Adonis Ecology Ltd.

A Preliminary Ecological Appraisal at The Granary, Lindsey, to support a Planning Application

Project Ref: 1609

Prepared on behalf of:

Mr. & Mrs. Boggis
The Granary,
The Tye
Lindsey
Ipswich
Suffolk, IP7 6PP

By:

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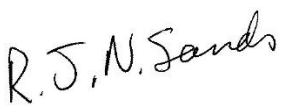
Quality Assurance

The findings outlined within this report and the data we have provided are to our knowledge true, and express our bona fide professional opinions. This report has been prepared and provided in accordance with the Chartered Institute for Ecology and Environmental Management (CIEEM) Code of Professional Conduct and the British Standard BS 42020:2013 which provides a code of practice for biodiversity in planning and development (BSI, 2013). This standard also recommends compliance with CIEEM Guidelines for Preliminary Ecological Appraisals (CIEEM, 2013) and Guidelines for Ecological Report Writing (CIEEM, 2017) which includes model formats for Preliminary Ecological Appraisal and Ecological Impact Assessment.

As far as the author and report checker are aware, the only differences that occur in this report from the recommended layouts are:

- to enable greater clarity and reduce repetition (e.g. the report author is listed once on the quality assurance page in this report rather than on the front page, quality assurance page and introduction as in the CIEEM model formats);
- where there are inconsistencies in the guideline documents (e.g. the list of what should be included in the summary of an ecological report highlighted in the CIEEM Guidelines for Ecological Report Writing is different to that shown in the model formats in the same document); and
- to retain a proportionate approach in accordance with BS 42020:2013.

No method of assessment can completely remove the possibility of obtaining partially imprecise or incomplete information. Therefore, we cannot guarantee that this assessment completely defines the degree or extent of the occurrence of various species or habitats on the site, or the effectiveness of recommended actions as described in the report. In addition, as the ecological situation of a site is dynamic, this assessment pertains only to the conditions noted during the site visit. Therefore, to achieve the objectives of assessment as stated in this report, the conclusions are based on the information that was available during the time of the assessment and within the limits prescribed by our client in the agreement.

	Name	**Signature**
Report prepared by:	Richard J.N. Sands MA MSc MCIEEM CEnv	
Report checked by:	Marguerite Ravn BA (Hons) MPhil	
Survey conducted by:	Richard Sands. Details of relevant training and experience available on request.	
Date of survey:	6th April 2022	

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0 SUMMARY

0.1 Adonis Ecology Ltd. was commissioned by Mr and Mrs Boggis to undertake a Preliminary Ecological Appraisal (PEA) of land at The Granary, The Tye, Lindsey, Ipswich, Suffolk, IP7 6PP, grid reference TL 982 460. It was understood that it is proposed to erect a cartlodge and create a turning space for vehicles just off the driveway.

0.2 A desk study was undertaken, in addition to an extended UK HAB habitat survey which was conducted on the 6th April 2022. The site was checked for preferred habitat types, and signs or evidence of protected species and NERC Act 2006 Section 41 species and habitats.

0.3 The proposed works were considered to pose a potentially significant risk of impact on the following protected and/or Section 41 species/species groups:

- very low risk of impact to individual great crested newts *Triturus cristatus* traversing the site in the event they breed in one of the nearby ponds.

0.4 The following precautions are recommended to reduce the risk to impact to great crested newts to negligible:

- any trenches or holes which will be left overnight should either be fully covered, or have a wooden plank placed in them in such a way that any wildlife that falls in can climb out safely. Alternatively, one end of the trench should be sloped or stepped to allow animals to climb out;
- materials brought to the site for the construction works should be kept off the ground on pallets, so as to prevent small animals seeking refuge within them and coming into harm's way;
- waste created during the development should be removed off site immediately or placed in a skip, to prevent small animals using the waste as a refuge, and thus coming into harm's way.

0.5 The client has agreed to undertake biodiversity enhancements including installation of a bat and bird box on the proposed cartlodge as well as change the mowing regime of part of the grassland to enhance its ecological value.

0.6 Overall, the development site was considered to be of very low local value for wildlife. With the recommended precautions implemented, the risk of impact to protected and or Section 41 species, Section 41 habitats or local biodiversity from the proposed development could be reduced to negligible. Further, with the proposed biodiversity enhancements implemented, the site should achieve a net biodiversity gain as encouraged by the NPPF.

1 INTRODUCTION

1.1 Background

1.1.1 Adonis Ecology Ltd. was commissioned by Mr and Mrs Boggis to undertake a Preliminary Ecological Appraisal (PEA) including a Preliminary Roost Assessment (PRA) of land at The Granary, The Tye, Lindsey, Ipswich, Suffolk, IP7 6PP, grid reference TL 982 460.

Development Description

1.1.2 The plan used to determine the boundaries of the site and the likely impacts from the proposed development was "Proposed Cartlodge Location", drawing number PA_04, dated December 2021, which was produced by Wincer Kievenaar.

1.1.3 The surveyed site was approximately 0.43 ha in size, with the area of proposed development within this approximately 0.016ha. It was understood that it is proposed to erect a cartlodge and create a turning space for vehicles just off the driveway. Lighting is expected to be limited to a light on a motion sensor over the stairwell.

1.1.4 It was further understood that the Local Planning Authority (LPA) are likely to require a PEA and PRA to accompany the planning application for the site.

Aim and Objectives

1.1.5 The aim of this report is to determine the potential impacts of the proposed development of the site on significant local biodiversity, taking into account the species and habitats that may be affected, positively or negatively, and the potential for impact avoidance, mitigation and enhancement measures on the site.

1.1.6 To achieve this aim, the report has the following objectives:

- to identify and describe potentially significant ecological impact risks relevant to planning associated with the proposed development;
- to identify ways in which any significant risk of deleterious impacts could be avoided, wherever reasonably possible;
- for any significant ecological risks that could not reasonably be avoided, to describe surveys that would be required to confirm presence/absence and severity of impact, and outline likely mitigation options;
- to identify and describe ways in which the proposed change in use could enhance local biodiversity.

1.2 Planning Policy and Legislation

1.2.1 Planning policy and guidance considered for this report included:

- National Planning Policy Framework (NPPF);
- National Planning Practice Guidance (NPPG) – Natural Environment.

