Development will result in the new and the retained habitats achieving higher quality (condition) than currently recorded (see also <b>Chapter 13 Landscape and Visual Impact</b>).</p>
<p><b>Residual effects and monitoring</b></p>	<p>As calculated by the BNG assessment (<b>Appendix 9.10</b>), the Proposed Development will achieve a net gain for biodiversity (23 biodiversity units, or 41%).</p> <p>In the medium to long term habitats will further mature, establish and improve.</p> <p>Overall therefore there will be a residual <b>permanent beneficial effect</b> at a <b>Site scale in the medium- to long-term</b> upon habitats of ecological value at the Site.</p>

## Bats

<p><b>Element of topic under consideration:</b></p> <p><b>Bats</b></p>	<p>During the operation of the Proposed Development, new habitats will become established and provide foraging and commuting habitat, and bats will begin to utilise boxes placed within the landscaped areas. Approximately 5ha of suitable new habitat will be created or enhanced including woodland, grassland, standing water and parkland.</p> <p>The HMMP and LMMP management regime has been designed to maximise the invertebrate value of the habitats, e.g. with low-level mowing regimes and avoiding pesticide use. This will create a significant improvement for bats compared to the amenity grassland that dominated the Site prior to development. In particular the additional ponds will contribute to increased invertebrate biomass for bats to feed on.</p> <p>The lighting strategy has been designed to minimise light spill on to retained habitats surrounding the Proposed Development, in particular woodland and waterbodies. Some low-level light spill (warm light) is unavoidable however due to security requirements for a leisure complex.</p> <p>This is only likely to affect low-value habitats immediately adjacent to the Proposed Development buildings such as amenity grassland and hardstanding however. The bat roost encountered on the retained golf club clubhouse is on the north-east side, and so shall be protected from light spill, as well as having commuting habitat</p>
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	<p>retained at the Site boundaries. Any compensatory roost provision on the golf club building would also be protected from car park light spill by new and existing planting at the boundary of the Site between these areas as shown on the landscape general arrangement drawings.</p> <p>In the absence of mitigation there would likely be a <b>negligible</b> effect upon bats, but this would not be guaranteed without monitoring.</p>
<p><b>Secondary Mitigation / Enhancement</b></p>	<p>Secondary mitigation will take the form of monitoring which will inform any further steps required. This will serve to protect the bat populations at the Site in the long term.</p> <p>On at least one occasion in the first five years post-completion, an inspection of the bat boxes will be undertaken by a Natural England (NE) licensed ecologist to record evidence of use by bats and advise on any necessary repairs to be carried out. If a box has not been used for several years in succession, the installation of new alternative boxes (non-integral) shall be considered following the advice of a suitably qualified ecologist, as detailed in the HMMP.</p>
<p><b>Residual effects and monitoring</b></p>	<p>Whilst there will be permanent negative effects relating to increase lighting, in the context of significant habitat enhancement, it is considered that overall <b>effects will be negligible</b>.</p>



### Other mammals

<p><b>Element of topic under consideration:</b></p> <p><b>Other mammals</b></p>	<p>During the operation of the Proposed Development, new habitats will become established and provide foraging and commuting habitat for other mammals including hedgehog and brown hare, as well as refuge and hibernation opportunities.</p> <p>New fencing gaps will allow continued passage of hedgehog and other mammals through the Site and beyond.</p> <p>In the absence of mitigation there would likely be a <b>negligible</b> effect upon other mammals.</p>
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<b>Secondary Mitigation</b>	No specific mitigation is required to protect other mammals during operation of the hotel and leisure complex.
<b>Residual effects and monitoring</b>	Overall there will be <b>negligible residual effects</b> for other mammals at the Site.

## Birds

<b>Element of topic under consideration:</b> <b>Birds</b>	<p>During the operation of the Proposed Development, new habitats will become established and provide foraging and commuting habitat, and birds will begin to utilise boxes placed within the landscaped areas.</p> <p>The planting mixes include fruiting species such as hawthorn, cherries <i>Prunus padus</i> and <i>Prunus avium</i> and rose <i>Rosa arvensis</i> which will also provide fruit to sustain overwintering birds such as fieldfare and redwing (recorded on the Site).</p> <p>In the absence of mitigation there would likely be a <b>negligible</b> effect upon birds.</p>
<b>Secondary Mitigation</b>	<p>Bird boxes will be monitored (from ground level) for usage by the target, or other species during the peak breeding season (April – May inclusive). If no uptake is recorded after three years, new boxes and locations shall be considered. The advice of a suitably qualified ecologist will be sought for this, as detailed in the HMMP.</p> <p>Habitats will be managed in a bird-sensitive manner, as detailed in the HMMP and LMMP.</p>
<b>Residual effects and monitoring</b>	Overall there will be <b>negligible residual effects</b> upon birds.

