

**Manor Farm, Noke**  
Ecological Appraisal

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# 1 Introduction

## Background to commission

- 1.1 BSG Ecology were commissioned in early November 2019 to carry out a range of surveys on a part of the land in his ownership. This land is located to the north of Noke, Oxfordshire (central grid reference: SP544136). This area was being considered for a solar array development. The surveys included a phase 1 habitat survey, great crested newt eDNA survey, wintering and breeding bird surveys. BSG Ecology compiled a Preliminary Ecological Appraisal provided to Ken Pelton in January 2020, covering the results of the phase 1 habitat survey and the initial findings of the wintering bird surveys which were ongoing. This information was used to form the final design for the solar array.
- 1.2 Surveys were continued in 2020 and 2021 and in December 2020 Oxford New Energy Ltd took over the project to promote the proposals. BSG Ecology were commissioned at this point to compile this Ecological Appraisal of the Site (as shown in Appendix 1). The area covered in the assessment also includes some wider land in the same ownership for contextual information and to identify where areas suitable for enhancement may be present. This wider area and the Site are hereafter referred to as 'the Survey Area' (shown in Figure 1).

## Site description

- 1.3 The Survey Area consists of arable land with large fields in intensive agricultural production, separated by mostly small hedgerows under intense management. The buildings and gardens of Manor Farm and associated dwellings are present in the southern part of the Survey Area. The northern Site boundary is formed by the River Ray, which forms two channels in the vicinity of the Survey Area.
- 1.4 The Survey Area is bordered largely by similar arable land, with the exception of the Otmoor RSPB Reserve, located to the east, which supports mostly grazed flood meadows and more established and larger scrubby hedgerows.
- 1.5 The Site is all areas of the Survey Area where construction is required, this includes all solar arrays, infrastructure and created access tracks.

## Description of project

- 1.6 BSG Ecology were provided with a layout proposal for the Site on 12 January 2021 which is included in Appendix 1. The proposal for the Site include solar arrays in three fields in the northern central part of the Survey Area. Access will be via the existing farm track which runs past Manor Farm to the Site.

## Scope of Study

- 1.7 This Ecological Appraisal report brings together the results from the desk study and field surveys and assesses any potential impacts that may arise as a result of the proposed development. Recommendations are made to ensure that the proposed development complies with planning policy and legislation in relation to protected species, habitats and designated sites.
- 1.8 As this report includes information on the presence of badger *Meles meles* setts and barn owl nest boxes, it must be considered confidential and to be circulated only within the project team and for use as part of consultation with statutory consultees. It should not enter the public domain. A Non-confidential version has been submitted without this confidential information which can be entered into the public domain.

## 2 Methods

### Desk study

- 2.1 A data search has been carried out with Thames Valley Environmental Records Centre (TVERC). This included a search for records of all protected or notable species and non-statutory sites within 2 km of the Survey Area boundary. The legislation pertaining to species and relevant policy is set out in Appendix 2.
- 2.2 A search of available online interactive mapping database (MAGIC.gov mapping) was used to determine what statutory sites are present and whether any European Protected Species Mitigation (EPSM) licences have been granted within 2 km of the Survey Area.
- 2.3 This mapping and aerial photography (Google Maps) were also used to search for ponds or water bodies within 500 m of the Survey Area boundary to determine whether great crested newts *Triturus cristatus* might be present.

### Field survey

#### **Extended Phase 1 Habitat Survey**

- 2.4 A Phase 1 habitat survey of the Survey Area and adjacent habitat was conducted by John Baker MCIEEM, Senior Ecologist at BSG Ecology on 25 November 2019. John Baker has over 14 years' experience in the environmental sector and in professional ecological consultancy. He has extensive experience of Phase 1 habitat surveys and assessing potential for habitats to support protected or notable species (see <https://www.bsg-ecology.com/people/> for further information).
- 2.5 Habitats within the Survey Area were identified, described and mapped based on industry standard Phase 1 habitat survey methodology, as detailed in the Phase 1 Habitat Survey Handbook (JNCC, 2010). The survey was 'extended' to include an assessment of the potential of the Site to support protected species.
- 2.6 An additional extended Phase 1 habitat survey visit was carried out by John Baker on 14 July 2021 targeting the small island of land in the River Ray in the northern part of the Site which could not previously be directly accessed for surveys.
- 2.7 During the March visits to the Site, update walkovers of the habitats present were carried out to ensure the assessment below is based on up to date information.

#### **Winter bird surveys**

- 2.8 Winter bird surveys were also carried out twice a month between November 2019 and March 2020 inclusive. These surveys covered the entire Survey Area and adjacent fields where visible from the Survey Area. The surveyors walked the Survey Area at a slow pace recorded all waders and wildfowl which were the focus of the surveys. Additionally, birds of prey were recorded and any flocks of Red-listed birds (Eaton *et al.*, 2015) or Species of Principal Importance (SPIs) as defined by the NERC Act 2006 (Section 41).
- 2.9 All waders and wildfowl were counted and noted on a field map and activity logged. Any large flocks of notable passerines were also noted. This data was then collated to detect any regular use of certain areas or whether certain species used the Survey Area and in particular the Site more frequently.
- 2.10 Following consultation with the RSPB in relation to the Otmoor reserve 2021, additional nocturnal wintering bird surveys were conducted between October 2021 and March 2022 inclusive. These survey visits were carried out twice a month, with the exception of October 2021 where only one survey visit was carried out, but three visits were carried out in November 2021 to compensate. One of the surveys per month was carried out in the evening (starting a minimum 30 minutes after sunset) and the other was carried out in the morning (finishing a minimum of 30 minutes before sunrise).

- 2.11 Each visit was led by an experienced ornithological surveyor with previous experience of nocturnal bird surveys. Surveyors were equipped with a thermal imaging video camera (FLIR T650sc) with a 7-degree lens in order to locate birds via their heat signature. The surveyors walked the Site at a slow pace, scanning from key vantage points with the thermal camera. All waders and wildfowl were recorded, with a particular focus on night-time use of the arable fields by lapwing *Vanellus vanellus* and golden plover *Pluvialis apricaria*.
- 2.12 Identification of target species was made by watching the live thermal imaging footage in the camera viewfinder screen, examining individual heat signatures and noting key details of size, shape and movement behaviour. Surveyors also listened for alarm and contact calls to confirm identification where possible. Where appropriate, surveyors walked into fields to investigate heat signatures more closely or watched individual signatures for an extended period of time until distinctive features were revealed. Where a bird was unidentified, footage was recorded for subsequent review.
- 2.13 Care was taken to avoid flushing birds and thus to avoid double-counting, with the direction of birds in flight and calling (or flying birds in the thermal camera viewfinder screen) noted, with particular emphasis on avoiding repeat counting flushed birds in subsequently-visited fields.

#### ***Breeding bird surveys***

- 2.14 A breeding bird characterisation survey was carried out consisting of three visits, with one per month in April, May and June 2020 respectively. During these, the surveyor walked the Site and all particular features of interest to breeding birds (such as woodland and hedgerows) at a slow pace. Frequent stops were made adjacent to and within woodland plots to listen and scan for singing and calling birds. Large open fields were covered either from the edges, through direct observation, or crossed by the surveyors. Birds observed beyond the boundary of the Site were also noted in order to contextualise the information gained.
- 2.15 Bird locations were mapped and behaviour recorded using standard British Trust for Ornithology (BTO) codes and symbols on field maps during each survey. The maps obtained as a result of the three visits were then collated to produce a single territory map. These were carried out on 17 April 2020 by John Baker and 12 May and 16 June 2020 by Dr Phillip Chapman, both experienced field ornithologists. During all visits, the weather conditions were suitable for breeding bird surveys, with no rain or winds exceeding Force 5 on the Beaufort Scale. The surveys were started shortly after dawn and concluded before 11am.

#### ***eDNA surveys for great crested newt***

- 2.16 On 29 June, John Baker (who holds a Natural England great crested newt survey license – No: 2016-22258-CLS-CLS) carried out sampling of Ponds 1 and 2. The samples were collected following the recommended method set out in Biggs *et al.* (2014). The samples were sent for analysis to SureScreen Scientifics. The ponds further afield were not accessed due to permission not having been obtained. However, these (Ponds 3 and 4) are beyond 250 m from the construction footprint of the solar array and the proposed landscaping areas. They are located within 250 m, but over 200 m from the proposed construction access track and maintenance tracks, but abundant suitable habitat is present between these and the proposed works areas as are areas of existing development including gardens and minor roads, therefore any newts breeding there would be highly unlikely to occur in the works area. Therefore, survey data from these off site ponds is not required to carry out the assessment of impacts to this species.

#### **Biodiversity Gain**

- 2.17 The impacts of the proposals of the scheme on the overall biodiversity value of the Site have been assessed through the use of the Defra 3.0 metric. This requires the existing habitats to be measured, classified and evaluated with a similar process being carried out for the proposed habitats.
- 2.18 The result of this assessment is presented in parallel to the wider ecological assessment.

**Limitations to methods**

- 2.19 The time of year in which the Phase 1 habitat survey was carried out is outside the optimal period for these surveys, typically described as being between March and October. However, given the mild weather which had been recorded up to this point and the low value habitats which dominate the Site this is not considered to be a significant limitation to this survey or assessment. During subsequent visits, the habitats which had been identified were confirmed and no significant change to the habitat types or their condition was noted.
- 2.20 The method described above for nocturnal wintering bird surveys was designed to maximise identification and counting of nocturnal birds using the Site, although such surveys necessarily produce less exact counts and identification than diurnal surveys. Although birds in fields are easily distinguishable from nocturnal mammals, there is a possibility that presence of individuals of some species was missed (particularly other waders tagging along with lapwing flocks). The results reported in this study are therefore an indication of minimum presence of bird species and numbers using the Site. Nevertheless, large flocks were generally readily identified, and any errors in identification or recording are likely to have affected only small numbers of individuals. This limitation is not considered likely to have significantly affected the conclusions of this report.
- 2.21 Due to poor weather conditions in late October 2021, one October visit was moved to early November. This is unlikely to have resulted in any significant shortfalls in the data or subsequent assessment.
- 2.22 The survey data originally gathered between late 2019 and summer 2020 (including badger surveys, winter bird diurnal surveys and breeding bird surveys) are now two years old. However, during the site visits in March 2022, no significant changes to the habitats within the Site were noted. Therefore, it is BSG Ecology's opinion that this information still allows for a robust assessment of the likely impacts. Furthermore, additional badger surveys are recommended to ensure any new setts are detected prior to development.
- 2.23 There were no other significant limitations identified to this or any of the other surveys.



### 3 Results and Interpretation

#### Desk Study

- 3.1 The following section sets out the data received from TVERC pertaining to non-statutory sites and the information gained on statutory sites. The records of notable or protected species are discussed in the relevant sections below.

#### Statutory Sites

- 3.2 There are no statutory sites within or adjacent to the Survey Area. There are however two statutory sites within 2 km of the Survey Area. Table 1 below summarises the information gained for these.

Table 1: Statutory site information and position in relation to the Survey Area.

Site Name	Description	Distance from Survey Area and direction
Woodeaton Wood Site of Special Scientific Importance (SSSI)	This includes a relic of the Shotover Forest and is noted for the occurrence of several uncommon plants and for its coppice with standards.	1.2 km south of Survey Area
Otmoor SSSI	This SSSI supports a large area of low lying land on the flood plain of the River Ray. This is the core of what was an extensive area of wetland flooded in winter and managed as grazing marsh. It is known for its flora, invertebrate community and bird community, including numerous wintering birds and breeding waders.	1.5 km east of the Survey Area

- 3.3 There is also one Geological SSSI (Woodeaton Quarry SSSI) within 2 km but as is not notified for ecological features, is not considered within this assessment.

#### Non-statutory Sites

- 3.4 There are ten non-statutory designated sites within 2 km of the Survey Area. One site, The Otmoor Conservation Target Area (CTA) covers the north-eastern portion of the Site as shown in Figure 2. The information gained for these is summarised in Table 2 below.

Table 2: Non-statutory site information and position in relation to the Survey Area.

Site Name	Description (taken from citations where available)	Distance from Survey Area and direction
Otmoor CTA	This CTA includes the wet low lying Otmoor basin. This is intended to help deliver Oxfordshire Biodiversity Action Plan (BAP) targets for floodplain grazing marsh, lowland meadow, reedbed, hedgerows, lowland fen and river habitats.  It supports two thirds of the breeding waders on the Upper Thames tributaries and other species such as turtle dove <i>Streptopelia turtur</i> .	Covers the north-east section of Survey Area and Site and extends south-east and north-east.