1.2.2 Legislation considered for this report included:

- Protection of Badgers Act 1992;
- Wildlife and Countryside Act 1981, as amended;
- Countryside and Rights of Way Act 2000;
- Natural Environment and Rural Communities (NERC) Act 2006;
- Conservation of Habitat and Species Regulations 2017, as amended.

1.2.3 Key considerations from the NPPF and NPPG related to ecology and development include that impacts on legally protected species and habitats, as well as NERC Act (2006) Section 41 species and habitats, are a material consideration for individual planning consents (MHCLG, 2021).

1.2.4 The NPPF also promotes the enhancement of natural and local environments through planning, and states that opportunities to improve biodiversity in and around developments should be integrated into development design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate (MHCLG, 2021).

2 METHODOLOGY

2.1 Desk Study

2.1.1 On behalf of Adonis Ecology Ltd., Suffolk Biodiversity Information Service (SBIS) undertook a search for records of protected, Section 41 and rare species, as well as non-statutory wildlife sites within 2km of the proposed development site.

2.1.2 Ordnance Survey maps, Google Earth and the Multi-agency Geographic Information for the Countryside (MAGIC) interactive map were used to locate ponds and ancient woodland within a 500m radius of the site, as well as to assess the general surroundings of the site. The MAGIC map was also used to determine whether any Local Nature Reserves or National Nature Reserves occurred within 2km of the site, and whether the site falls within any relevant Impact Risk Zones of Sites of Special Scientific Interest (SSSIs) and internationally designated sites such as Special Protection Areas (SPAs), Ramsars and Special Areas of Conservation (SACs).

2.1.3 Where a proposed development site does fall within an Impact Risk Zone relevant to the type of development proposed, the MAGIC map was used to determine statutory wildlife sites within 2km of the proposed development and the closest Natura 2000 site where this falls further than 2km from the site.

2.1.4 These results were then combined with the findings of the site survey in order to assess the risk of ecology issues relevant to planning occurring on site.

2.2 Site Survey

Habitats, Plants and Surroundings

2.2.1 The site was visited on the 6th April 2022 to survey for ecology issues. This included the following:

- a UK HAB habitat assessment recording dominant and higher plant species present on site, and a survey for Japanese knotweed *Fallopia japonica*, giant hogweed *Heracleum mantegazzianum* and other non-native, invasive plant species as listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended);
- an assessment of the suitability of habitats present on site for widespread reptiles, bats, great crested newts *Triturus cristatus* and other protected or Section 41 species;
- an assessment of the habitats surrounding the site and in the local area;
- a direct survey for evidence of protected species as far as possible within seasonal constraints, e.g. for bats and badgers *Meles meles*.

Survey Constraints

2.2.2 The survey was undertaken during the peak time of year to survey the ecological value of a site, which is taken to be between April and September. It was considered that sufficient plant species would be visible and could be identified at this time of year to determine habitat types on site, and to assess the likely value of these habitats for local wildlife. However, some plants may not have been visible above ground or identifiable to species level.

2.3 Protected Species

Badgers

2.3.1 The badger assessment, also conducted during the site visit consisted of a thorough search of the proposed development site for signs and evidence of badgers and badger setts.

2.3.2 Definite signs of badger activity were taken to be:

- badgers themselves;
- badger latrines;
- badger paw prints;
- badger hairs.

2.3.3 Signs of possible badger presence were taken to be:

- well trampled animal paths;

- snuffle holes;
- small piles of dry grass and similar on paths;
- any further signs.

2.3.4 There were no significant constraints on the badger survey.

Great Crested Newt Assessment

2.3.5 One pond on site and two nearby ponds were checked for suitability and likelihood of presence of great crested newts by applying the Habitat Suitability Index (HSI) assessment as developed by Oldham et al. (2000). The assessment was based on factors which may influence the likely presence of breeding great crested newts including for example:

- potential for excessive shading;
- presence of fish;
- suitability of pond vegetation;
- pollution or other degradation;
- local habitat context within the landscape.

2.3.6 The assessment was undertaken by a holder of a Natural England Level 1 Class Licence for great crested newts (2015-18941-CLS-CLS). The site itself was checked at the same time for terrestrial habitats and features suitable for foraging and sheltering great crested newts.

2.3.7 Pond 3 was only partly visible from the road and could not be assessed in detail to determine e.g. whether fish were present.

2.4 Evaluation Method

Habitats

2.4.1 Habitats were assigned according the UK Habitat Classification Habitat Definitions 1.1 dated September 2020 (Butcher *et al*., 2020[1]), and the UK Habitat Classification User Manual 1.1 dated September 2020 (Butcher *et al*., 2020[2]). Survey for PEA aims to take the habitats to level 4 (as available and identifiable) as this includes identification of Section 41 Habitats. Slight modifications from the UK Habitat method have been undertaken to enable extra clarity on the habitat figure. These include:

- The minimum mappable unit (MMU) default is 25m^2, or 5m length for linear features (Butcher et al., 2020[2]); however, where the extent and shape of a feature smaller than the MMU is considered relevant to the site, for example because of relative ecological importance, potential impact, or locating other features, that feature is also mapped.
- In addition to the location of the base of the trunks being given for individual trees as per the UK Habitat Classification User Manual (Butcher *et al*., 2020[2]),

circles are also drawn giving an indication of approximate extent of their canopies.

- While if a secondary characteristic occurs frequently on site, the full habitat and secondary code would be shown and the code given in the key as per the UK Habitat Classification User Manual (Butcher *et al*., 2020[2]), if the characteristic is infrequent the information will be simply labelled over the habitat for ease of interpreting the figure.

- Other information on habitats for which there are not currently UK HAB codes available may be added as labels or included in accompanying text and tables.

2.4.2 Assigning habitats to the appropriate UK HAB level 4 habitat was assisted by use of an Excel metric tool developed at Adonis Ecology. Habitat characteristics are recorded onto an Excel form in the field, and the Excel metric automatically calculates the UK HAB habitat type taking into account the thresholds in the UK Habitat Classification Habitat Definitions 1.1 dated September 2020 (Butcher *et al*., 2020[1]). This method ensures that habitats are assigned in as objective and precise a manner as possible.

Species

2.4.3 The evaluation for protected and Section 41 species is divided into two parts:

1. the number of that species that the zone of influence could intrinsically support (i.e. carrying capacity) and;

2. the likelihood of the species actually occurring in the zone of influence, which is dependent upon both the intrinsic value of the habitat parcel and also extrinsic factors such as connectivity to other suitable habitat.