## Reptiles

<b>Element of topic under consideration:</b> <b>Reptiles</b>	<p>During the operation of the Proposed Development, new habitats will become established and provide foraging and commuting habitat, and reptiles will begin to utilise brush piles and hibernacula placed within the landscaped areas.</p> <p>In the absence of mitigation there would likely be a <b>negligible</b> effect upon reptiles, with the risk of this becoming adverse if not managed correctly.</p>
<b>Secondary Mitigation</b>	<p>The HMMP management regime has been designed to maximise the invertebrate value of the habitats, e.g. with low-level mowing regimes and no pesticide use. This will create a significant improvement for reptiles compared to the amenity grassland that dominated the Site prior to development. The structure of habitats also creates a varied mosaic for reptiles with foraging grounds near to suitable cover.</p> <p>The mowing regime detailed in the HMMP and LMMP is designed to minimise risks to active reptiles by avoiding the active season.</p>
<b>Residual effects and monitoring</b>	Overall there will be a <b>negligible residual effect</b> for reptiles at the Site.

## Amphibians

<p><b>Element of topic under consideration:</b></p> <p><b>Amphibians</b></p>	<p>During the operation of the Proposed Development, new habitats will become established and provide foraging and commuting habitat, and amphibians will begin to use waterbodies and hibernacula placed within the landscaped areas.</p> <p>In the absence of mitigation there would likely be a <b>negligible</b> effect upon amphibians, with the risk of this becoming adverse if not managed and monitored correctly.</p>
<p><b>Secondary Mitigation</b></p>	<p>The HMMP management regime has been designed to maximise the invertebrate value of the habitats, e.g. with low-level mowing regimes and no pesticide use. This will create a significant improvement for amphibians compared to the amenity grassland that dominated the Site prior to development. The structure of habitats also creates a varied mosaic for amphibians with foraging grounds near to suitable cover.</p> <p>The mowing regime detailed in the HMMP is designed to minimise risks to active amphibians by avoiding the active season.</p> <p>The Proposed Development will require population size class monitoring (i.e. via manual methods) of all ponds, every year for ten years following completion. If populations decline (assessed only after at least two years of monitoring), the management regime should be reviewed and adjusted accordingly. For example, if ponds are routinely drying out, consideration will be given to physical alterations to help them maintain water through the season. Monitoring requirements are detailed in the HMMP.</p> <p>In addition, off-site compensation will have maintained the County level population status independent of on-site works.</p>
<p><b>Residual effects and monitoring</b></p>	<p>Overall there will be a <b>negligible residual effects</b> upon amphibians at the Site.</p>

## Invertebrates

<p><b>Element of topic under consideration:</b></p> <p><b>Invertebrates</b></p>	<p>During the operation of the Proposed Development, new habitats will become established and provide foraging, commuting and breeding habitat, and invertebrates will begin to utilise sandy scrapes and waterbodies installed in the landscaped areas.</p> <p>In addition, the planting mix will be more beneficial to local priority species such as white-letter hairstreak.</p> <p>Without management the habitats would not maintain high suitability for invertebrates, and as such a <b>negligible</b> effect would occur.</p>
<p><b>Secondary Mitigation</b></p>	<p>The HMMP management regime has been designed to maximise the invertebrate value of the habitats, e.g. with low-level mowing regimes and no pesticide use. This will create a significant improvement for invertebrates compared to the amenity grassland that dominated the Site prior to development.</p>
<p><b>Residual effects and monitoring</b></p>	<p>Overall there will be residual <b>permanent beneficial effects</b> upon invertebrates at the <b>Site</b> scale due to the significant improvement in area of valuable habitats (and reduction in unsuitable managed amenity grassland).</p>

## 9.7. LIMITATIONS AND ASSUMPTIONS

- 9.7.1. This ES chapter has been prepared on the basis that the recommended ecological mitigation detailed will be designed into the Proposed Development during the detailed design stage.