Otmoor Local Wildlife Site (LWS) and RSPB reserve	The Otmoor LWS is also an RSPB reserve and includes a large area of land reverted to wet meadows, blackthorn <i>Prunus spinosa</i> scrub, hedges and reedbed. The wet grassland and scrapes include a range of less common plants such as narrow-leaved water plantain <i>Alisma gramineum</i> orange foxtail <i>Alopecurus aequalis</i> , common stonewort <i>Chara vulgaris</i> and bristly stonewort <i>Chara hispida</i> . It supports notable numbers of wintering wildfowl and waders as well as breeding turtle dove <i>Streptopelia turtur</i> and breeding waders including lapwing, redshank <i>Tringa totanus</i> and snipe <i>Gallinago gallinago</i> .	Adjacent to eastern Survey Area boundary.
Prattle Wood LWS	This site is an ancient woodland dominated by ash <i>Fraxinus excelsior</i> with good ground flora. Its interest also includes invertebrates such as butterflies and beetles.	105 m south of the Survey Area.
Islip Millennium Woods Proposed Cherwell District Wildlife Site	This is a small community woodland south of Islip with open access for the public.	800 m west of the Survey Area.
North Otmoor Proposed Cherwell District Wildlife Site	This site supports low lying meadows with floodplain grazing marsh which is botanically rich.	1.3 km north-east of the Survey Area.
Oxford Heights CTA	This site lies south of Otmoor covering the escarpment from Elsfield to Stanton St. John and the land below. It was identified to help deliver Oxfordshire BAP targets associated with lowland mixed deciduous woodland, fens, lowland meadow, arable field margins, limestone grassland and lowland dry acid grassland.	1.6 km south of the Survey Area.
Meadows near Charlton on Otmoor LWS	This site supports two wet hay meadows with a species rich of meadow species typical of lowland meadow.	1.7 km north-east of the Survey Area.
Noke Wood and Sling Copse LWS	This site includes ancient woodland bounded by a medieval wood bank. This supports a diverse community of canopy and scrub species as well as good ground flora community.	1.8 km south-east of the Survey Area.
Small Meadow, north Otmoor LWS	This site supports a small wet hay meadows bounded by hawthorn <i>Crataegus monogyna</i> and blackthorn hedgerows with trees.	1.9km north-east of Survey Area.

## Field Survey

### Habitats

3.5 Table 3 below sets out the habitats recorded within the Survey Area. These habitats are mapped in Figure 3.

*Table 3: Habitats recorded within the Survey Area.*

Habitat	Description
Buildings and hardstanding	<p>The Survey Area included a number of buildings associated with Manor Farm (see Photographs 1 and 2), including several inhabited multi-storey buildings and several single-storey barns. The construction largely consists of Cotswold stone or Cotswold stone dressing over cement blocks. The rooves are largely slate tiles.</p> <p>These are associated with several drives which are largely hard standing or compact gravel.</p> <p>There are no buildings within the Site itself.</p>
Amenity grassland, standard trees and introduced shrub.	<p>The gardens around Manor Farm and nearby residential properties consist mostly of amenity grassland and garden planting, including introduced shrubs.</p> <p>Large mature standard trees are also present, especially in the southern gardens of the main Manor Farm property. These included ornamental mature cedars and silver birch <i>Betula pendula</i>.</p>
Orchard	<p>A small area of orchard (see Photograph 3) is present to the south-east of Manor Farm. This measures approximately 0.16 ha and supported a mix of more established and younger trees (approximately 20 years old).</p> <p>The ground flora below appears to be regularly mown grass, dominated by perennial rye <i>Lolium perenne</i> and Yorkshire fog <i>Holcus lanatus</i>.</p>
Arable land	<p>The majority of the Site and Survey Area consists of arable farm land (see Photograph 4). This is largely in intensive agricultural management with very few field margins over 1m. During the surveys, most of these were either bare having recently been ploughed or stubble with brassica growth.</p>
Hedgerows	<p>The fields within the Survey Area and Site are largely bordered by hedgerows in intensive management. Many of these have a ditch associated with their base and trees, though in most cases the latter are few and far between. Generally the hedgerows are intact, though in places these are likely to have been in part removed and in others have substantial gaps. The species recorded included blackthorn, hawthorn, wych elm <i>Ulmus glabra</i>, field maple <i>Acer campestre</i>, goat willow <i>Salix caprea</i>. The mature trees associated with the hedgerows included ash and pedunculate oak <i>Quercus robur</i>. Other woody species recorded included dog rose <i>Rosa canina</i>, and bramble <i>Rubus fruticosus</i>. The bases of most of the hedgerows had very limited ground flora with common nettle <i>Urtica dioica</i>, and cleavers <i>Gallium aparine</i> and great willowherb <i>Epilobium hirsutum</i> in wetter areas associated with ditches.</p> <p>One section is more species rich with at least six woody species within the same 30 m section.</p> <p>In two locations, two hedgerows border tracks and shallow ditches, forming more significant linear features (see Photograph 5). These run north and west from Manor Farm. The western track terminates in what may be a historic section of double hedgerow which can now be considered a woodland belt (see below) as the track has not been cleared in a long time.</p>

Habitat	Description
	An area of rubble and stored building materials is present where the track terminates (TN3 – Photograph 6).
Semi-natural broadleaved woodland	<p>Small sections of woodland are present within the Survey Area or along its boundaries. The track which runs to the western side boundary terminates in a section of woodland which has a canopy and scrub layer but very poor ground flora, possibly due to the dense canopy cover. This section was dominated by mature blackthorn, ash and field maple.</p> <p>The ditch on the north-eastern corner of the Survey Area runs within a mature dense stand of blackthorn and goat willow with occasional mature oak. Given the height and density of the vegetation in this area, it has been considered woodland.</p> <p>Much of the northern boundary of the Survey Area supports a strip of semi-natural broad-leaved woodland along the southern channel of the Ray and on the narrow island present here (see below).</p>
Pond	<p>There are no ponds within the Site, but there is one pond (Pond 2) to the north-east of Manor Farm (see Photograph 7) and measures approximately 20 x 10 m. It looked to have a depth of approximately 1 m at the deepest point. It is heavily vegetated with lesser bulrush <i>Typha angustifolia</i>, yellow iris <i>Iris pseudacorus</i> and common nettle. The margins were shaded over approximately 20% of the pond perimeter by bramble stands.</p> <p>There are three other ponds within 250 m of the Survey Area boundary. Figure 2 shows the location of these. There are also a number of other water bodies present within 250 m. These consist of a network of ditches, some of which offer seasonally available standing water. These are also shown in Figure 2 with reference numbers. Pond 8 was also visited during the phase 1 habitat surveys and consists of a ditch along the margins of a track. The findings of this are discussed in the sections covering amphibians below. The remaining water bodies were not accessed fully during the surveys due to access constraints.</p>
Ditches	As mentioned above, many of the hedgerows within the Survey Area have ditches associated with them. The survey was carried out after a period of wet weather and many supported good water levels and a good flow, however they are largely shallow (with a total depth of approximately 70 cm) and are narrow and in most places heavily vegetated with species such as common nettle, reed sweet-grass <i>Glyceria maxima</i> and great willowherb. Those along the northern part of the eastern site boundary are more substantial and were flooding into the arable land adjacent to them on several occasions during the 2019-20 winter period.
River	The northern boundary of the Site is dominated by the channel and associated banks of the River Ray (see Photograph 8). Where this runs past the Site, the channel is 8-10 m wide. Along the western part of the northern boundary, the channel is mostly open with both marginal vegetation and vegetation on the steep banks present, such as fool's water cress <i>Apium nodiflorum</i> , great willowherb, great burdock <i>Arctium lappa</i> and common nettle. At the western end of the stretch passing the Site, large veteran white willow <i>Salix alba</i> are also present.

Habitat	Description
Species-poor semi-improved grassland island on River Ray	There is an island in the northern part of the Site which sits between the River Ray and the New River Ray. This supports a large area of species-poor semi-improved grassland. This was cut at the time of the survey carried out in this area but the sward was dominated by grasses with few herb species present at very low densities including meadowsweet <i>Filipendula ulmaria</i> , common knapweed <i>Centaurea nigra</i> , common dock <i>Rumex obtusifolius</i> and common nettle <i>Urtica dioica</i> .

3.6 Of the habitats above, the following can be considered Habitat of Principal Importance (HPI) as defined Section 41 of the Natural Environment and Rural Communities Act 2006 and based on habitat descriptions for broad habitats (Maddock, 2011):

- Orchard – this habitat may meet the definition of ‘Traditional Orchard’ however is it very limited in size (approximately 0.16 ha), most trees are young and the ground vegetation is not managed through grazing.
- Pond.
- Hedgerows – the majority are species poor but are dominated by native species. All intact hedgerows (including species rich and species poor stretches) should be considered HPIs within this Site. Defunct hedgerows are also present but are unlikely to qualify as HPIs.
- Semi-natural broad-leaved woodland.
- River.

**Protected and Notable Species**

3.7 Great crested newt and wintering and breeding birds are discussed in detail in relation to the survey findings. Table 4 summarise the potential for or evidence of presence of other protected and notable fauna. The results of the data search are also summarised here as relevant. A summary of relevant legislation is also given.

Table 4: Summary of evidence of or potential for protected and notable fauna to be present within the Survey Area and Site.

Species	Description
Badger	<p>TVERC returned 14 records of badgers. Most records were over 10 years old, but a recent record (2017) was returned for the species in Prattle Wood which is located 105 m south of the Survey Area.</p> <p>During the extended Phase 1 habitat survey, badger evidence was noted including four setts. The information on these is given in Confidential Appendix 3. None are located within the Site or adjacent to any proposed access routes.</p> <p>The field margins, hedgerows and woodland, and to a lesser extent the arable land, offer suitable foraging for this species.</p> <p>Badgers are protected under the Protection of Badgers Act 1992.</p>
Brown hare <i>Lepus europaeus</i>	<p>TVERC returned 147 records of brown hare for the search area, though the majority of these records arise from the Otmoor RSPB reserve.</p> <p>The Survey Area and the Site includes habitats suitable for the species including the (albeit limited) rough grassland hedgerow bases and open arable land with minimal disturbance. The species does tend to prefer permanent grassland however and the arable land is considered suboptimal habitat for this species.</p> <p>One brown hare was noted within the Site during a winter bird survey on 19 December 2019.</p> <p>Brown hare is an SPI.</p>
Otter <i>Lutra lutra</i>	<p>TVERC returned 61 records of otter for within the search area. The majority were of spraints and many were from the Otmoor reserve but a number were also associated with the River Ray.</p> <p>The River Ray on the northern boundary and associated ditches are likely to support the species. The smaller ditches further from the Ray and western boundary are less likely to be used by the species regularly, but occasional foraging is possible.</p> <p>Otter is fully protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and Wildlife and Countryside Act 1981 (as amended). It is also an SPI.</p>
Water vole <i>Arvicola amphibius</i>	<p>TVERC returned six records of water vole, all of which were within the Otmoor RSPB Reserve.</p> <p>The River Ray and large ditches associated with it are likely to support the species in suitable habitats (i.e. where scrub coverage is lowest and marginal and aquatic vegetation is present). The species may occasionally disperse further afield along smaller seasonally wet ditches. This includes the ditch on the southern boundary of the north-eastern field. The remaining ditches within the Site are unlikely to</p>