2.4.4 It should be noted that the zone of influence may include only parts of the site and/or may extend off site, depending upon the scale and form of development and the ecology of the species concerned.

2.4.5 The likelihood of a species occurring on site is currently determined by the ecologist making a judgement based on the following factors:

- The intrinsic value of habitats in the zone of influence to the species, estimated using a metric described further on in this section, presuming that areas that are able to potentially support larger populations are more likely to have the species present;

- whether the species has been recorded locally, and how far from the site, taking into account that some species tend to be better recorded than others in certain environments;

- whether signs of species were observed within the zone of influence during the survey or surveys, taking into account season of survey and that some species and signs are much less likely to be observed during a UK Hab Habitat Survey than others;

- the degree to which the site is considered to be connected to suitable habitat, taking into account the quantity, suitability and distance of nearby suitable habitat. Habitat out to 500m from the site is taken into account when considering this connectivity.

2.4.6 To enable our determination of the value of habitat parcels to protected and Section 41 species to be as objective as possible, be evidence based wherever possible and, where not possible, to be consistent and measurable, the habitat metric was extended to enable automatic calculations of the intrinsic value of habitat parcels to the more commonly relevant protected and Section 41 species.

2.4.7 For each species, the key characteristics of a habitat that affected its ability to support the species (i.e. which affected the carrying capacity of the species) and the carrying capacity of that species were determined based upon published scientific research and official guidelines where this information could be found. Where this information was not found to be available, then evidence from surveys undertaken over the last 13 years by Adonis Ecology was used. Where this was limited, then the judgement of the principal ecologist (Richard Sands MA MSc CEnv MCIEEM) was used to determine the key habitat characteristics and likely relationship to the species population. These key habitat characteristics were incorporated into Excel recording sheet and linked formulas. These formulas use the data on characteristics of a habitat parcel inputted by a surveyor to calculate the intrinsic value of the habitat parcel to the protected and Section 41 species.

2.4.8 For most of the species, the output value is the estimated population of that species that the habitat parcel could support, presuming:

- The species has colonised the site;
- The species has had sufficient time since colonising the site for the population to grow to capacity;
- There are not unusual outside effects, e.g. abnormally high predation pressure or re-stocking.

2.4.9 For some species, due to limited meaningful information on population density (e.g. foraging bats, where measurements are usually a function of activity as well as density), the output value is expressed relative to 1, where 1 would correspond to 1ha of ideal habitat.

2.4.10 A list of the key characteristics that are used for determining a particular species value in the metric, and the bibliography for development of the metric, are available on request.

3 RESULTS AND EVALUATION

3.1 Site Location

3.1.1 The site was located at the northern edge of the village of Lindsey, approximately 5.5 km to the north west of the centre of Hadleigh, Suffolk (Google Earth, 2022).

3.2 The Surroundings

Description of Site Surroundings

3.2.1 The western border of the surveyed site consisted of a largely dry ditch with arable field beyond. The northern border consisted of a minor road leading around to the east and into the village of Lindsey to the south. The eastern border consisted of a hedgerow and dry ditch, beyond which were small grass fields, gardens and houses of Lindsey. To the south was a large pond (see Photograph 1 in Appendix 2) with further residential areas of Lindsey beyond. Further out the landscape was dominated by arable farmland (Google Earth, 2022).

3.2.2 The key habitats and features surrounding the site are summarised in Table 1 following.

Table 1: Key Habitat Features Surrounding Surveyed Site

Feature	Value
Percentage deciduous tree cover within 500m of site	7%
Percentage non-illuminated tree/tall shrub cover (over 4m) within 50m of the site	12%
Number of non-illuminated tree/tall shrub lines within 50m of the site	2
Distance to nearest medium-large pond, lake, river or open stream	On site
Percentage of rough grassland within 500m of the site	3%
Degree to which surrounding 500m is built up (rural, suburban, urban)	Rural

Waterbodies within 500m

3.2.3 Table 2 following shows waterbodies within 500m of the site as indicated on Ordnance Survey maps provided by Promap (2022). Nearby waterbodies can be significant with regard to particularly amphibians (within 500m), otters (within 200m), water voles (within 5m) and water birds (several kilometres). Minor hindrances to amphibian dispersal are considered to include features such as minor roads, slow-flowing small rivers and streams, arable land and extensive areas lacking in potential amphibian refuges. Major hindrances to amphibian dispersal are considered to include features such as busy roads, built up areas and wide or fast-flowing rivers and streams.

Table 2: Waterbodies within 500m of the Area to be developed

	Location relative to Site		Hindrances to Amphibian Dispersal	
Waterbody Type	**Distance**	**Direction**	**Minor**	**Major**
Large pond	26m	South	None	None
Small pond	95m	South east	Residential area	None
Small pond	167m	North	None	None
Small pond	295m	South	Residential area	None
Small pond	379m	South west	None	None
Medium pond	439m	South east	Residential area	None

3.2.4 There was no other significant wetland habitat or features within 500m of the site.

3.2.5 The result of the HSIs of the three nearest waterbodies listed above (and shown on Figure 1 in Appendix 1), are given in Table 9 in Appendix 3.

Ancient Woodlands within 500m

3.2.6 There was no ancient woodland known within 500m of the site (MAGIC, 2022).

Statutory Designated Sites

3.2.7 The proposed development site falls within Impact Risk Zones for designated sites, but there was no requirement for the Local Planning Authority (LPA) to consult Natural England on developments of the type proposed in this location (MAGIC, 2022). This means that Natural England consider that developments of the type proposed in this area are unlikely to potentially affect SSSIs or internationally designated sites, and these sites are thus considered no further in this report.

3.2.8 No National Nature Reserves or Local Nature Reserves were found to occur within 2km of the proposed development site (MAGIC, 2022).

Non-Statutory Designated Sites

3.2.9 Table 3 following summarises the non-statutory designated sites, such as County Wildlife Sites (CWSs), Local Wildlife Sites (LWSs), Sites of Interest to Nature Conservation (SINCs) and Roadside Nature Reserves (RNRs), that occur within 2km of the proposed development site and meet at least one of the following criteria:

- occur within 500m of the proposed development site;
- are strongly connected by habitat to the proposed development site (e.g. by a river or continuous woodland);
- are cited for particularly mobile species such as birds, bats or highly mobile invertebrates (e.g. from Lepidoptera, Hymenoptera and Odonata).