9.7.2. Any limitations applicable to individual technical surveys are documented within the relevant technical appendices. No limitations significant enough to influence the robustness of the results and analysis of these surveys were encountered.

## 9.8. SUMMARY

9.8.1. The ecological baseline status has been established through desk studies and field surveys. A range of habitats and species were considered in the assessment including:

- On and off-site habitats of conservation importance;
- Bats;
- Badger;
- Other mammals;
- Birds;
- Reptiles;
- Amphibians; and,
- Invertebrates.

9.8.2. The construction phase assessment concluded that:

- There will be significant residual effects to all IEFs in the form of Site-scale short-term temporary direct and indirect effects arising due to the time needed for compensatory habitat to establish.

9.8.3. During the operational phase, habitats and features installed to compensate for loss will become established, and retained enhanced habitats will also develop, off-setting the construction phase losses. Therefore, in summary;

- For most receptors, there will be a negligible residual effect which will occur once new habitats are established.
- Exceptions are on-site habitats of value and invertebrates which will achieve Site-scale positive permanent effects (as evidenced by the biodiversity net gain assessment for habitats).

9.8.4. All residual effects take account of secondary on-site mitigation and compensation measures.

**Table 9.7 - Summary of Effects Table for Biodiversity**

<b>Receptor</b>	<b>Description of Effects</b>	<b>Significance and Nature of Effects Prior to Mitigation / Enhancement</b>	<b>Summary of Mitigation / Enhancement</b>	<b>Significance and Nature of Effects Following Mitigation / Enhancement (Residual)</b>
<b>Construction Phase</b>				
Off-site habitats of ecological importance	<ul style="list-style-type: none"> <li>- Pollution during construction</li> </ul>	<p>Local scale - / P / I or Site scale - / T / ST / I (construction traffic)</p>	<ul style="list-style-type: none"> <li>- Pollution prevention measures</li> <li>- Site fencing/ hoarding</li> <li>- CMP to detail and guarantee measures</li> </ul>	Site scale - / T / ST / I (construction traffic)
On-site habitat of ecological importance	<ul style="list-style-type: none"> <li>- Direct loss</li> <li>- Pollution during construction</li> </ul>	Local scale - / P / D&I	<ul style="list-style-type: none"> <li>- Pollution prevention measures</li> <li>- Site fencing/ hoarding</li> <li>- CMP to detail and guarantee measures</li> <li>- New and enhanced habitats (take time to establish)</li> </ul>	Site scale - / T / ST / D&I
Bats	<ul style="list-style-type: none"> <li>- Direct habitat loss (foraging/ commuting)</li> <li>- Disturbance (noise, light etc)</li> <li>- Habitat degradation (fragmentation/ other alteration)</li> </ul>	Local scale - / P&T / D&I	<ul style="list-style-type: none"> <li>- Protection of retained features</li> <li>- Low level lighting</li> <li>- CMP to detail and guarantee measures</li> <li>- New and enhanced habitats (take time to establish)</li> </ul>	Site scale - / T / ST / D&I



Receptor	Description of Effects	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual)
	<ul style="list-style-type: none"> <li>- Mortality during construction</li> <li>- Loss of foraging habitat</li> <li>- Fragmentation of habitat</li> </ul>		<ul style="list-style-type: none"> <li>- Construction safeguard measures</li> <li>- Sett closure under licence (if applicable)</li> <li>- Measures to be detailed and guaranteed in CMP</li> <li>- New and enhanced habitats (take time to establish)</li> </ul>	
Other mammals	<ul style="list-style-type: none"> <li>- Direct loss (mortality/injury)</li> <li>- Habitat loss and fragmentation</li> <li>- Habitat degradation (pollution, lighting, noise)</li> </ul>	Site scale - / P / D&I	<ul style="list-style-type: none"> <li>- Construction safeguard measures</li> <li>- Measures to be detailed and guaranteed in CMP</li> <li>- New and enhanced habitats (take time to establish)</li> </ul>	Site scale - / T/ ST / D&I
Birds	<ul style="list-style-type: none"> <li>- Direct loss (mortality/injury)</li> <li>- Habitat loss and fragmentation</li> <li>- Habitat degradation (pollution, lighting, noise)</li> </ul>	Local scale - / P / D&I	<ul style="list-style-type: none"> <li>- Construction safeguard measures (including sensitive timing and/or ecologist check)</li> <li>- Measures to be detailed and guaranteed in CMP</li> <li>- New and enhanced habitats (take time to establish)</li> </ul>	Site scale - / T/ ST/ D&I
Reptiles	<ul style="list-style-type: none"> <li>- Direct loss (mortality/injury)</li> <li>- Habitat loss and fragmentation</li> </ul>	Site scale - / P / D&I	<ul style="list-style-type: none"> <li>- Construction safeguard measures (including sensitive timing and/or ecologist check)</li> </ul>	Site scale - / T/ ST/ D&I