Species	Description
	<p>support the species as they are only seasonally wet and largely shaded.</p> <p>Water voles are fully protected under the Wildlife and Countryside Act 1981 (as amended). It is also an SPI.</p>
Polecat <i>Mustela putorius</i>	<p>TVERC did not return any records of polecat but the species is present in Oxfordshire. The hedgerows and woodland habitats may support this species. The rabbit <i>Oryctolagus cuniculus</i> and small mammals present offer a suitable source of prey.</p> <p>Polecat is an SPI.</p>
Harvest mouse <i>Micromys minutus</i>	<p>TVERC returned three records of harvest mouse within the search area.</p> <p>This species may occur in the hedgerow bases year-round and use arable crops, such as wheat, when these are available. No extensive areas of permanent rough grassland are present therefore if present this species is only likely to be in small numbers.</p> <p>Harvest mouse is an SPI.</p>
Hedgehog <i>Erinaceus europaeus</i>	<p>TVERC returned a single record for hedgehog, located in Islip.</p> <p>The Survey Area and Site include good habitats for the species. The Site itself is largely suboptimal habitats, though the hedgerows may be used. The better habitats are present in the wider Survey Area, including the woodland and gardens of Manor Farm, which offer year-round shelter and foraging. Overall the species is likely to be present but in small numbers and mostly within the southern part of the Survey Area.</p> <p>Hedgehog is an SPI.</p>
Dormouse <i>Muscardinus avellanarius</i>	<p>TVERC returned no records for dormouse, though this species is highly under-recorded.</p> <p>The Survey Area as a whole supports several habitats suitable for the species, including hedgerows and woodland. The former are however intensively managed and are likely to be of low value for the species. The suitable habitats within the Survey Area are however well connected to other suitable habitats in the wider landscape therefore the species' presence cannot be ruled out.</p> <p>The dormouse is fully protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and Wildlife and Countryside Act 1981 (as amended). It is also an SPI.</p>
Bats	<p>TVERC returned a total of 53 records of bats for the search area. This included several species including: common pipistrelle <i>Pipistrellus pipistrellus</i>, soprano pipistrelle <i>Pipistrellus pygmaeus</i>, brown long-eared bat <i>Plecotus auritus</i>, noctule bat <i>Nyctalus noctula</i> and several not identified to species level. Three EPSM licences have been granted for bats in the settlement of Woodeaton, all of which are over 1.8 km from the Site.</p> <p>The Survey Area supports several linear features suitable for commuting and foraging such as hedgerows. Where these are associated with parallel hedgerows (forming a double hedgerow) and ditches their value for bats increase and they also offer better foraging habitats. The edges of woodlands are also likely to offer good foraging</p>

Species	Description
	<p>habitats. The River Ray channel and associated trees and scrubs is also likely to offer good foraging habitats for a range of species. The Survey Area as a whole is not well lit, which increased its value for a range of species. However the dominant habitat, open arable land, is likely to be of limited value for all species.</p> <p>The buildings at Manor Farm and several trees, either standards or within hedgerows across the Survey Area, are likely to support suitable roost features for a range of species.</p> <p>Bats are fully protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and Wildlife and Countryside Act 1981 (as amended). Several are also SPIs.</p>
Reptiles	<p>TVERC returned five records of common lizard <i>Zootoca vivipara</i> and 32 of grass snake <i>Natrix natrix</i>. Almost all these were from the Otmoor RSPB Reserve.</p> <p>The Survey Area and Site include some habitats with the potential to support grass snake, such as vegetated well connected ditches, a pond and the River Ray corridor. The hedgerow bases may offer additional foraging habitat but these are generally narrow and are not optimal habitat. The large rubble pile (TN1) is likely to offer suitable shelter and hibernation habitat for these species. Low numbers of this species are likely to be present across the Survey Area and the Site.</p> <p>Common lizard does not typically occur in large numbers in the sorts of habitat within the Survey Area. The hedgerows bases are generally quite narrow though they are not completely unsuitable. It is therefore likely that common lizard is absent or present only in very low numbers within the Survey Area.</p> <p>The Survey Area is highly unlikely to support other reptile species such as slow worm <i>Anguis fragilis</i> or adder <i>Vipera berus</i> due to the habitats present.</p> <p>All the widespread species of reptile (common lizard, grass snake and slow worm) are fully protected under the Wildlife and Countryside Act 1981 (as amended) and all these are SPIs.</p>
Invertebrates	<p>TVERC returned a number of records for notable invertebrates. However the majority of the Survey Area supports habitats which are likely to support very poor invertebrate communities due to the intensive nature of the agricultural use. The hedgerows (especially double hedgerows), woodland and orchard areas are the most valuable habitats with respect to invertebrates. The pond and River Ray may also support aquatic invertebrate communities. There are numerous records locally of black hairstreak <i>Satyrium pruni</i> and brown hairstreak <i>Thecla betulae</i> butterflies, both of which are SPIs whose larval foodplant is blackthorn. Blackthorn is frequent within the hedgerows and these species are potentially therefore present, though the intensive management of most of the hedgerows is likely to limit the numbers present.</p>
Floral species	<p>TVERC returned records for 86 species of plants, with six SPIs. However the majority of the habitats present are unlikely to support notable floral communities due to the intensive agricultural management and are considered common, widespread and of limited diversity, though some are HPIs.</p>



**Great crested newts and amphibians**

- 3.8 TVERC returned records of great crested newt (17 records – none within 1.6 km of the Survey Area) and common toad *Bufo bufo* (12 records) as well as for other (not fully protected) amphibian species.
- 3.9 There are no ponds within the Site, but there is one (Pond 2) within the Survey Area. There are three other ponds within 250 m of the Survey Area boundary. Pond 1 is located within 80 m of the Site while the remaining ponds are located further afield. Figure 2 shows the location of all ponds.
- 3.10 In addition to the ponds, there are also a number of other waterbodies present within 250 m. These consist of a network of ditches, some of which offer seasonally available standing water. These are also shown in Figure 2 with reference numbers. The remaining waterbodies were not accessed fully during the surveys due to access constraints.
- 3.11 The majority of the ditches in the Survey Area or adjacent to it seem to be only seasonally wet and have a good flow, making them less suitable for use by most amphibians for breeding.
- 3.12 Further ponds are also present within 500 m but these are either beyond the road to the south-east of the Survey Area or north of the River Ray, though some are also present to the east within the Otmoor CTA. Given the low suitability of the habitats present within the Site and Survey Area generally, it is highly unlikely that any individuals of great crested newt breeding in these would occur on Site.
- 3.13 Pond 2, located within the Survey Area, is located approximately 35 m east of the Site, set within the gardens of Manor Farm. This is suitable to support all the amphibians for which records exist locally. The eDNA survey of this pond revealed that great crested newt is present within this pond.
- 3.14 Pond 1, located approximately 55 m from the Site near the centre of the Survey Area but outside the Site, is well vegetated and located in suitable habitat to be used by amphibians (including scrub and hedgerows). The eDNA survey of this pond also confirmed great crested newt is present here.
- 3.15 Areas of the Site are within 250 m of Ponds 1 and 2 and therefore great crested newts from these ponds may occur in suitable terrestrial habitats (such as hedgerows and woodland) within these parts of the Site. The arable land is likely to be of very limited value for all amphibian species but occasional foraging and commuting may occur there.
- 3.16 The large rubble pile (TN1), is located 450 m from the nearest pond but is likely to offer suitable shelter and hibernation habitat for these species. Hedgerow bases may also be used, especially in drier parts of the Survey Area where overwinter flooding is less likely to kill hibernating individuals.
- 3.17 Common toad may breed in Ponds 1 and 2 and may use terrestrial habitats (such as hedgerow, woodland and scrub) across the Site.
- 3.18 Great crested newt is fully protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and Wildlife and Countryside Act 1981 (as amended). Common toad is an SPI and the remaining species are not protected or SPIs.

**Birds**

- 3.19 TVERC returned over 30,000 bird records from 148 species, including several notable species (such as Red-listed IN THE Birds of Conservation Concern BoCC {Eaton *et al.*, 2015} and SPIs) present within 2 km of the Survey Area. This is largely due to the presence of the Otmoor RSPB Reserve adjacent to the Site to the east.
- 3.20 All birds wild birds, their nests, eggs and young are protected under the Wildlife and Countryside Act 1981 (as amended) and certain species listed under Schedule 1 receive additional protection against disturbance at or near the nest site.

## Breeding Birds

3.21 Table 5 below sets out the number of territories recorded during the 2020 breeding bird characterisation survey as shown in Figure 4.

Table 5 – species recorded, number of territories and conservation status.

BTO code	Species	Scientific name	Estimated number of territories	SPI	BoCC <sup>1</sup>
B	Blackbird	<i>Turdus merula</i>	17		G
BC	Blackcap	<i>Sylvia atricapilla</i>	14		G
BF	Bullfinch	<i>Pyrrhula pyrrhula</i>	1	Y	A
BT	Blue tit	<i>Cyanistes caeruleus</i>	9		G
BZ	Buzzard	<i>Buteo buteo</i>	1		G
CC	Chiffchaff	<i>Phylloscopus collybita</i>	4		G
CH	Chaffinch	<i>Fringilla coelebs</i>	11		G
CK	Cuckoo	<i>Cuculus canorus</i>	1	Y	R
CW	Cetti's Warbler	<i>Cettia cetti</i>	3		G
D	Dunnock	<i>Prunella modularis</i>	13	Y	A
GO	Goldfinch	<i>Carduelis carduelis</i>	1		G
GR	Greenfinch	<i>Chloris chloris</i>	2		G
GS	Great spotted woodpecker	<i>Dendrocopos major</i>	2		G
GT	Great tit	<i>Parus major</i>	4		G
HM	House martin	<i>Delichon urbicum</i>	1		A
HS	House sparrow	<i>Passer domesticus</i>	1	Y	R
K	Kestrel	<i>Falco tinnunculus</i>	1		A
LI	Linnet	<i>Linaria cannabina</i>	7	Y	R
LT	Long-tailed tit	<i>Aegithalos caudatus</i>	1		G
LW	Lesser whitethroat	<i>Sylvia curruca</i>	3		G
MH	Moorhen	<i>Gallinula chloropus</i>	2		G
P	Grey partridge	<i>Perdix perdix</i>	1	Y	R

<sup>1</sup> G= Green. A= Amber R=Red lists

BTO code	Species	Scientific name	Estimated number of territories	SPI	BoCC <sup>1</sup>
PW	Pied wagtail	<i>Motacilla alba</i>	1		G
R	Robin	<i>Erithacus rubecula</i>	10		G
RB	Reed bunting	<i>Emberiza schoeniclus</i>	9	Y	A
RW	Reed warbler	<i>Acrocephalus scirpaceus</i>	3		G
S	Skylark	<i>Alauda arvensis</i>	18	Y	R
SL	Swallow	<i>Hirundo rustica</i>	1		G
ST	Song thrush	<i>Turdus philomelos</i>	11	Y	R
SW	Sedge warbler	<i>Acrocephalus schoenobaenus</i>	6		G
TC	Treecreeper	<i>Certhia familiaris</i>	1		G
WH	Whitethroat	<i>Sylvia communis</i>	25		G
WP	Woodpigeon	<i>Columba palumbus</i>	3		G
WR	Wren	<i>Troglodytes troglodytes</i>	38		G
WW	Willow warbler	<i>Phylloscopus trochilus</i>	1		A
Y	Yellowhammer	<i>Emberiza citrinella</i>	14	Y	R
YW	Yellow wagtail	<i>Motacilla flava</i>	2	Y	R

- 3.22 Additionally, red kite *Milvus milvus* (a Schedule 1 species) was recorded in flight and foraging, but no nests were recorded. Other species recorded but within no evidence of breeding included carrion crow *Corvus corone*, magpie *Pica pica* and Jay *Garrulus glandarius*.
- 3.23 Cetti's warbler (a Schedule 1 species) was recorded on the eastern edge of the Survey Area and is likely to nest in the scrub here. A box for barn owl *Tyto alba* (also a Schedule 1 species) was noted within the Survey Area. This is away from the proposed works, but due to the confidential nature of this information, its location is only given in Confidential Appendix 4. No obvious signs of previous occupation or nesting were recorded during the breeding bird and wintering bird surveys but the box was not directly accessed. One dead individual was found in the south-western field of the Survey Area.
- 3.24 Overall, the breeding bird community is mainly common and widespread species but does include a range of SPIs associated with farmland habitats including skylark, linnet and bullfinch. Other SPIs which are more ubiquitous and occur in a wider range of habitats include song thrush and dunnock.
- 3.25 The Survey Area and the Site are however unsuitable to support nesting waders such as redshank and snipe, known to breed within the RSPB Reserve and none were recorded during the surveys.

**Wintering Birds – diurnal visits**

- 3.26 The records returned included a number of wildfowl and wader species, largely associated with the Otmoor RSPB Reserve.
- 3.27 The wintering bird surveys recorded a number of wader species, including lapwing, golden plover and snipe *Gallinago gallinago*.
- 3.28 Lapwing were recorded on four of the 10 diurnal visits carried out, though this includes one occasion when all the lapwing (approximately 510 individuals) were recorded flying over the Site only. On the other three occasions (6 January 2020, 12 and 24 February 2020) the species was recorded in Fields 1, 2 and 4 (field numbers shown in Figure 3). In Field 1 and 2 on 12 February 2020 a total of 329 individuals were recorded. These were mostly feeding (with some loafing) within Field 1 though this flock was mobile and a small number of individuals (79) also foraged in Field 2 on Site. The remaining two occasions consisted of one and six individuals recorded in Field 4.
- 3.29 Golden plover were recorded on two of the 10 visits carried out, however on one of these two visits, this species was only seen flying over the site (80 individuals). On the other occasion (on 12 February 2020), 65 individuals were recorded foraging in Field 2 within the Site. This species is also known to forage at night typically in small groups and in larger fields, though the habitat present are likely to offer poor foraging opportunities due to the intensive agricultural use. On the basis of these results, this species is considered to occasionally forage on Site, including during the night but the numbers using these fields and the frequency with which they were observed would suggest these fields are of low value for the species locally.
- 3.30 Much larger numbers of both species were present outside the Survey Area in the fields to the northeast during the visit on 29 November 2019, with over 1,200 lapwing and 2,500 golden plover noted here. Smaller numbers were also noted in the field south of Field 4 (outside the Survey Area) on 20 January 2020 (155 lapwing and 110 golden plover).
- 3.31 Single individuals of snipe were recorded very infrequently during the survey visits.