Table 3: Nearby Non-statutory Designated Sites

	Location from Site		**Cited Features**
Site Name	**Distance**	**Direction**	**Key Habitats and Species**
Semer Wood CWS	1.2km	North east	Ancient woodland supporting a diverse groundflora, including uncommon ancient woodland indicator species, and a good range of woodland birds.

3.2.10 Information in Table 3 is from SBIS (2022).

3.3 Habitats and Significant Species Signs on Site

3.3.1 A UK HAB habitat plan showing the habitats on site and highlighting the key features found in the area of impact is provided in Figure 1 in Appendix 1. The key characteristics of the predominant habitats on site is given in Table 7 in Appendix 3.

3.3.2 Only one habitat type was present within the area proposed for the cartlodge and turning area, that being short g3c “other neutral grassland”. This appeared to be regularly cut and used for amenity purposes, a trampoline being located

approximately over the area of much of the proposed turning area (see Photograph 2 in Appendix 2). No holes or other herpetofauna refuges were apparent.

3.3.3 A long u1b6 driveway of gravel occurred down the centre of the surveyed site, adjacent to the area proposed for the cartlodge and turning area (see Photograph 3 in Appendix 2).

3.3.4 Towards the northern end of the surveyed site, close to Pond 1 (see Photograph 4 in Appendix 2), a small number of cowslips *Primula veris* were present within the grassland (see Photograph 5 in Appendix 2), these being the only grassland type indicator species observed within the grassland.

3.3.5 Adjacent the western boundary of the surveyed site was a 1m h2a high native hedgerow that appeared to be recently planted, composed predominantly of beech *Fagus sylvatica* in the southern half (see Photograph 2 in Appendix 2) and hawthorn *Crataegus monogyna* in the northern half. Further hedgerow to 2.2m that appeared recently planted occurred in the southern part of the eastern boundary (see Photograph 6 in Appendix 2), with a much older, species-rich native hedgerow around 5.5m in height along the northern part of the eastern boundary.

3.3.6 In the south of the surveyed site were buildings, h2b non-native hedgerow dominated by cherry laurel *Prunus laureocerasus*, recently planted ornamental and fruit trees within the grassland, and a small area of vegetable garden/plant nursery (all within u1d).

3.3.7 No specific signs or evidence of any protected or Section 41 species were found within the surveyed site. No Schedule 9, non-native, invasive plant species were found on the surveyed site.

3.4 Evaluation – Species and Habitats

3.4.1 Table 4 below summarises the site evaluation for protected species (some of which are also Section 41 species) where the legal protection is relevant to the proposed development and Table 5 summarises the site evaluation for Section 41 species. The estimated zone of influence carrying capacities are based on those calculated using the metric as described in the method section with the results of the calculation shown in Table 8 in Appendix 3.

3.4.2 Where the likelihood of presence of any protected species or species group in Table 4 was considered to be greater than negligible (highlighted in red), the legislation surrounding such species and the risk are detailed in the following section.

Table 4: Evaluation of Protected Species Likelihood on Site

Species or species group	Species present in data search	Signs found	Connectivity of site to other suitable habitat	Estimated zone of influence carrying capacity	Likelihood of presence in zone of influence
Roosting bats – buildings	Common pipistrelle, soprano pipistrelle, brown long-eared, Daubenton's, noctule, serotine and Barbastelle	None	Moderate	None	None
Roosting bats – trees		None		None	None
Foraging/		N/A		Very Low	**Moderate**

Species or species group	Species present in data search	Signs found	Connectivity of site to other suitable habitat	Estimated zone of influence carrying capacity	Likelihood of presence in zone of influence
commuting bats					
Badger setts	Yes	None	Low	Negligible	Negligible
Badger foraging/ dispersing		None*		Very Low	Negligible
Dormouse	No	None*	Negligible	Negligible	Negligible
Otter	Yes	None	None	None	None
Water vole	Yes	None	None	None	None
Great crested newts - breeding	Yes Nearest 748m east of site	None*	Moderate	None	None
Great crested newts – dispersing and refuges		None*		Very low	**Very low**
Reptiles	Grass snake – nearest 1.84km north of site	None*	Moderate	Negligible	Negligible
Schedule 1 nesting birds	Yes	None	Moderate	Negligible	Negligible
Common nesting birds	Yes	None	Moderate	Negligible	Negligible
Protected plants/fungi	No	None	Low	Negligible	Negligible
Protected invertebrates	No	None*	Low	Negligible	Negligible
Other protected species relevant to development	No	None*	None	None	None

* Denotes where signs and evidence are unlikely to be found in a single survey visit, even if species present.

3.4.3 For Section 41 species and species groups in Table 5, the impact risk is detailed in the following section only where it is considered the proposed development could have a potentially significant risk of impact on the local population (highlighted in red), i.e. where one of the following conditions is met:

- at least a very low likelihood of a high estimated zone of influence carrying capacity;
- at least a low likelihood of a moderate estimated zone of influence carrying capacity;
- at least a moderate likelihood of a low estimated zone of influence carrying capacity;
- high likelihood of a very low estimated zone of influence carrying capacity.

Table 5: Evaluation of Section 41 Species Likelihood on Site

Species or species group	Species present in data search	Signs found	Connectivity of site to other suitable habitat	Estimated zone of influence carrying capacity	Likelihood of presence in zone of influence
Hedgehog	Yes	None*	High	Negligible	Low
Brown hare	Yes	None	Moderate	Negligible	Negligible
Polecat	Yes	None*	High	Negligible	Negligible
Harvest mouse	Yes	None*	Low	Negligible	Negligible
Common toad	Yes	None*	Moderate	Very Low	Negligible
Section 41 plants and fungi	Grape hyacinth, cornflower	None	Very Low	Negligible	Negligible
Section 41 breeding birds	Yes	None	Moderate	Negligible	Negligible
Section 41 invertebrates	Stag beetle, small heath, grayling, white letter hairstreak and 2 moth species	None*	Low	Negligible	Negligible
Section 41 fish	European eel	None*	None	None	None
Other Section 41 species	No	None	None	None	None

*Denotes where signs and evidence are unlikely to be found in a single survey visit, even if species present.

3.4.4 Table 6 below lists the Section 41 habitats that are most likely to be encountered inland in lowland England, their occurrence on site and the amount of each habitat considered likely to be impacted by the proposed development. Habitats on site were assessed against JNCC criteria for UK BAP habitats (JNCC, 2016), which are those habitats listed for Section 41.

