

ENVIRONMENTAL PLANNING

Bellway Homes Ltd (Yorkshire Division)

Lee Lane

Royston

Ecological Impact Assessment

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Royston

Ecological Impact Assessment

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EXECUTIVE SUMMARY

BWB Consulting (BWB) was instructed by Bellway Homes Yorkshire to carry out an Ecological Impact Assessment relating to a proposed residential development off Lee Lane, Royston. The table below contains a summary of the likely significant effects of the proposed residential development relating to the construction phase, the completed development and cumulative effects.

An Extended Phase 1 Habitat survey was undertaken at the Site to determine the habitats present and their potential value for protected and notable species.

The Site is dominated by arable land (stubble) which is becoming encroached upon by grass and tall ruderal species.

Receptor	Nature of Effect (Permanent/Temporary)	Significance (Major/Moderate /Minor) (Beneficial/Adverse/Negligible)	Mitigation / Enhance ment Measures	Geographical Importance*							Residual Effects (Major/Moderate/ Minor) (Beneficial/Adverse /Negligible)
				I	UK	E	R	C	B	L	
Construction											
Wildlife Designati ons	None envisaged	Not applicable									
Habitats	Natural habitats on-site are generally of low ecological value. Hedgerows would qualify as Priority habitats under the NERC Act 2006 but are to be retained and protected.	Not applicable									
Amphibia ns	None envisaged	Not applicable									
Badger	None envisaged	Not applicable									
Bats	Two trees identified as having low potential to support roosts to be felled.	Minor adverse effect at less than local level	Precautio nary soft felling								* Negligible

Birds	Potential for disturbance during construction phase	Minor adverse effect at less than local level	Precautionary working methods.							*	Negligible
Reptiles	None envisaged	Not applicable									
Hedgehogs	Potential for animals to fall into/become trapped in open excavations.	Minor adverse effect at less than local level	Precautionary working methods.							*	Negligible
Operational											
Bats	Potential for disturbance from lighting	Minor adverse effect at less than local level	Lighting scheme to follow best practice guidance							*	Negligible
* Geographical Level of Importance I = International; UK = United Kingdom; E = England; R = Regional; C = County; B = Borough; L = Local											

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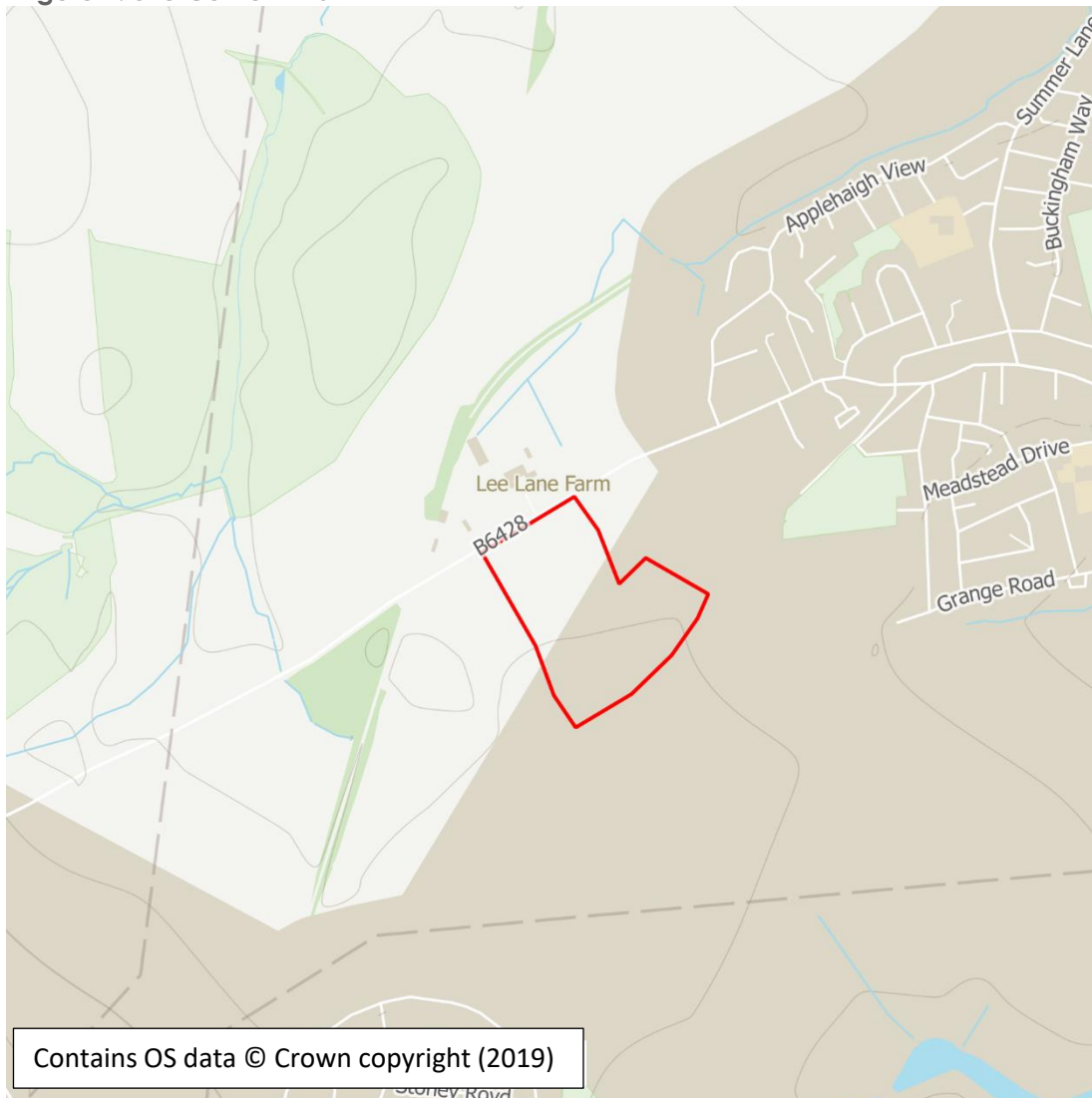
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1. INTRODUCTION