**Winter birds – nocturnal visits**

- 3.32 Lapwing were recorded on six out of the 12 nocturnal visits carried out. The observations were generally of small flocks feeding and/or loafing in Fields 2 and 3, with the larger counts on post-sunset visits as follows:
- Seven birds in Field 2 on 24 November (pre-sunrise). Flock of 11 possible lapwing in the offsite area in the north of Field 1.
  - two birds in Field 2 on 21 December (pre-sunrise)
  - 46 birds in several scattered loafing/feeding flocks in Field 2 on 12 January (post-sunset)
  - Seven birds in Field 2 and 38 birds in Field 3 on 7 February (post-sunset). Flushed and resettled in southern part of Field 4 (offsite).
  - Five birds in Field 3 on 22 February (pre-sunrise)
  - 14 birds scattered in Field 2 and 36 birds in one loafing/feeding flock in Field 3 on 08 March (post-sunset). Further birds heard calling in the southern, offsite portion of Field 4
- 3.33 Golden plover were recorded on three of the 12 visits carried out, with single birds on 24 November and 21 December (pre-sunrise) and seven birds on 7 February (post-sunset). All records were in Field 2.
- 3.34 Grey heron *Ardea cinerea* was also recorded on two occasions within Field 3 (peak count of two birds), and a flock of 11 mallard *Anas platyrhynchos* was recorded feeding on 22 February on a

flooded section at the north of Field 4. No other waterbirds were noted onsite during the nocturnal bird surveys.

#### Winter birds - conclusions

- 3.35 Overall the Survey Area is used only very sporadically by small numbers of waders (lapwing was recorded on 40% of diurnal visits and 50% of nocturnal visits, with golden plover being more rarely recorded). The highest numbers of lapwing were recorded in Field 1 in the daytime, with nocturnal counts being lower and more concentrated within Field 2 and 3. With the exception of the daytime record of 65 birds on 12 February 2020, golden plover was recorded using the Site only in very low numbers at night, entirely within Field 2. The use of Field 1 and the southern part of Field 4 indicates that surrounding areas outside the current Site are also used by these species. .
- 3.36 No wildfowl were recorded within the Survey Area other than mute swan *Cygnus olor* flying over the Site, occasional use of Field 3 by grey heron and a single record of mallard in Field 4 during a period of flooding from the river Ray. The other birds recorded included largely ubiquitous species including redwing *Turdus iliacus* and fieldfare *Turdus pilaris* and species much as recorded during the breeding bird surveys, such as yellowhammer and linnnet.
- 3.37 On one diurnal survey visit on (20 January 2020) a female hen harrier *Circus cyaneus* was recorded flying through the Survey Area going west along the central farm track. Clearly as this was only recorded on one occasion, the Survey Area would not appear to be regularly frequented by the species. The habitats present are highly unlikely to offer suitable foraging and prey items given the lack of rough grassland.

## 4 Impacts and recommendations

### Proposals for the Site

4.1 The proposals for the Site include a range of planting of new habitats including grassland, hedgerow and trees, as well as modifying the management of existing habitats to increase their biodiversity value and value for protected species. In summary:

- The footprint of the array (all areas within the security fence) will be seeded to grassland once the solar array is installed. This will be done with a mix such as Emorsgate EM4 for clay soils and will be allowed to establish. It will then be grazed or cut, with the aim of establishing a diverse grassland sward.
- In the north-eastern corner of the Site, a new grassland area will be created on arable land which regularly floods. This will be seeded to create a grassland habitat with a mix of grasses typical of regularly inundated conditions. Given the current use of the land, nutrient levels are likely to be high, therefore the establishment of a species-rich grassland is unlikely to be achievable. However the creation of structured grassland of value for invertebrates, small mammals and foraging birds is realistic, through seeding with Emorsgate EG8 seed mix or similar and appropriate management. A tussocky structure will be achieved by limiting mowing to one cut every two to three years. Two shallow scrape-like areas will also be created. These will provide habitat for birds, such as snipe, and invertebrates and have a maximum depth of 600 mm, with islands and a variety of depths. The gradient will be in the region of 1:20 to create gently sloping edges to maximise their habitat value.
- Landscape buffers to be created include scrub and new hedgerows. These have been designed to reflect the nature of the local area and enhance the value of the Site as a whole for a range of species. Blackthorn has been included as a high proportion of the proposed planting in both scrub and hedgerow creation. This will benefit brown hairstreak and black hairstreak butterflies. The inclusion of this as well as fruiting species will also increase the value of these areas for various farmland birds including turtle dove, especially if this is allowed to become rank and leggy in places.
- A cultivated strip will be included along the southern margin of the Site which will be seeded with a range of species which will provide nectar and seeds, benefitting birds, small mammals and invertebrates. The mix has been specifically selected to benefit turtle dove and will include: early English vetch *Vicia sativa*, black medick *Medicago lupulina*, bird's-foot trefoil *Lotus corniculatus*, early white clover *Trifolium repens*, early red clover *Trifolium pratense* and fumitory *Fumaria officinalis*.
- A corridor along the River Rey on the Site's northern boundary will also be created, with grassland running along the bank and a new hedgerow to the south of this adjacent to the security fence. The security fence will sit a minimum of 10 m from the top of the bank. The hedgerow will be managed so as to avoid shading the River Rey. It is understood that the grassland strip may also be used occasionally for farm access and a footpath, therefore a 4 or 5 m width of this may be maintained as short grassland with the remaining width (adjacent to the top of the river bank) being allowed to grow long, to be managed by a cut every two years in August or September. This will be seeded with a wildflower grassland mix to benefit a range of species (such as the Emorsgate EM3 seed mix or similar). Overall this will enhance the corridor along the River Rey running east to west by adding habitat and removing existing pressures of arable farming from the vicinity of the River.
- The island north of the Site in the River Rey is also being included in proposed management for biodiversity enhancement. Areas of this island support largely open grassland which is under agricultural use. This will be brought into a less intensive cutting regime (such as cutting every two years only) to create a tussocky structure. Arisings from the cuttings will be used to create habitat piles for species such as grass snake. This grassland will be enhanced to increase its species-richness. This will be achieved by hard harrowing in early spring followed by overseeding with a suitable wildflower seed mix such as EM8 and potentially plug planting species typical of periodically inundated areas. The scrubby woodland and river margins will be retained as they are.

## Designated Sites

- 4.2 With the exception of the Otmoor CTA, no designated sites are present within the Site. The closest any solar panel will be to the boundary of the Otmoor SSSI is 1.8 km. The closest any solar panel comes to the boundary of the Otmoor RSPB Reserve is 350 m. Therefore, the development will not cause direct habitat losses or result in any indirect effects on designated sites, such as by changing the hydrology of the area or indirectly affecting habitats or species for which the sites have been designated.
- 4.3 Policy ESD 11 of the Cherwell Local Plan (Cherwell District Council, 2016) states: "*Where development is proposed within or adjacent to a Conservation Target Area biodiversity surveys and a report will be required to identify constraints and opportunities for biodiversity enhancement. Development which would prevent the aims of a Conservation Target Area being achieved will not be permitted. Where there is potential for development, the design and layout of the development, planning conditions or obligations will be used to secure biodiversity enhancement to help achieve the aims of the Conservation Target Area*".
- 4.4 There is therefore a presumption against development within the CTA if this might prevent the intended aims of the designated site. However, during the design stage, this was considered and no development within the CTA is proposed (within Field 4). This area has instead been identified as the ideal location for enhancement work for biodiversity (see above).
- 4.5 The above recommendations pertaining to habitat creation in the part of the Site within the CTA (creation of grassland and scrub habitat on what is currently arable land) with an appropriate management plan are designed to have a beneficial effect on, and work towards the aims of, the CTA.

## Habitats

- 4.6 It was recommended in the PEA at an early design stage that all HPis are retained, including the hedgerows, especially double hedgerows, and their associated ditches, and areas of woodland and this has been taken on board. The River Ray is also an HPI and will be retained and protected by implementing a 10 m buffer from the bank within which no development (including fencing or infrastructure) should occur. The ponds are all off site and are therefore unlikely to be impacted on directly.
- 4.7 The habitats to be directly affected through the creation of the solar array therefore largely consist of low ecological value habitat: arable land in intensive use. These will be lost during construction but will be replaced by permanent grassland which will be grazed, a habitat of comparable ecological value to arable land.
- 4.8 All appropriate pollution control measures will be implemented during the construction phase to ensure no accidental run off of silted or contaminated water affects the river or ponds.

## Biodiversity Impact Assessment

- 4.9 Under the Defra 3.0 metric the proposed development will deliver an overall gain for habitats of 68.17% and a gain of 6.14% for hedgerow habitats. Linear aquatic habitats including the River Ray and the ditches will not be directly impacted upon or managed therefore the metric shows a neutral score for these habitats. They will however benefit from the inclusion of new semi-natural permanent grassland habitats replacing areas of arable land under intensive agricultural practice which currently is carried out very close to the top of the banks.

## Protected and Notable Species

### *Badgers*

- 4.10 The Site does not support any setts, though the species is known to occur in the Survey Area (see Confidential Appendix 3).

- 4.11 In order to reduce the potential impacts of fragmentation due to the installation of security fencing, small gaps will be created to allow continued movement by this species which may well forage in the grassland seeded under the solar array. Gaps of approximately 35x35 cm at ground level would allow for continued use. As a minimum one such gap should be created on each side of each field being included in any fence.
- 4.12 The newly created grassland habitats within the solar array would provide a permanent foraging resource for the species, likely to be of higher value than arable land, therefore this species may also benefit from the development.
- 4.13 Due to the highly mobile nature of the species, it is recommended that an update badger survey is carried out prior to development beginning in order to detect any new setts which might have been created and assess impacts to these appropriately.

#### ***Brown hare, hedgehog, harvest mouse***

- 4.14 As much of the development will occur on arable land and that the access tracks will also either follow existing tracks or be created through arable land, the impacts to brown hare, harvest mouse and hedgehog are likely to be minimal. This habitat is sub-optimal for most of these species and as grassland is to be seeded under much of the array, the overall change may in reality result in a slight benefit for hedgehog and hare. The tussocky grassland areas to be created will benefit harvest mice.
- 4.15 In order to reduce the potential impacts of fragmentation due to the installation of security fencing, small gaps will be created to allow continued movement by these species. Those created for badger as set out above will also benefit these species.

#### ***Otter and water vole***

- 4.16 A 10 m stand off from the River Ray has been established and the ditches are all retained. Therefore there are unlikely to be any impacts on otter or water vole. It is possible that in the absence of mitigation, security fencing installed across ditches could result in fragmentation. It is therefore recommended that ditches are not enclosed by security fences. Where this is necessary, a gap will need to be left at the bottom of the ditch large enough to allow continued dispersal by otter and water vole. Ideally this should be at or above the average water level, but given the seasonal nature of the ditches present, this would be hard to assess at this stage. It is recommended that the final fencing plan be reviewed by a suitably experienced ecologist to ensure it is appropriate and minimises fragmentation.

#### ***Dormouse***

- 4.17 The hedgerows will be retained and unaffected as a result of the development. No artificial lighting will be included in the scheme (during construction or operation). Additional hedgerow and mixed scrub is being created which will benefit this species, should it be present. It is therefore unlikely that any impacts to this species would occur.
- 4.18 Should existing gaps need to be slightly widened for the construction phase, a precautionary approach will be taken. Any vegetation suitable for use by the species, such as scrub, will be cut to 150 mm above ground level between December and March. The remaining ground level vegetation will then be removed during the following active period (i.e. between May and September). This will avoid damaging or disturbing dormice nests.
- 4.19 The creation of additional landscape buffer areas may also benefit the species by adding to the existing hedgerow network.