Table 6: Section 41 Habitats and Amounts Expected to be Impacted by Proposed Development of Site

Section 41 Habitats	Approximate Amount on site (ha unless otherwise stated)	Comments	Likely amount of impact (ha/m)
Rivers	0	No similar habitat on site	0
Ponds	0	Nearby ponds not expected to be affected.	0
Eutrophic Standing Waters	0	No similar habitat on site	0
Arable Field Margins	0	No similar habitat on site	0
Hedgerows	0m	Adjacent native species hedgerow not expected to be affected.	0m
Traditional Orchards	0	No similar habitat on site	0
Wood Pasture & Parkland	0	No similar habitat on site	0
Lowland Beech & Yew Woodland	0	No similar habitat on site	0

Section 41 Habitats	Approximate Amount on site (ha unless otherwise stated)	Comments	Likely amount of impact (ha/m)
Wet Woodland	0	No similar habitat on site	0
Lowland Mixed Deciduous Woodland	0	No similar habitat on site	0
Lowland Dry Acid Grassland	0	No acid grassland indicator species found on site	0
Lowland Calcareous Grassland	0	No calcareous grassland indicator species found on site	0
Lowland Meadows	0	Insufficient number or abundance of unimproved neutral grassland indicator species to meet S41 criteria	0
Coastal and Flood Plain Grazing Marsh	0	No similar habitat on site	0
Lowland Heathland	0	No similar habitat on site	0
Purple Moor-grass and Rush Pastures	0	No similar habitat on site	0
Lowland Fens	0	No similar habitat on site	0
Reedbeds	0	No similar habitat on site	0
Lowland Raised Bog	0	No similar habitat on site	0
Open Mosaic Habitats on Previously Developed Land	0	No similar habitat on site	0

3.5 Overall Ecological Value of the Site

3.5.1 Overall, the surveyed site was considered to be of likely very low value for wildlife at a local level. This can be seen from evaluation of the site using the criteria as set out in Table 10 in Appendix 3.

4 LEGISLATION AND IMPACT RISK ASSESSMENT

4.1 Bats

Summary of Relevant Legislation

4.1.1 Bats are protected under the Conservation of Habitats and Species Regulations 2017 (as amended), as well as the Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000. Offences likely to be relevant to development are to:

- deliberately capture, injure or kill a bat;
- deliberately disturb a bat in a way that would affect its ability to survive, breed, rear young, hibernate or migrate or significantly affect the local distribution or

abundance of the species;

- damage or destroy a roost;
- intentionally or recklessly disturb a bat at a roost;
- intentionally or recklessly obstruct access to a roost.

Foraging and Commuting Bats – Impact Risk

4.1.2 The short grassland within the area to be developed would provide very limited foraging value for bats given its small size and simple structure that would not support significant numbers of insects. The hedgerow just west of the area to be developed was too short to provide a likely commuting route, with the hedgerow the other side of the driveway, on the eastern side of the site, being much more likely to provide a commuting and foraging route for bats.

4.1.3 It was considered that as neither hedgerow is expected to be affected by the proposals, and the lighting as proposed would not be expected to significantly affect either hedgerow, the risk of impact on foraging and commuting bats from the proposed development would be negligible.

4.2 Herpetofauna

Great Crested Newts – Relevant Legislation

4.2.1 Great crested newts are protected under the Conservation of Habitats and Species Regulations 2017 (as amended), as well as the Wildlife and Countryside Act 1981 as amended by the Countryside Rights of Way Act 2000. Offences likely to be relevant to development are to:

- damage or destroy a breeding site or resting place;
- intentionally or deliberately capture or kill;
- intentionally injure;
- deliberately disturb, or intentionally or recklessly disturb in a place of shelter or protection;
- intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection.

Great Crested Newts – Impact Risk

4.2.2 Pond 2, the nearest pond to the site, was assessed as providing potentially “excellent” habitat for great crested newts. However, the area to be developed was relatively small and completely lacked potential refuges for great crested newts. The proposed development would not be expected to result in the destruction of resting places or disturbance of great crested newts in resting places, nor obstruct access to any places used for shelter or protection. However, without suitable precautions there would be a very low risk of harm during construction to individual great crested newts that may

traverse across the site while dispersing. Recommendations are therefore given in Section 5 of this report which should be implemented to reduce this risk to negligible.

4.3 Schedule 9 Invasive Species

Summary of Relevant Legislation

4.3.1 It is illegal under the Wildlife and Countryside Act 1981 (as amended) to cause plant species listed under Schedule 9 of that act to spread in the wild. Actions that could cause such species to spread in the wild include exporting soil and plant material off site, and inadvertently carrying seeds and material off site via mud in tyre treads.

Japanese Knotweed and other Invasive Plant Species

4.3.2 No Japanese knotweed or other Schedule 9 species were observed on site during the survey or considered likely to occur on site.

4.4 Designated Sites

Non-Statutory Designated Sites

4.4.1 The only non-statutory designated site with mobile species, the Semer Wood CWS, was not connected to the site by natural habitats. In addition, the grassland habitat on site to be affected by the development was not considered to be acting as a supporting habitat for the mobile species for which it is cited, i.e. woodland birds. Therefore, it is considered that the risk of impact on any non-statutory wildlife sites from the proposed development was considered to be negligible.

5 RECOMMENDATIONS

5.1 Further Surveys

Other Surveys

5.1.1 No surveys for any protected or Section 41 species were considered necessary as the impact avoidance measures outlined below were considered sufficient to prevent significant risk of impact to all protected and/or Section 41 species from the proposed development of the site.

Validity of PEA

5.1.2 If site works do not commence for more than 18 months from the date of the survey undertaken for this report, the ecology of the site should be re-assessed as the ecological situation may have changed in the intervening time.

5.2 Impact Avoidance Measures

5.2.1 It is recommended that, if the Local Planning Authority are minded to grant planning consent, the impact avoidance measures described below should be conditioned.

5.2.2 To prevent risk of harm to great crested newts and any other small animals that may occasionally pass through the area of the proposed development, the following precautions should be undertaken:

- any trenches or holes which will be left overnight should either be fully covered, or have a wooden plank placed in them in such a way that any wildlife that falls in can climb out safely. Alternatively, one end of the trench should be sloped or stepped to allow animals to climb out;
- materials brought to the site for the construction works should be kept off the ground on pallets, so as to prevent small animals seeking refuge within them and coming into harm's way;
- waste created during the development should be removed off site immediately or placed in a skip, to prevent small animals using the waste as a refuge, and thus coming into harm's way.