Receptor	Description of Effects	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual)
	- Habitat degradation (pollution, lighting, noise)		<ul style="list-style-type: none"> <li>Measures to be detailed and guaranteed in CMP</li> <li>New and enhanced habitats (take time to establish)</li> </ul>	
Amphibians	<ul style="list-style-type: none"> <li>Direct loss (mortality/injury)</li> <li>Habitat loss and fragmentation</li> <li>Habitat degradation (pollution, lighting, noise)</li> </ul>	Local scale - / P / D&I	<ul style="list-style-type: none"> <li>Construction safeguard measures, to be defined by NatureSpace</li> <li>Measures to be detailed and guaranteed in CMP</li> <li>New and enhanced habitats (take time to establish)</li> <li>District-level compensation</li> </ul>	Site scale - / T/ ST/ D&I
Invertebrates	<ul style="list-style-type: none"> <li>Habitat loss and fragmentation</li> <li>Habitat degradation (pollution, lighting, noise)</li> </ul>	Local scale - / P / I	<ul style="list-style-type: none"> <li>Pollution prevention measures</li> <li>Measures to be detailed and guaranteed in CMP</li> <li>New and enhanced habitats (take time to establish)</li> </ul>	Site scale - / T/ ST/ I
<b>Operational Phase</b>				
Off-site habitats of ecological importance	- Traffic-related air pollution	Negligible	- N/A	Negligible



<b>Receptor</b>	<b>Description of Effects</b>	<b>Significance and Nature of Effects Prior to Mitigation / Enhancement</b>	<b>Summary of Mitigation / Enhancement</b>	<b>Significance and Nature of Effects Following Mitigation / Enhancement (Residual)</b>
On-site habitat of ecological importance	- Management and establishment of new and retained habitats	Negligible	- Ongoing ecologically-sensitive management of new habitats	Site scale + / P/ D / MT - LT
Bats	- Management and establishment of new and retained habitats - Monitoring and required interventions	Negligible	- Monitoring of boxes - Any required remediation - Ongoing ecologically-sensitive management of new habitats	Negligible
Other mammals	- Management and establishment of new and retained habitats	Negligible	- N/A	Negligible
Birds	- Management and establishment of new and retained habitats - Monitoring and required interventions	Negligible	- Monitoring of boxes - Any required remediation - Bird-sensitive vegetation management in HMMP - Ongoing ecologically-sensitive management of new habitats	Negligible
Reptiles	- Management and establishment of new and retained habitats	Negligible	- Reptile-sensitive vegetation management in HMMP	Negligible

Receptor	Description of Effects	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual)
Amphibians	<ul style="list-style-type: none"> <li>- Management and establishment of new and retained habitats</li> <li>- Monitoring and required interventions</li> <li>- Off site compensation</li> </ul>	Negligible	<ul style="list-style-type: none"> <li>- Monitoring</li> <li>- Any required remediation</li> <li>- Amphibian-sensitive vegetation management in HMMP</li> <li>- Off-site compensation site management (District-Level Licence)</li> </ul>	Negligible
Invertebrates	<ul style="list-style-type: none"> <li>- Management and establishment of new and retained habitats</li> </ul>	Negligible	<ul style="list-style-type: none"> <li>- Invertebrate-sensitive vegetation management</li> </ul>	Site scale + / P/ D&I / LT

NB: Aspects of the Proposed Development considered as part of the pre-mitigation scenario are summarised above in Section 9.5

Key to table:

+ / - = Beneficial or adverse, D / I = Direct or Indirect, P / T = Permanent or Temporary, ST / MT / LT = Short Term, Medium Term or Long Term, N/A = Not Applicable

● County significance, ● Local significance, ● Site significance, ● Negligible significance