#### ***Bats***

- 4.20 The habitats present on Site (and the Survey Area) largely offer poor foraging habitats, though the double hedgerows and the River Ray offer good foraging resources. As these are to be retained, and no artificial lighting will be included in the scheme (during construction or operation) no impacts to foraging bats are likely to occur.



- 4.21 The potential for roosting by bats in the buildings and mature trees has been noted but unless trees require felling or surgery, or the buildings are to be impacted (either directly or indirectly), no further surveys are required as no impacts would occur. Should individual trees be impacted upon either through felling or tree surgery, it is recommended that these be subject to appropriate surveys, starting with an initial inspection to determine their suitability for roosting bats.
- 4.22 The creation of more diverse grassland and new landscape buffer areas are likely to benefit these species by increasing the value of the foraging habitats present and creating new linear features.

#### ***Great crested newts***

- 4.23 Great crested newts are known to be breeding within the Survey Area in Ponds 1 and 2. The majority of the Site and Survey Area support poor terrestrial habitats for amphibian and reptiles. The solar array will be constructed on what is currently arable land with more suitable habitats such as hedgerow being retained. The access tracks will mostly follow existing tracks and only a temporary track will be created through arable land and on an existing track. The landscaping proposals include the creation of diverse grassland, scrub and new hedgerows, all of which will offer additional terrestrial habitat to the species, though this is outside 250 m from the ponds. Therefore overall the impacts to these species in the long term is therefore likely to be negligible or beneficial to some extent.
- 4.24 The only work proposed within 250 m of these ponds will be the proposed upgrading of the existing tracks where these run east to west past Pond 1 and from Manor Farm north to the main part of the Site. These currently have hard-packed surfaces of aggregate with some colonising vegetation, with tussocks or rough grass either side, and will be reinforced with additional stone or aggregate. At its closest, this work is located approximately 55 m from Pond 1 and approximately 30 m of Pond 2. There is therefore a risk, albeit a low one, that great crested newts could be injured or killed during the track upgrading work. It is therefore recommended that a licence is sought from Natural England to carry out this work. An appropriate construction method, under licence, may involve the removal of part of the existing track under supervision to create a flat surface onto which to lay the additional stone (thereby searching the footprint for great crested newt). It is also recommended that this removal of existing surface is carried out between March and September inclusive to avoid the hibernation period of great crested newts, as destructive searches during the latter would likely result in poor survival rates of any individuals found. This part of the proposed works is unlikely to affect the conservation status of great crested newt, even at a local level, given the existing tracks are unlikely to support newts during their terrestrial phase in any significant number, and this habitat loss would therefore have a negligible effect on the population of this species at the Site or local level. Other licencing options, such as registering the Site under the District Licencing Scheme covering the Cherwell District, may also be available.
- 4.25 The creation of a temporary construction access track with temporary matting is proposed in the south-west of the Site on arable land, to the west of Pond 1 but this would only be within 230 m of Pond 1 and would affect arable land. Typically great crested newts disperse up to 250 m from breeding ponds, but as this is unsuitable habitat on the edge of this buffer distance, it is highly unlikely that newts would be present here and that this work would have any impact of individual great crested newts or their conservation status. All other construction (including security fences, solar array and small buildings, will be over 290 m to the north of Pond 1 (and 480 m at least from Pond 2). There is therefore a negligible risk that legislation might be contravened by accidentally killing or injuring a great crested newt during the construction and no loss of suitable habitat is proposed.
- 4.26 Once matting is installed and the surface of the existing track is upgraded, the construction access track will be used for only a very short period and during daylight hours, therefore there is a negligible risk of increased mortality to the species through vehicle use of the track. The existing track will be used for maintenance access during the operational phase. This will be subject to very low levels of use and generally during daylight hours, therefore no additional mortality is likely to occur to great crested newts.

**Reptiles**

- 4.27 Reptiles are most likely to be present in hedgerow bases and associated rough margins with the other habitats on site being poor for these species. It is therefore recommended that as only very small sections of such habitats need to be removed the risk to any individual reptile will be extremely low and precautionary reasonable avoidance measures are appropriate. These will include the cutting of vegetation suitable for reptiles outside the nesting bird season (i.e. between December and February) to 150 mm followed by subsequent clearance to ground level between May and September, as per the recommendations for dormice.
- 4.28 The grassland habitat to be created within the solar array footprint and along adjacent hedgerows and the landscape buffers in the form of scrub are likely to provide more valuable habitats than what is currently present. Overall therefore this development will result in a gain for these species in terms of local conservation status.

**Birds**

- 4.29 The majority of the Site offers some suitable nesting habitat for birds. In the absence of mitigation, clearance of hedgerows or woodland in the nesting bird season may result in accidental damage to or destruction of active nests. Similarly, ground nesting species are likely to be present within the Site, with any arable land supporting crop or weed growth, or any unmanaged grassland, having the potential to support species such as skylark. It is therefore recommended that all vegetation cutting and as much construction as possible be carried out in the winter (as per the method and timings set out for dormice). Should construction need to proceed during the nesting season, all arable land should be stripped of vegetation before this (i.e. in late February). This can then be seeded to the appropriate seed mix and maintained short (less than approximately 5 cm) until the construction work commences.
- 4.30 It should be noted however that even bare ground or very short grass may support nesting lapwing. This species is more easily detected than skylark and impacts can therefore be avoided more easily should they be present. As a result it is recommended that, should construction need to start in open ground (including recently sown grass) between mid-March and September, this is checked by a suitably experienced ecologist for nesting lapwing. Cetti's warbler was recorded in the eastern edge of the Site. This species typically nests in scrub habitat often adjacent to wet areas and is a Schedule 1 species, meaning disturbance to it during the nesting season is an offence. However the only works which are likely to be close enough to cause disturbance to this species are seeding and habitat creation works in the eastern field and this would be done before nesting season or in autumn and would be of very short duration. Therefore there is a negligible risk that an offence would be committed through disturbance of the species. The barn owl box is located in the gardens of the farm and would not be disturbed by any works.
- 4.31 The breeding bird community on the Site includes skylark in the arable land to be affected by the development. It is likely that the areas to be included in the array will be lost to the species as nesting habitat (approximately 36ha) as this species does not tend to nest between solar panels, though foraging has been shown to continue in solar farms (Montag *et al.*, 2016). The population supported by the area to be included in the solar array is likely to be in the region of six breeding pairs. The habitat being used by this species is suboptimal, as it is intensive arable land with no set asides or areas of bare ground, meaning their breeding productivity may be limited in this species, although it is an SPI, remains numerous in Oxfordshire and more widely in Britain. In order to mitigate for this loss, a large arable field located to the west of the Site (as shown in Figure 4) measuring 16.5ha will be farmed so as to increase its suitability to support skylark. This will be achieved by incorporating skylark plots into the management of the land, with arable use, largely cereal crops, continuing. Skylark plots are typically 4x4m approximately where the drill is not placing seeds. These remain bare during the growing season and can be sprayed off as needed to maintain the bare soil. This will result in a significant localised uplift in breeding territories in this field. Studies on density in arable farmland has shown an increase from between 0.1 and 0.4 pairs/ha in arable land with no plots, to up to 0.8 pairs/ha in areas where skylark plots have been introduced (Fox, 2022). A field measuring 16.5 ha could therefore support between 1.65 to 6.6 pairs and be increased to 13.2 pairs (an additional six pairs) with skylark plots.

- 4.32 Pairs nesting elsewhere around the proposed solar array will also benefit from a more diverse range of foraging habitat in the form of the grassland being created in the array. The species will continue to forage between arrays and in the ecological enhancement areas, as demonstrated by studies carried out by Clarkson Woods (2019, 2020, and 2021). This creation of skylark plots and increase in suitability of foraging habitat within the Site is expected to maintain the existing population of skylark, with no losses of territories.
- 4.33 The habitat creation and enhancement measures set out above will also benefit the wider breeding bird community including a range of other SPI such as linnet, yellowhammer and bullfinch. These species would likely increase in numbers as they are typical of hedgerow and scrub habitats with readily available foraging areas (provided in the form of wildflower grassland and the cultivated strip which will support seed-baring weed species). The latter has been designed to offer foraging areas for species such as turtle dove as this species has been recorded breeding in past years within Otmoor RSPB Reserve and may start to breed around the Site with the increase in scrub and foraging habitat available.
- 4.34 In terms of the wintering bird community, the fields to be included in the array were only used very sporadically by wintering waders during either the day or night. The habitats being created will benefit a range of species, such as wintering thrushes and the new wet grassland areas will provide foraging and roosting for species such as snipe. Overall therefore this proposed scheme is unlikely to have a detrimental impact on any species and will benefit several species including SPIs.

#### ***Invertebrates***

- 4.35 The majority of the Survey Area consists of intensively farmed arable land and is therefore largely unsuitable to support notable invertebrate communities. Any loss of this habitat type is highly unlikely to affect notable invertebrate communities.
- 4.36 The features present which may support more valuable communities include the woodlands and hedgerows, ditches, pond and River Ray. These are all to be retained and protected therefore no impacts to these are envisaged.
- 4.37 The proposed habitat creation (grassland, scrub and hedgerows) is likely to benefit invertebrate, by increasing floral and structural diversity. Cessation of arable farming activity may also have a positive effect on invertebrates. The creation of blackthorn-rich landscape buffers will also benefit black and brown hairstreak, known to be present locally and which are SPIs.

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## 6 Figures

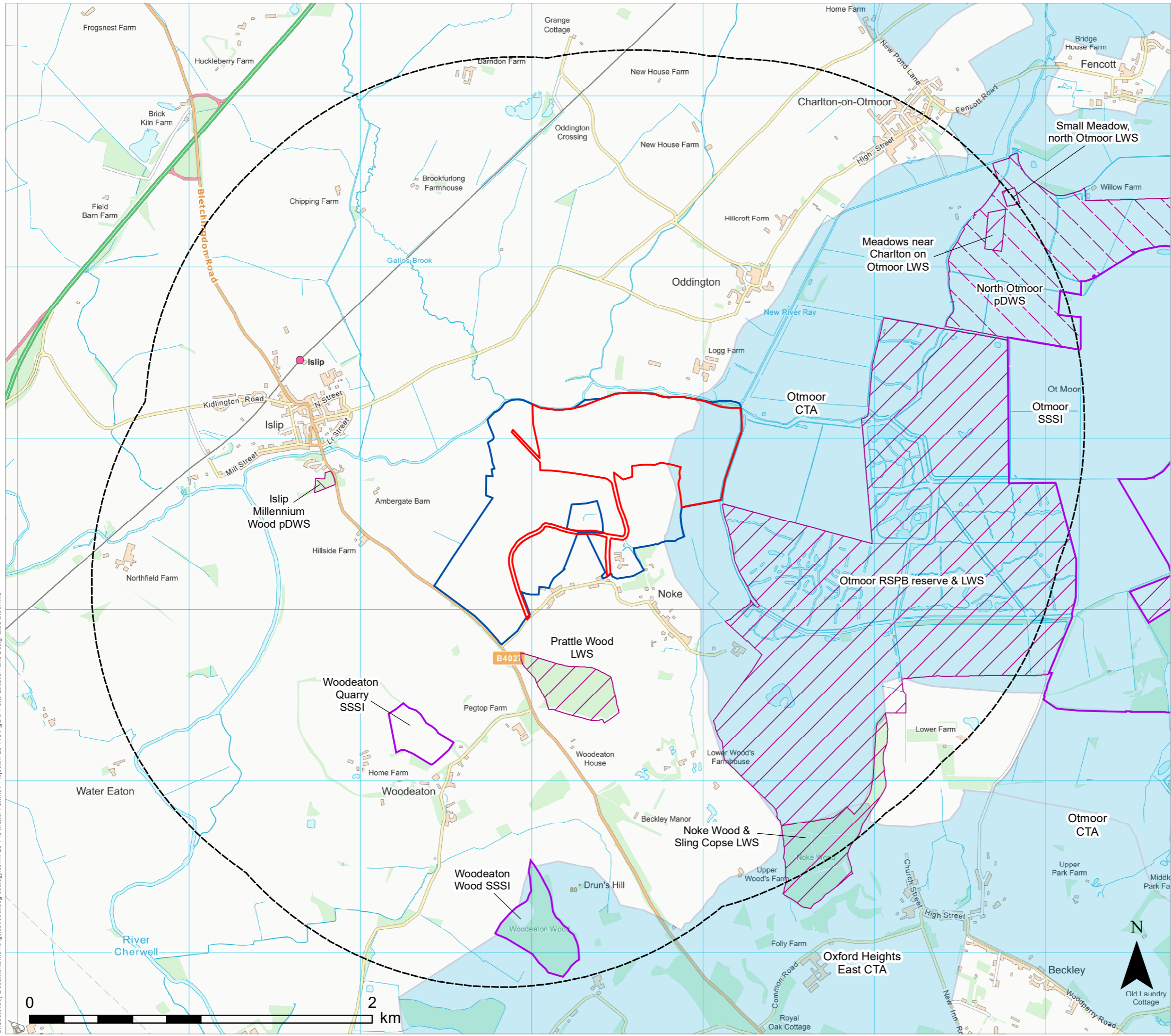
(overleaf)

Figure 1: Site location, Survey Area and designed sites

Figure 2: Pond locations

Figure 3: Phase 1 habitat survey results and field numbers

Figure 4: Breeding Bird Survey results.