5.3 Enhancement Recommendations – Net Biodiversity Gain

5.3.1 The following are recommendations for how the developer may achieve the NPPF requirement to incorporate opportunities to improve biodiversity in and around the proposed development. These are not considered to be necessary for mitigation or compensation of impacts on protected species or sites, but are necessary to achieve a net biodiversity gain.

5.3.2 It is recommended that, if the Local Planning Authority are minded to grant planning consent, a Biodiversity Enhancement Strategy based on the following recommendations be conditioned.

Bat and Bird Boxes

5.3.3 The client has agreed to install a bat and bird box on the proposed cartlodge. Other boxes than those recommended below may be used if approved in writing by an ecologist.

5.3.4 The Schwegler 1FE Bat Box (fitted with optional back plate) or 2FE Bat Box are recommended for external bat roosts. These are suitable for most common bat species and require no maintenance. Each bat box or tube should be positioned at a height of more than 4m above ground level, away from external lighting, and where there is a clear path of flight to the boxes.

5.3.5 Bird boxes should be installed above 2m, out of the reach of predatory cats, and should not be in direct sunlight, to avoid nestlings overheating and dying. The recommended choice of boxes would be either of the following:

- 1 x Schwegler 1B Hole Nest Box (26mm) suitable for blue tits *Cyanistes caeruleus*.
- 1 x Schwegler 1B Hole Nest Box (32mm) suitable for great tits *Parus major* and coal tits *Periparus ater*.

Grassland Enhancement

5.3.6 The g3c grassland on site was assessed as “moderate” based on the Natural England BNG metric version 3. The key feature that prevented the condition achieving “good” was the relatively high percentage (15%) of white clover *Trifolium repens* present.

5.3.7 The grassland did not contain a sufficient abundance or variety of neutral grassland indicator species to qualify as Section 41 Lowland Meadow, having only very few individuals of one indicator species (cowslip) present.

5.3.8 The client has agreed to change the grassland mowing regime of the grassland to the north of the site, near the pond, to let the grass grow from the end of February and allow the cowslips flower in spring, then cut as normal for the rest of year from July once the cowslips have seeded down. Aesthetically this would create a “flowering lawn”, and ecologically the cutting regime would imitate the traditional hay cut followed by grazing. This would be likely to result in a reduction in white clover in the relatively short term, thereby enhancing the g3c grassland condition to “good”. In the long term the proposed cutting regime would be likely to increase the abundance and eventually the variety of neutral grassland indicator species, gradually transforming the grassland towards Section 41 Lowland Meadow.

6 CONCLUSION

6.1 Overall, the development site was considered to be of very low local value for wildlife. With the recommended precautions implemented, the risk of impact to protected and or Section 41 species, Section 41 habitats or local biodiversity from the proposed development could be reduced to negligible. Further, with the proposed biodiversity enhancements implemented, the site should achieve a net biodiversity gain as encouraged by the NPPF.

7 REFERENCES

British Standards Institute (2013). *BS 42020:2013 Biodiversity – Code of Practice for Planning and Development*. British Standards Institute, London.

Butcher, B., Carey, P., Edmonds, R., Norton, L., & Treweek, J. (2020[1]). UK Habitat Classification – Habitat Definitions v1.1 at http://ukhab.org

Butcher, B., Carey, P., Edmonds, R., Norton, L., & Treweek, J. (2020[2]). UK Habitat Classification User Manual v1.1 at http://ukhab.org

CIEEM (2013). *Guidelines for Preliminary Ecological Appraisal*. Technical Guidance Series. Chartered Institute for Ecology and Environmental Management.

CIEEM (2017). *Guidelines for Ecological Report Writing*. Chartered Institute for Ecology and Environmental Management, Winchester.

Google Earth (2022). *Aerial View of The Granary, Lindsey and Surroundings.* Image dated April 2021.

JNCC (2016). *UK List of Priority Habitats*. http://jncc.defra.gov.uk/page-5706.

MAGIC (2022). *Statutory Wildlife Sites near Lindsey*. Multi-Agency Geographic Information for the Countryside, London. Accessed April 2022.

MHCLG (2021). *National Planning Policy Framework – July 2021*. Available to download online from the Government website https://www.gov.uk/government/publications/national-planning-policy-framework--2.

Oldham, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M. (2000). *Evaluating the Suitability of Habitat for the Great Crested Newt* (Triturus cristatus). Herpetological Journal Vol. 10 pp. 143-155.

OPSI (2007). *Protection of Badgers Act 1992.* Office of Public Sector Information, HMSO, London.