- LEGEND**
- Sites of Special Scientific Interest
  - Site boundary
  - Survey boundary
  - 2 km radius from Survey boundary
  - Conservation Target Area (CTA)
  - Local Wildlife Site (LWS)
  - Proposed District Wildlife Site (pDWS)

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PROJECT TITLE  
 MANOR FARM, NOKE

DRAWING TITLE  
 Figure 1: Site location and designated sites

DATE: 30/04/2021      CHECKED: JB      SCALE: 1:21,415  
 DRAWN: LA      APPROVED: PN      VERSION: 1.0

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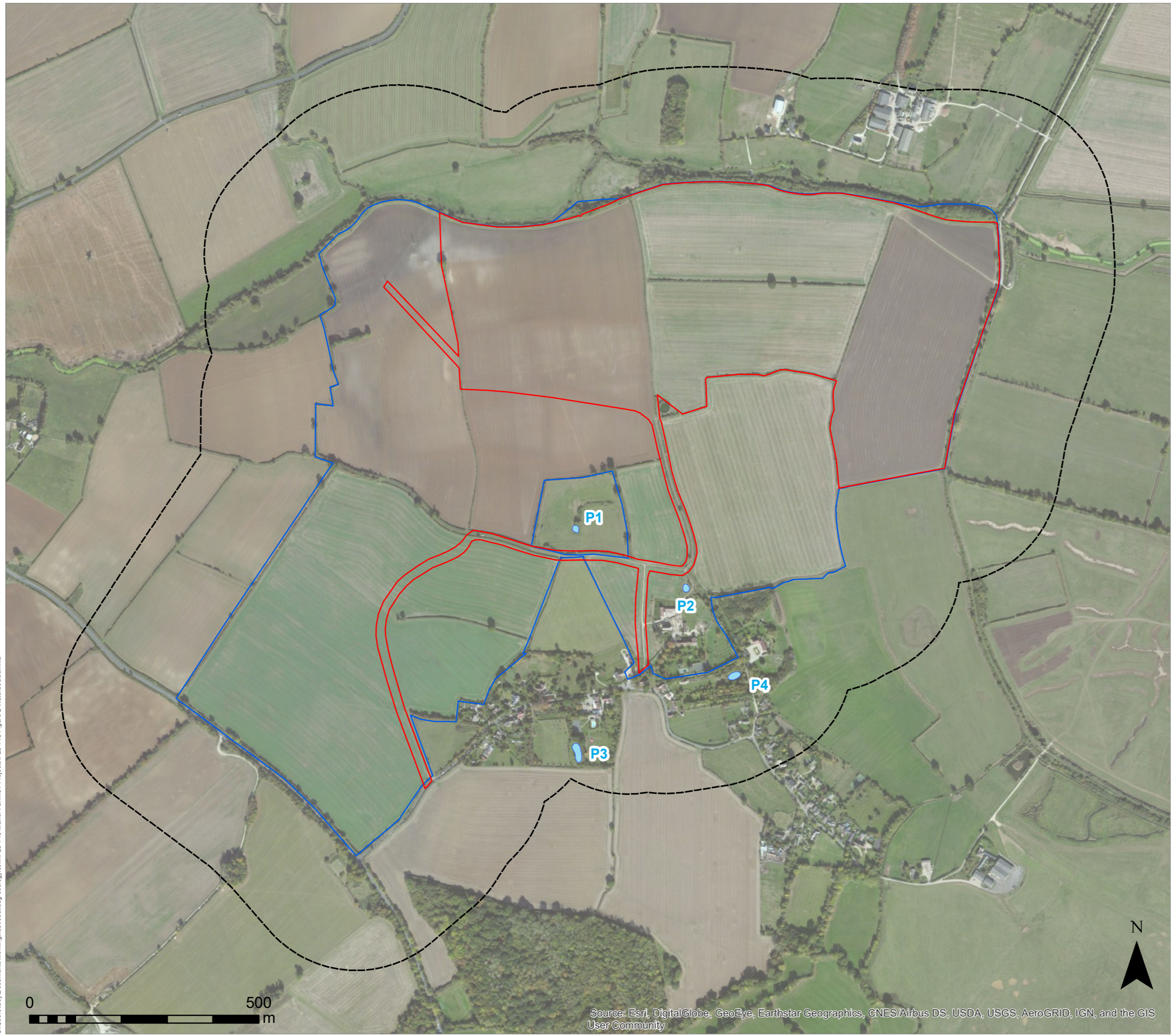
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Sources: BSG Ecology survey data; Contains public sector information (SSSI boundaries) licensed under the Open Government Licence v3.0; LWS, pDWS, CTA boundaries provided by Thames Valley Environmental Records Centre

C:\Users\lucy\Documents\workingfiles\roost.bsg-ecology.com\P20-745 Manor Farm\01 Projects\P20-745 Figure 1 Site Location and Designated sites.mxd



- LEGEND**
- Site boundary
  - Survey boundary
  - 250m radius from Survey boundary
  - Ponds

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PROJECT TITLE  
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Figure 2: Waterbodies within 250 m of Site

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DRAWN: LA      APPROVED: PN      VERSION: 1.0

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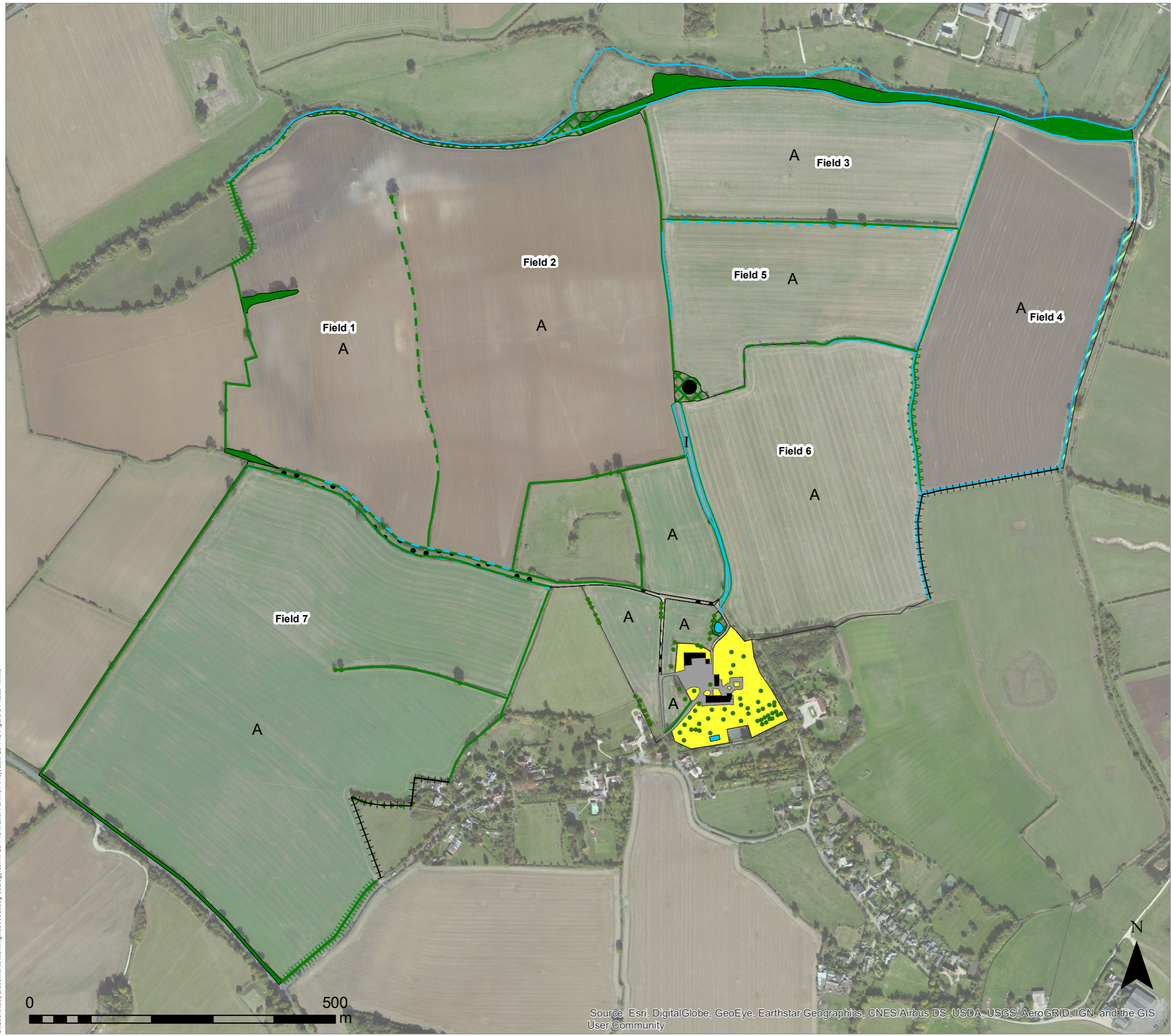
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C:\Users\lucy\Documents\workingfiles\roost.bsg-ecology.com\P20-745 Manor Farm\01 Projects\P20-745 Figure 2 Waterbodies.mxd

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



- LEGEND**
- Species-rich intact hedge
  - Species-poor intact hedge
  - Species-poor defunct hedge
  - Species-poor hedge with trees
  - Fence
  - Wet ditch/running water
  - Dry ditch
  - Broadleaved tree
  - Amenity grassland
  - Arable
  - Bare ground
  - Broadleaved semi-natural woodland
  - Building
  - Coniferous plantation woodland
  - Dense scrub
  - Hardstanding
  - Improved grassland
  - Open water

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PROJECT TITLE  
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DRAWING TITLE  
 Figure 3: Phase 1 habitat survey results

DATE: 30/04/2021      CHECKED: JB      SCALE: 1:6,000  
 DRAWN: LA      APPROVED: PN      VERSION: 1.0

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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community





LEGEND

Conservation Status

- Non-priority species
- Priority species
- Skylark mitigation area - to include skylark plots
- Site boundary
- Survey boundary

Code	Common Name	Code	Common Name
B.	Blackbird	LW	Lesser whitethroat
BC	Blackcap	MH	Common moorhen
BF	Bullfinch	P.	Grey partridge
BT	Blue tit	PW	Pied wagtail
BZ	Buzzard	R.	Robin
CC	Chiffchaff	RB	Reed bunting
CH	Chaffinch	RW	Reed warbler
CK	Cuckoo	S.	Skylark
CW	Cetti's warbler	SL	Swallow
D.	Dunnock	ST	Song thrush
GO	Golfinch	SW	Sedge warbler
GR	Greenfinch	TC	Treecreeper
GS	Great spotted woodpecker	WH	Whitethroat
GT	Great tit	WP	Wood pigeon
HM	House martin	WR	Wren
HS	House sparrow	WW	Willow warbler
K.	Kestrel	Y.	Yellowhammer
LI	Linnet	YW	Yellow wagtail



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JOB REF: P22-672

PROJECT TITLE  
MANOR FARM, NOKE

DRAWING TITLE  
Figure 4: Breeding Bird Characterisation Survey Results

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DRAWN: SL      APPROVED: JB      VERSION: 1.2

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## 7 Photographs

(overleaf)

**Photograph 1: Manor Farm Buildings**



**Photograph 2: Manor Farm Buildings**



**Photograph 3: Orchard**



**Photograph 4: Arable land**



**Photograph 5:** Double hedgerow on track



**Photograph 6:** Rubble and storage area (TN1)



**Photograph 7: Pond 2 near Manor Farm**



**Photograph 8: River Ray (in flood at time of survey)**

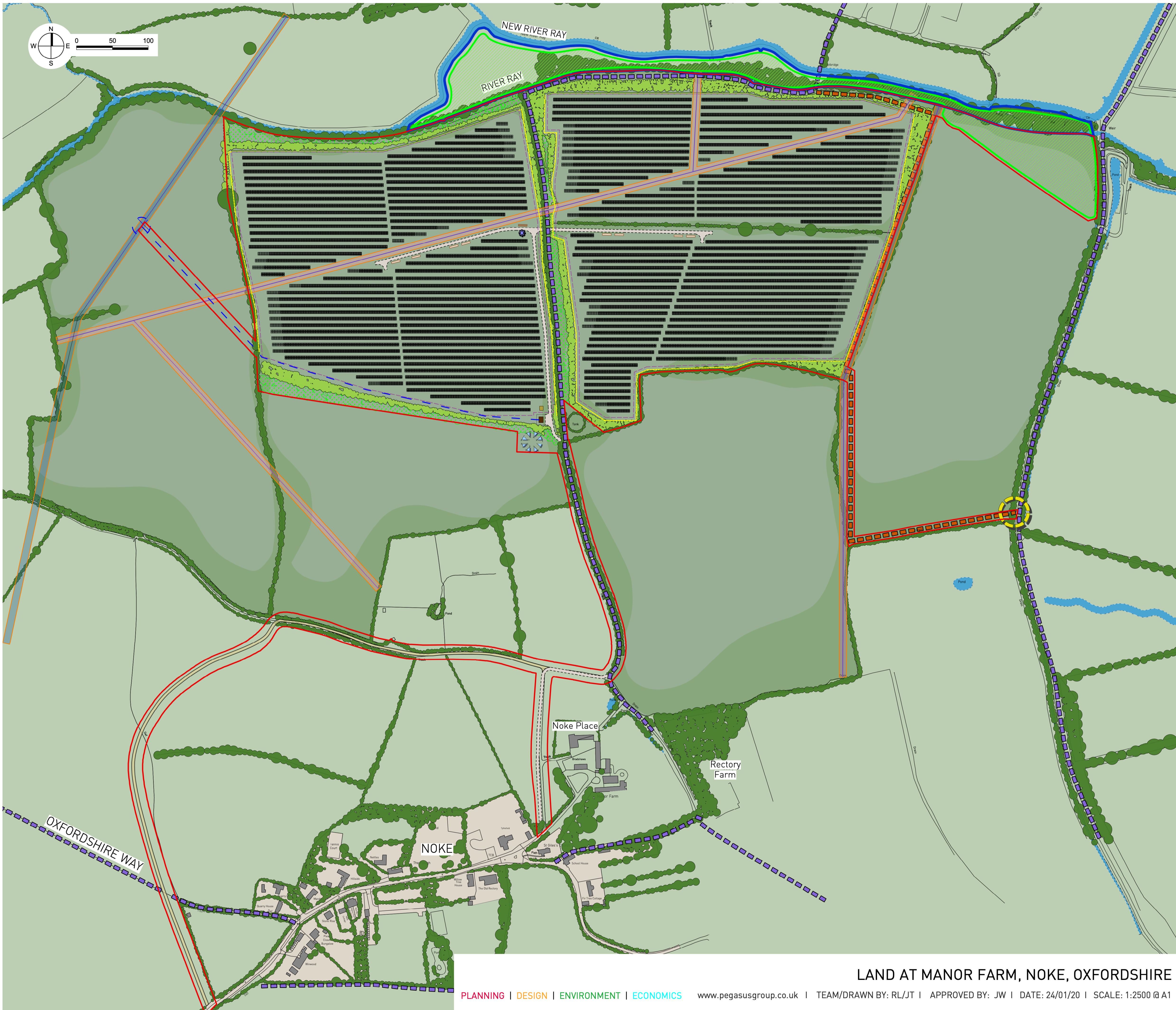


## **Appendix 1: Site Proposal**

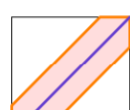
Development Framework Plan







**KEY**

-  SITE BOUNDARY (TBC)  
43.78 HA / 108.18 ACRES
-  ADDITIONAL LAND WITHIN LANDOWNERS CONTROL (TBC)  
3.05 HA / 7.53 ACRES
-  PROPOSED LOCATION OF SOLAR MODULES
-  SPARES CABIN
-  INVERTERS AND ASSOCIATED INFRASTRUCTURE
-  CUSTOMER SWITCHGEAR
-  DNO CABIN
-  EXISTING ELECTRICITY PYLONS AND POWERLINES (11KV)
-  EXISTING ELECTRICITY PYLONS AND POWERLINES (33KV)
-  PROPOSED TEMPORARY CONSTRUCTION ACCESS TRACK TO AVOID TRAFFIC THROUGH NOKE VILLAGE - USING TEMPORARY ACCESS MATTING
-  PROPOSED OPERATIONAL SERVICE TRACKS - ACCESS FROM NOKE VILLAGE UTILISING EXISTING AGRICULTURAL ACCESS TRACK
-  EXISTING PUBLIC RIGHT OF WAY
-  PERMISSIVE FOOTPATH ROUTE
-  EXISTING GREEN INFRASTRUCTURE
-  PROPOSED TREE, HEDGEROW AND SCRUB PLANTING [SEE SEPARATE DETAILED LANDSCAPING SCHEME FOR FULL DETAILS]
-  PROPOSED NEW BIODIVERSE GRASSLAND PLANTING
-  PROPOSED DESIGNATED ECOLOGY ENHANCEMENT AREA [SEE SEPARATE DETAILED LANDSCAPING SCHEME FOR FULL DETAILS]
-  EXISTING WATERBODIES
-  PROPOSED PERIMETER FENCING INCLUDING CCTV CAMERAS
-  PROPOSED 4M WIDE BIODIVERSE GRASSLAND PLANTING BUFFER AROUND PERIMETER FENCING
-  UNDERGROUND DNO CABLE ROUTE
-  GRID CONNECTION POINT
-  PROPOSED 1M WIDE BIODIVERSE GRASSLAND PLANTING BUFFER AROUND PERIMETER FENCING
-  20' WELFARE CONTAINER
-  TIMBER FOOTBRIDGE
-  CONSTRUCTION COMPOUND



**LAND AT MANOR FARM, NOKE, OXFORDSHIRE | DEVELOPMENT FRAMEWORK PLAN**

## Appendix 2: Summaries of Relevant Policy, Legislation and Other Instruments

This section briefly summarises the legislation, policy and related issues that are relevant to the main text of the report. The following text does not constitute legal or planning advice.

### National Planning Policy Framework (England)

- 7.1 The Government revised the National Planning Policy Framework (NPPF) on 19 February 2019. Text excerpts from the NPPF are shown where they may be relevant to planning applications and biodiversity including protected sites, habitats and species.
- 7.2 The Government sets out the three objectives for sustainable development (economy, social and environmental) at paragraphs 8-10 to be delivered through the plan preparation and implementation level and 'are not criteria against which every decision can or should be judged.' At paragraph 8c) the planning system's environmental objective refers to 'protecting and enhancing our natural, built and historic environment' and to 'helping to improve biodiversity'
- 7.3 In conserving and enhancing the natural environment, the NPPF (Paragraph 170) states that 'planning policies and decisions should contribute to and enhance the natural and local environment' by:
- Protecting and enhancing...sites of biodiversity value... '(in a manner commensurate with their statutory status or identified quality in the development plan)'.
  - Recognising the wider benefits from natural capital and ecosystem services including trees and woodland.
  - Minimising impacts on and providing net gains in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.
  - Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.
- 7.4 In respect of protected sites, at paragraph 171, the NPPF requires local planning authorities to distinguish, at the plan level, '...between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value...take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.'
- 7.5 Paragraph 174 refers to how plans should aim to protect and enhance biodiversity. Plans should: 'identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity [a footnote refers to ODPM Circular 06/2005 for further guidance in respect of statutory obligations for biodiversity in the planning system], wildlife corridors and stepping stones that connect them and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation;' and to 'promote the conservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.'
- 7.6 Paragraph 175 advises that, when determining planning applications, '...local planning authorities should apply the following principles:
- a. if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
  - b. development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments) should not normally be permitted. The only exception is where the benefits of the development

in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

- c. development resulting in the loss or deterioration of irreplaceable habitats, (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- d. development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.'

7.7 In paragraph 176, the following should be given the same protection as habitats sites<sup>2</sup>:

- i. potential Special Protection Areas and possible Special Areas of Conservation
- ii. listed or proposed Ramsar sites; and
- iii. sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.'

7.8 In paragraph 177 the NPPF refers back to sustainable development in relation to appropriate assessment and states: 'the presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site'.

7.9 In paragraph 178, the NPPF refers to planning policies and decisions taking account of ground conditions and risks arising from land instability and contamination at sites. In relation to risks associated with land remediation account is to be taken of 'potential impacts on the natural environment' that arise from land remediation.

7.10 In paragraph 180 the NPPF states that planning policies and decisions should ensure that development is appropriate to the location and take into account likely effects (including cumulative) on the natural environment and , in doing so, they 'should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'

### **Adopted Cherwell Local Plan**

7.11 Policy ESD 11 states: "*Where development is proposed within or adjacent to a Conservation Target Area biodiversity surveys and a report will be required to identify constraints and opportunities for biodiversity enhancement. Development which would prevent the aims of a Conservation Target Area being achieved will not be permitted. Where there is potential for development, the design and layout of the development, planning conditions or obligations will be used to secure biodiversity enhancement to help achieve the aims of the Conservation Target Area.*"

7.12 Policy ESD 10 states: "Protection and Enhancement of Biodiversity and the Natural Environment Protection and enhancement of biodiversity and the natural environment will be achieved by the following:

- *In considering proposals for development, a net gain in biodiversity will be sought by protecting, managing, enhancing and extending existing resources, and by creating new resources.*
- *The protection of trees will be encouraged, with an aim to increase the number of trees in the District.*
- *The reuse of soils will be sought.*

<sup>2</sup> Habitats sites are defined in the glossary as 'Any site which would be included within the definition at regulation 8 of the Conservation of Habitats and Species Regulations 2017 (as amended) for the purpose of those regulations, including candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation, Special Protection Areas and any relevant Marine Sites.'

- *If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or as a last resort, compensated for, then development will not be permitted.*
- *Development which would result in damage to or loss of a site of international value will be subject to the Habitats Regulations Assessment process and will not be permitted unless it can be demonstrated that there will be no likely significant effects on the international site or that effects can be mitigated.*
- *Development which would result in damage to or loss of a site of biodiversity or geological value of national importance will not be permitted unless the benefits of the development clearly outweigh the harm it would cause to the site and the wider national network of SSSIs, and the loss can be mitigated to achieve a net gain in biodiversity/geodiversity.*
- *Development which would result in damage to or loss of a site of biodiversity or geological value of regional or local importance including habitats of species of principal importance for biodiversity will not be permitted unless the benefits of the development clearly outweigh the harm it would cause to the site, and the loss can be mitigated to achieve a net gain in biodiversity/geodiversity.*
- *Development proposals will be expected to incorporate features to encourage biodiversity, and retain and where possible enhance existing features of nature conservation value within the site. Existing ecological networks should be identified and maintained to avoid habitat fragmentation, and ecological corridors should form an essential component of green infrastructure provision in association with new development to ensure habitat connectivity*
- *Relevant habitat and species surveys and associated reports will be required to accompany planning applications which may affect a site, habitat or species of known or potential ecological value*
- *Air quality assessments will also be required for development proposals that would be likely to have a significantly adverse impact on biodiversity by generating an increase in air pollution*
- *Planning conditions/obligations will be used to secure net gains in biodiversity by helping to deliver Biodiversity Action Plan targets and/or meeting the aims of Conservation Target Areas. Developments for which these are the principal aims will be viewed favourably*
- *A monitoring and management plan will be required for biodiversity features on site to ensure their long term suitable management.”*

#### **Government Circular ODPM 06/2005 Biodiversity and Geological Conservation (England only)**

- 7.13 Paragraph 98 of Government Circular 06/2005 advises that “the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat. Local authorities should consult Natural England before granting planning permission. They should consider attaching appropriate planning conditions or entering into planning obligations under which the developer would take steps to secure the long-term protection of the species. They should also advise developers that they must comply with any statutory species’ protection provisions affecting the site concerned...”
- 7.14 Paragraph 99 of Government Circular 06/2005<sup>3</sup> advises that “it is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted”.

<sup>3</sup> ODPM Circular 06/2005. *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System* (2005). HMSO Norwich.