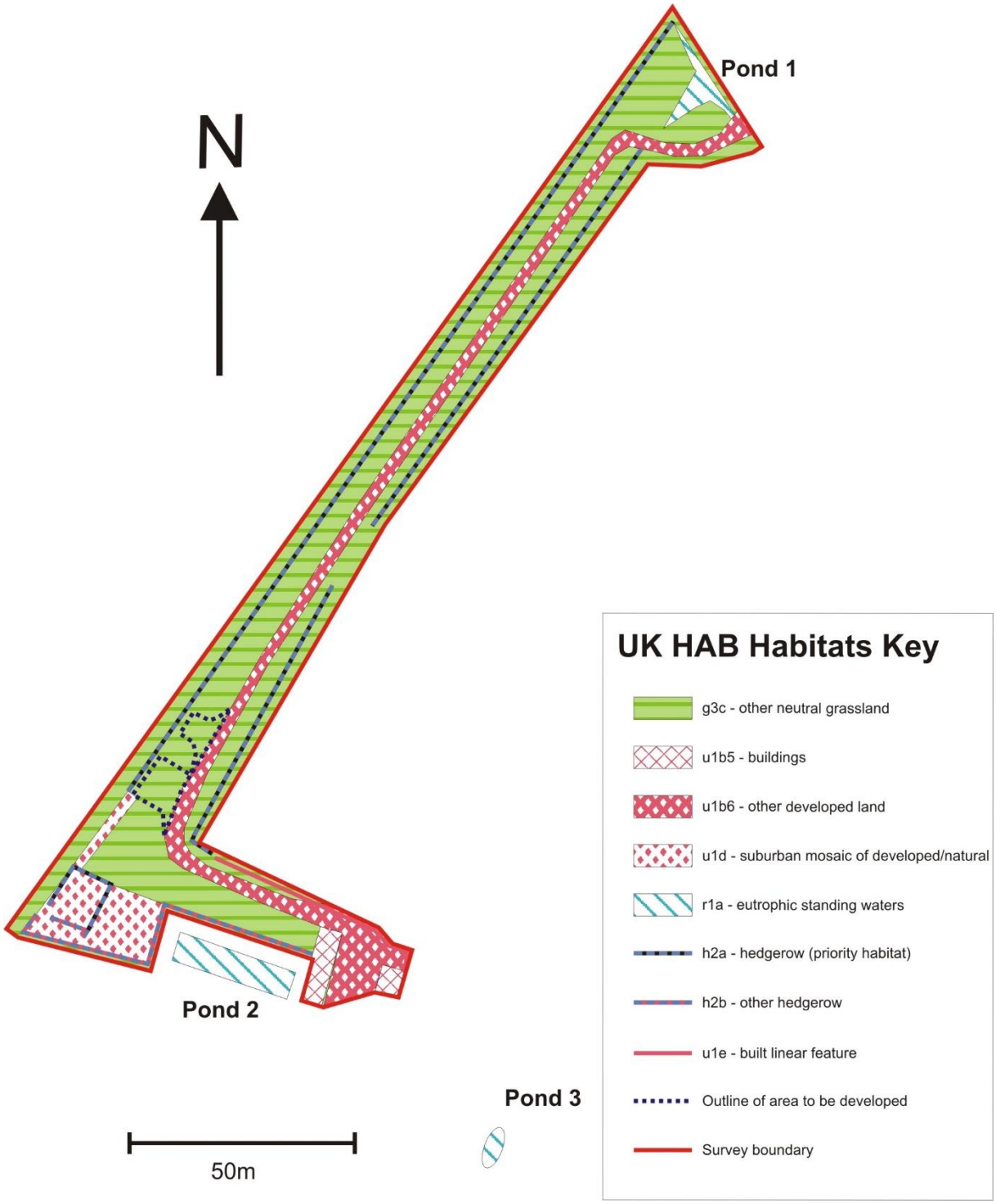
Promap (2022). *VectorMap Local of Lindsey and Surroundings*. Accessed April 2022. http://www.promap.co.uk.

SBIS (2022). Adonis Ecology (The Granary, Lindsey) 2km *Data Search*. Suffolk Biodiversity Information Service, Ipswich.

8 APPENDICES

8.1 Appendix 1: Figure

Figure 1: UK Hab Habitats and Features at The Granary, Lindsey on 6th April 2022



8.2 Appendix 2: Photographs

All photographs taken by Richard Sands (surveyor) at land at The Granary, The Tye, Lindsey, Ipswich, Suffolk, IP7 6PP, grid reference TL 982 460 on 6th April 2022

Photograph 1: Pond 2 to south of site from the west

Photograph 2: Grassland in area of proposed development and western hedge from south

Photograph 3: Driveway to right of area of proposed development from south

Photograph 4: Pond 1 from west

Photograph 5: Cowslips in grassland in north of site

Photograph 6: Hedgerow to west of site from north

8.3 Appendix 3: Result and Evaluation Tables

Table 7: Habitat Characteristics of Habitat on Site that would be impacted

Habitat unit ID number:	**1**
Broad UK HAB Type:	Grassland g
Habitat unit area in ha:	0.00
Terrestrial surface	
Hole frequency	Low
% cover exposed substrate	1
% cover	1
Typical height in m	2
Most common species	Prunus sp.
% cover	0
Most common species	0
No. native woody spp. (if over 25% scrub)	0
% Scrub native (if over 25% scrub)	0
Subshrub layer (heather, heaths, small gorses, bilberry)	
% cover Heather & associated dwarf shrub	0
Herb layer	
% cover	99
Typical height in m	0.03
Tussockyness	None
Most common species	Agrostis sp.
Ancient Woodland Character	None
Grassland/Fen Species Richness	9.7
Grassland Agricultural improvement Score	20
Wildflower & Sedge Cover excluding weeds	12
Lowland Dry Acid Grassland character	0
Lowland Meadows character	1
Lowland Calcareous Grassland character	1
Litter layer	
% cover of litter over 2cm depth	0

Negligible
Very low
Low
Moderate
High

Species richness: 1-3 = very low, 4-8 = low, 9-15= moderate, 16+ = high

Agricultural improvement: 0-9=low, 10-29=moderate, 30+ = high

Wildflower & Sedge cover excluding weeds: 0-9=low, 10-30=moderate, 31+=high

Lowland Dry Acid Grassland character: 1-3=very low, 4-6=low, 7 =moderate, 8+=high

Lowland Meadows character: 1-3=very low, 4-6=low, 7-8=moderate, 9+=high

Lowland Calcareous Grassland character: 1-3=very low, 4-6=low, 7-9=moderate, 10+=high

Table 8: Calculated Potential Value (Carrying Capacity) of Area expected to be impacted to Protected and Section 41 Species

Habitat unit ID number:	Grassland Habitat	Overall	Evaluation
Bat foraging value (1)	0.2	**0.2**	**Very Low**
Badger foraging	0.0	**0.0**	**Negligible**
Dormouse value	0.0	**0.0**	**Negligible**
Common Lizard value	0.3	**0.3**	**Negligible**
Slow-worm value	0.4	**0.4**	**Negligible**
Grass snake value	0.0	**0.0**	**Negligible**
Adder value	0.0	**0.0**	**Negligible**
GCN value (2)	1.6	**1.6**	**Very Low**
Ground nesting birds	0.0	**0.0**	**Negligible**
Shrub nesting birds (3)	0.0	**0.0**	**Negligible**
Tree nesting birds (3)	0.0	**0.0**	**Negligible**
Skylark nesting (3)	0.0	**0.0**	**Negligible**
Hedgehog foraging	0.0	**0.0**	**Negligible**
Brown Hare value	0.0	**0.0**	**Negligible**
Polecat value	0.0	**0.0**	**Negligible**
Harvest mouse value	0.0	**0.0**	**Negligible**
Common Toad (2)	0.2	**0.2**	**Very Low**
Stag Beetle (1)	0.0	**0.0**	**Negligible**
Aculeates (1)	0.0	**0.0**	**Negligible**

(1) = 1=1ha ideal habitat

(2) = If within 100m of breeding pond

(3) = Number of territories

Table 9: Habitat Suitability Index (HSI) Score for Ponds

	Scoring		
Pond No. (see Figure 1 in Appendix 1)	**Pond 1**	**Pond 2**	**Pond 3**
Map Location	1	1	1
Pond Area	0.2	1	0.2
Desiccation Rate	0.1	0.9	1
Water Quality	0.67	0.67	0.33
% Shade	1	0.9	0.3
Presence of Water Fowl	1	1	1
Presence of Fish	1	0.67	0.67
No. Ponds within 1km	1	1	1
Terrestrial Habitat Quality	0.67	1	0.33
% Macrophyte Cover	0.5	0.3	0.5
HSI Score Following Calculation	**0.58** (Below Average)	**0.80** (Excellent)	**0.54** (Below Average)

Table 10: Site Evaluation Score

Criteria	Rating/ Value	Example Levels	Score	Site Score
Size/Extent	Very High	>50 hectares	5	
	High	>10 but <50 hectares	4	
	Medium	>3 but <10 hectares	3	
	Low	>1 but <3 hectares	2	
	Very Low	<1 hectare	1	X
Diversity – Species	Very High	150 or more native plant species found/expected on site.	15	
	High	Between 100 – 149 native plant species found/expected on site.	10	
	Medium	Between 60 – 99 native plant species found/expected on site.	6	
	Low	Between 30 – 59 native plant species found/expected on site.	3	
	Very Low	Less than 30 native plant species found/expected on site.	1	X
Diversity – Habitats	Very High	More than 10 habitat types present on site with a mix of terrestrial and aquatic habitats present.	15	
	High	Between 5 – 10 different habitat types on site with a mix of terrestrial and aquatic habitat types.	10	
	Medium	>3 terrestrial habitats on site but either none or very limited aquatic habitat present.	6	
	Low	>2 habitat types present on site but with a predominance of one terrestrial habitat type covering over 60% of the total area and no aquatic habitats.	3	
	Very Low	Only 1 or 2 habitat types present on site with a predominance of one terrestrial habitat type which covers over 90% of the total area.	1	X
Naturalness	Very High	Predominant habitats unmanaged, slow developing and difficult to recreate, such as ancient woodland, species rich hedgerows. If known, land that has been unmanaged for more than 25 years.	10	
	High	Habitats largely unmanaged or traditionally managed in line with historic management of the site, if known, this may include derelict land that has been unmanaged for between 10 and 25 years.	8	
	Medium	Over 40% of the site consisting of natural features as opposed to hardstanding/buildings. Some degree of management may occur on a rotational or at a significantly low level. If known, land that has been derelict and unmanaged for no more than 10 years.	5	
	Low	Limited area of natural habitats on site and/or these are predominantly well managed/maintained e.g. garden beds, intensively grazed pasture. If known, this may include derelict land that has been unmanaged for no more than 3 years.	3	X
	Very Low	Few natural habitats found on site (hardstanding, intensive one crop agricultural land, short cut amenity grassland. If land is derelict/unmanaged, this must have been for no more than one year.	1	
Rare or Exceptional Features	Very High	Species or habitat present in quantity that is considered very rare and important at national and local levels.	20	
	High	Species or habitat present in quantity that is considered rare and of high importance at a local level, e.g. large population of a Section 41 species.	16	
	Medium	Species or habitat present that is considered moderately important at a local level.	10	
	Low	Species or habitats present in quantity not considered to be particularly rare or important at a local level.	4	
	Very Low	Species or habitats present considered to be widespread and common at both a local and national level or very common at a local level	1	X
Fragility	Very High	Habitat unable to be recreated within a reasonable timescale (<50 years) if lost such as ancient woodland/trees, unimproved grassland etc.	10	
	High	Habitat difficult to recreate to the same standard within a reasonable timescale (<50 years) such as species-rich hedgerows	8	

Criteria	Rating/ Value	Example Levels	Score	Site Score
	Medium	Habitats likely to be recreated to the same or close degree of similarity within 25 years such as semi-improved grasslands	5	
	Low	Habitats relatively easy to recreate within 2-10 years such as improved grassland, non species-rich hedgerows	3	X
	Very Low	Habitats easy to recreate and likely to establish within 1-2 years such as amenity grassland.	1	
Typicalness	Very High	Habitats on site rare at a national and/or regional level and/or considered to be very rare within the local context.	5	
	High	Habitats largely different to those nearby but with some similar areas known within the region.	4	
	Medium	Some habitats on site both similar and differing from those within a local context.	3	
	Low	Habitats on site largely the same as surrounding and regional habitats but some minor areas of different or significant habitat at a local level.	2	
	Very Low	Habitats on site largely the same as surrounding and regional habitats.	1	X
Connectivity	Very High	More than 10 hedgerows, waterways and/or tree lines linking site to other potential habitat. Linking habitat generally of high quality (hedgerows with no gaps, woodland, mature gardens) and linking to many and/or large areas of similar and/or diverse habitats.	15	
	High	6 – 9 hedgerows, tree lines or waterways linking site to other potential habitat. Connective habitat medium-high quality linking to areas of similar and/or diverse habitats.	10	
	Medium	Between 3 – 5 hedgerows, treelines and/or waterways connecting site to other potential habitat. Site usually linked to small areas of high quality habitat or large areas of poorer quality habitat.	6	
	Low	1 – 2 linking features such as hedgerows, waterways and/or tree lines to other potential habitat. Linking habitat generally of poor quality and linking to only small areas of similar habitat.	3	X
	Very Low	Site surrounded by hardstanding, roads and/or other significant barriers to wildlife dispersal. No hedgerows, waterways or tree lines to link site to potential habitat.	1	
Value for Appreciation of Nature	Very High	Public Rights of Access on site and habitats providing screening of industrial/commercial areas from residential.	5	
	High	Public Rights of Access to the site and a reasonable number of local residents that may appreciate the visual appearance of the site.	4	
	Medium	Site occasionally used by local public and provides some positive visual impact for local residents.	3	
	Low	No public rights of access to the site although site provides some positive visual impact for low numbers of local residents	2	X
	Very Low	No public rights of access to the site, site not visible from any residential or commercial properties and/or site not considered to provide positive visual impact.	1	
Site Score and Rating	16 – very low			

Site Value Scores: 9-19 = Very Low; 20-39 = Low; 40-59 = Moderate; 60-79 = High; 80-100 = Very High