**Standing Advice (GOV.UK - England only)**

- 7.15 The GOV.UK website provides information regarding protected species and sites in relation to development proposals: 'Local planning authorities should take advice from Natural England or the Environment Agency about planning applications for developments that may affect protected species.' GOV.UK advises that 'some species have standing advice which you can use to help with planning decisions. For others you should contact Natural England or the Environment Agency for an individual response.'
- 7.16 The standing advice (originally from Natural England and now held and updated on GOV.UK<sup>4</sup>) provides advice to planners on deciding if there is a 'reasonable likelihood' of protected species being present. It also provides advice on survey and mitigation requirements.
- 7.17 When determining an application for development that is covered by standing advice, in accordance with guidance in Government Circular 06/2005, Local planning authorities are required to take the standing advice into account. In paragraph 82 of the aforementioned Circular, it is stated that: 'The standing advice will be a material consideration in the determination of the planning application in the same way as any advice received from a statutory consultee...it is up to the planning authority to decide the weight to be attached to the standing advice, in the same way as it would decide the weight to be attached to a response from a statutory consultee.'

**Natural Environment and Rural Communities (NERC) Act 2006 – Habitats and species of principal importance (England)**

- 7.18 The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act require the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England as required by the Act. In accordance with the Act the Secretary of State keeps this list under review and will publish a revised list if necessary, in consultation with Natural England.
- 7.19 The S41 list is used to guide decision-makers such as public bodies, including local authorities and utilities companies, in implementing their duty under Section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions, including development control and planning. This is commonly referred to as the 'Biodiversity Duty.'
- 7.20 Guidance for public authorities on implementing the Biodiversity Duty<sup>5</sup> has been published by Defra. One of the key messages in this document is that 'conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them.' In England the administration of the planning system and licensing schemes are highlighted as having a 'profound influence on biodiversity conservation.' Local authorities are required to take measures to "promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species. The guidance states that 'the duty aims to raise the profile and visibility of biodiversity, clarify existing commitments with regard to biodiversity, and to make it a natural and integral part of policy and decision making.'
- 7.21 In 2007, the UK Biodiversity Action Plan (BAP) Partnership published an updated list of priority UK species and habitats covering terrestrial, freshwater and marine biodiversity to focus conservation action for rarer species and habitats in the UK. The UK Post-2010 Biodiversity Framework<sup>6</sup>, which covers the period from 2011 to 2020, now succeeds the UK BAP. The UK priority list contained 1150 species and 65 habitats requiring special protection and has been used as a reference to draw up the lists of species and habitats of principal importance in England.
- 7.22 In England, there are 56 habitats of principal importance and 943 species of principal importance on the S41 list. These are all the habitats and species found in England that were identified as requiring

<sup>4</sup> <https://www.gov.uk/protected-species-and-sites-how-to-review-planning-proposals#standing-advice-for-protected-species>

<sup>5</sup> Defra, 2007. *Guidance for Public Authorities on Implementing The Biodiversity Duty*. (<http://www.defra.gov.uk/publications/files/pb12585-pa-guid-english-070516.pdf>)

<sup>6</sup> JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. *UK Post-2010 Biodiversity Framework*. July 2012. (<http://jncc.defra.gov.uk/page-6189>)

action in the UK BAP and which continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.

### **European protected species (Animals)**

- 7.23 The Conservation of Habitats and Species Regulations 2017 (as amended) consolidates various amendments that have been made to the original (1994) Regulations which transposed the EC Habitats Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Council Directive 92/43/EEC) into national law.
- 7.24 “European protected species” (EPS) of animal are those which are shown on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). They are subject to the provisions of Regulation 43 of those Regulations. All EPS are also protected under the Wildlife and Countryside Act 1981 (as amended). Taken together, these pieces of legislation make it an offence to:
- a. Intentionally or deliberately capture, injure or kill any wild animal included amongst these species
  - b. Possess or control any live or dead specimens or any part of, or anything derived from a these species
  - c. deliberately disturb wild animals of any such species
  - d. deliberately take or destroy the eggs of such an animal, or
  - e. intentionally, deliberately or recklessly damage or destroy a breeding site or resting place of such an animal, or obstruct access to such a place
- 7.25 For the purposes of paragraph (c), disturbance of animals includes in particular any disturbance which is likely—
- a. to impair their ability—
    - i. to survive, to breed or reproduce, or to rear or nurture their young, or
    - ii. in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
  - b. to affect significantly the local distribution or abundance of the species to which they belong.
- 7.26 Although the law provides strict protection to these species, it also allows this protection to be set aside (derogated) through the issuing of licences. The licences in England are currently determined by Natural England (NE) for development works and by Natural Resources Wales in Wales. In accordance with the requirements of the Regulations (2017, as amended), a licence can only be issued where the following requirements are satisfied:
- a. The proposal is necessary ‘to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment’
  - b. ‘There is no satisfactory alternative’
  - c. The proposals ‘will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

### ***Definition of breeding sites and resting places***

- 7.27 Guidance for all European Protected Species of animal, including bats and great crested newt, regarding the definition of breeding and of breeding and resting places is provided by The European Council (EC) which has prepared specific guidance in respect of the interpretation of various Articles of the EC Habitats Directive.<sup>7</sup> Section II.3.4.b) provides definitions and examples of both breeding

<sup>7</sup> Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC. (February 2007), EC.

and resting places at paragraphs 57 and 59 respectively. This guidance states that ‘The provision in Article 12(1)(d) [of the EC Habitats Directive] should therefore be understood as aiming to safeguard the ecological functionality of breeding sites and resting places.’ Further the guidance states: ‘It thus follows from Article 12(1)(d) that such breeding sites and resting places also need to be protected when they are not being used, but where there is a reasonably high probability that the species concerned will return to these sites and places. If for example a certain cave is used every year by a number of bats for hibernation (because the species has the habit of returning to the same winter roost every year), the functionality of this cave as a hibernating site should be protected in summer as well so that the bats can re-use it in winter. On the other hand, if a certain cave is used only occasionally for breeding or resting purposes, it is very likely that the site does not qualify as a breeding site or resting place.’

## Birds

- 7.28 All nesting birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition to this, for some rarer species (listed on Schedule 1 of the Act), it is an offence to disturb them whilst they are nest building or at or near a nest with eggs or young, or to disturb the dependent young of such a bird.
- 7.29 The Conservation of Habitats and Species Regulations 2017 (as amended) places duties on competent authorities (including Local Authorities and National Park Authorities) in relation to wild bird habitat. These provisions relate back to Articles 1, 2 and 3 of the EC Directive on the conservation of wild birds (2009/147/EC, ‘Birds Directive’<sup>8</sup>) (Regulation 10 (3)) requires that the objective is the ‘preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat, as appropriate, having regard to the requirements of Article 2 of the new Wild Birds Directive...’ Regulation 10 (7) states: ‘In considering which measures may be appropriate for the purpose of security or contributing to the objective in [Regulation 10 (3)] Paragraph 3, appropriate account must be taken of economic and recreational requirements’.
- 7.30 In relation to the duties placed on competent authorities under the 2017 Regulations, Regulation 10 (8) states: ‘So far as lies within their powers, a competent authority in exercising any function [including in relation to town and country planning] in or in relation to the United Kingdom must use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild birds (except habitats beyond the outer limits of the area to which the new Wild Birds Directive applies).’

## Badger

- 7.31 Badger is protected under the Protection of Badgers Act 1992. It is not permitted to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so; or to intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it. A badger sett is defined in the legislation as “a structure or place, which displays signs indicating current use by a badger”.
- 7.32 ODPM Circular 06/2005<sup>9</sup> provides further guidance on statutory obligations towards badger within the planning system. Of particular note is paragraph 124, which states that “The likelihood of disturbing a badger sett, or adversely affecting badgers’ foraging territory, or links between them, or significantly increasing the likelihood of road or rail casualties amongst badger populations, are capable of being material considerations in planning decisions.”
- 7.33 Natural England provides Standing Advice<sup>10</sup>, which is capable of being a material consideration in planning decisions. Natural England recommends mitigation to avoid impacts on badger setts, which includes maintaining or creating new foraging areas and maintaining or creating access (commuting routes) between setts and foraging/watering areas.

<sup>8</sup> 2009/147/EC Birds Directive (30 November 2009. European Parliament and the Council of the European Union.

<sup>9</sup> ODPM Circular 06/2005. *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System* (2005). HMSO Norwich.

<sup>10</sup> <http://www.naturalengland.org.uk/ourwork/planningdevelopment/spatialplanning/standingadvice/specieslinks.aspx>

## Reptiles

- 7.34 All native reptile species receive legal protection in Great Britain under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Viviparous lizard, slow-worm, grass snake and adder are protected against killing, injuring and unlicensed trade only. Sand lizard and smooth snake receive additional protection as “European Protected species” under the provisions of the Conservation of Habitats and Species Regulations 2017 (as amended) and are fully protected under the Wildlife and Countryside Act 1981 (as amended).
- 7.35 All six native species of reptile are included as ‘species of principal importance’ for the purpose of conserving biodiversity under Section 41 (England) of the NERC Act 2006 and Section 7 of the Environment (Wales) Act 2016.
- 7.36 Current Natural England Guidelines for Developers<sup>11</sup> states that ‘where it is predictable that reptiles are likely to be killed or injured by activities such as site clearance, this could legally constitute intentional killing or injuring.’ Further the guidance states: ‘Normally prohibited activities may not be illegal if ‘the act was the incidental result of a lawful operation and could not reasonably have been avoided’. Natural England ‘would expect reasonable avoidance to include measures such as altering development layouts to avoid key areas, as well as capture and exclusion of reptiles.’
- 7.37 The Natural England Guidelines for Developers state that ‘planning must incorporate two aims where reptiles are present:
- To protect reptiles from any harm that might arise during development work;
  - To ensure that sufficient quality, quantity and connectivity of habitat is provided to accommodate the reptile population, either on-site or at an alternative site, with no net loss of local reptile conservation status.’

## Water vole

- 7.38 Water vole is protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to kill, injure or take any water vole, damage, destroy or obstruct access to any place of shelter or protection that the animals are using, or disturb voles while they are using such a place. Water vole is listed as a Species of Principal Importance under the provisions of the NERC Act 2006 in England and under the provisions of the Environment (Wales) Act 2016.

## White-clawed crayfish

- 7.39 The white-clawed crayfish is scheduled under the Wildlife and Countryside Act 1981 (as amended), listed under the EC Habitats Directive (Annexe II and V) and is on the IUCN Red Data List for endangered and threatened species. It is also a Species of Principal Importance under the provisions of the NERC Act 2006 and the provisions of the Environment (Wales) Act 2016.
- 7.40 Under the Wildlife and Countryside Act 1981 (as amended) it is illegal to take or sell white-clawed crayfish. Whilst it is not an offence under the Act to disturb or kill white-clawed crayfish or to damage or destroy their habitat, both Natural England and the Environment Agency recommend that anyone carrying out any form of management or development work on suitable watercourses take into account the conservation of this species.
- 7.41 Signal crayfish and several other invasive non-native crayfish species are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Strictly speaking, this makes it an offence to return to the wild any signal crayfish, even if inadvertently captured. Any signal crayfish or other non-native crayfish captured should be humanely destroyed (once their identification has been confirmed by a suitably qualified and experienced ecologist).

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<sup>11</sup> English Nature, 2004. *Reptiles: guidelines for developers*. English Nature, Peterborough. <https://webarchive.nationalarchives.gov.uk/20150303064706/http://publications.naturalengland.org.uk/publication/76006>



## Hedgerows

- 7.42 Article 10 of the Habitats Directive<sup>12</sup> requires that 'Member States shall endeavour...to encourage the management of features of the landscape which are of major importance for wild fauna and flora. Such features are those which, by virtue of their linear and continuous structure...or their function as stepping stones...are essential for the migration, dispersal and genetic exchange of wild species'. Examples given in the Directive include traditional field boundary systems (such as hedgerows).
- 7.43 The aim of the Hedgerow Regulations 1997<sup>13</sup>, according to guidance produced by the Department of the Environment<sup>14</sup>, is "to protect important hedgerows in the countryside by controlling their removal through a system of notification. In summary, the guidance states that the system is concerned with the removal of hedgerows, either in whole or in part, and covers any act which results in the destruction of a hedgerow. The procedure in the Regulations is triggered only when land managers or utility operators want to remove a hedgerow. The system is in favour of protecting and retaining 'important' hedgerows.
- 7.44 The Hedgerow Regulations set out criteria that must be used by the local planning authority in determining which hedgerows are 'important'. The criteria relate to the value of hedgerows from an archaeological, historical, wildlife and landscape perspective.

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<sup>12</sup> Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

<sup>13</sup> Statutory Instrument 1997 No. 1160 – The Hedgerow Regulations 1997. HMSO: London

<sup>14</sup> The Hedgerow Regulations 1997: a guide to the law and good practice, HMSO: London