Instruction

- 1.1 BWB Consulting Ltd (BWB) was instructed by Bellway Homes Yorkshire (the Client) to carry out an Ecological Impact Assessment (EcIA) on land off Lee Lane, Royston. This is in relation to a proposed residential development. The Site was subject to an Extended Phase Habitat Survey in July 2018 and an updated survey in October 2019 to ground truth the findings of the 2018 survey.
- 1.2 The Site is located off Lee Lane, Royston (SE 3486 1104) and comprised an arable field which was itself surrounded by agricultural land.
- 1.3 **Figure 1** shows the Site location.

Figure 1: Site Context Plan



Aims

- 1.4 The primary purpose of this assessment is to provide a baseline of all ecological considerations and associated impacts relating to the development proposals. This will include mitigation and enhancement as appropriate.

Scope of Works

- 1.5 The ecological appraisal was informed by a desk-based study and a Site survey. The approach to this Ecological Impact Assessment follows best practice published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2019) and the British Standards Institution (BSI, 2013). Further details are provided later in this report.

Legislation and Planning Policy

- 1.6 The following legislation relates to species and habitats that could potentially occur in association with the Site:
- The Conservation of Habitats and Species Regulations 2019 (as amended);
 - The Wildlife and Countryside Act 1981 (as amended);
 - The Countryside and Rights of Way (CROW) Act 2000;
 - Natural Environment and Rural Communities (NERC) Act 2006;
 - The Protection of Badgers Act 1992;
 - Wild Mammals (Protection) Act 1996; and
 - The Hedgerow Regulations 1997.
- 1.7 Further information on the legislation relevant to this Site is provided in **Appendix 1**.
- 1.8 Consideration has also been given in this report to relevant National and Local Planning Policy as summarised below.
- 1.9 The National Planning Policy Framework (NPPF) guides Local Planning Authorities (LPAs) when developing their planning policies and considering planning applications affecting protected habitats, sites and species.
- 1.10 In respect of the natural environment, the NPPF states that:
- 1.11 *“Planning policies and decisions should contribute to and enhance the natural and local environment by:*
- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
 - b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and*

other benefits of the best and most versatile agricultural land, and of trees and woodland;

- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*
- f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate."*

1.12 Through the NPPF and Section 40 of the NERC Act, LPAs have a duty to consider habitats and species listed as being of principal importance for nature conservation in England on Section 41 (S41) of the Act when considering a planning application. In addition, the biodiversity duty of local planning authorities also covers species and habitats listed in local biodiversity action plans.

1.13 Additionally, Policy 36 of the Barnsley Core Strategy states the following:

"Development will be expected to conserve and enhance the biodiversity and geological features of the borough by:

- *protecting and improving habitats, species, sites of ecological value and sites of geological value with particular regard to designated wildlife and geological sites of international, national and local significance, ancient woodland and species and habitats of principal importance identified in Section 74 of the Countryside and Rights of Way Act 2000 and in the Barnsley Biodiversity Action Plan maximising biodiversity and geodiversity opportunities in and around new developments*
- *conserving and enhancing the form, local character and distinctiveness of the river corridors of the Dearne and Dove as natural floodplains and important strategic wildlife corridors Development which may harm a biodiversity or geological feature will not be permitted unless effective mitigation and/or compensatory measures can be ensured."*

2. METHODS

Scope of the Assessment

Zone of Influence (ZOI)

- 2.1 The search area for biodiversity information was related to the significance of sites and species and potential zones of influence, as follows:
- 5km around the Site for sites of International Importance (e.g. Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar site);
 - 2km around the Site for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSI) and Local Nature Reserves (LNR)); and
 - 2km around the Site for sites of County Importance (e.g. Sites of Importance for Nature Conservation (SINC)/Wildlife Sites and species records (e.g. protected, UK BAP or notable species).
- 2.2 The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the Site boundaries. For this scheme, the zone of influence was not considered to extend beyond the Site.

Consultation

- 2.3 Barnsley Biological Records Centre (BBRC) and West Yorkshire Ecology (WYE) were contacted in 2018 to request records of any locally designated sites and/or protected species from the Site and land within a 2km radius. Records more than ten years old have been largely disregarded.
- 2.4 Additionally, South Yorkshire Badger Group and South Yorkshire Bat Group were contacted in 2019 to obtain additional records. At the time of this report being issued, the records from South Yorkshire Bat Group had not been received; the results of this search will be included as an addendum to this report at a later date.
- 2.5 The site was surveyed in 2010 by the Local Planning Authority ecologist as part of the wider MU5 site relating to the Local Plan. Although a significant period of time has passed since this survey was conducted, the 2019 survey concurs with the findings of the 2010 survey. Similarly, the Site was surveyed, as part of a larger proposal which included additional land to the north and east, by RSK in 2012 (RSK, 2012). This report was also available for review and the findings were comparable to the most recent survey results.
- 2.6 In addition, the data sources listed below were also searched to gather additional ecological data of relevance to the project, including the identification of non-designated ecologically sensitive habitats such as vegetation corridors, woodlands, watercourses and standing water.
- Multi-Agency Geographic Information for the Countryside (MAGIC);

- Ordnance Survey 1:25,000 mapping; and
- Aerial imagery (Google – imagery dated 2016).

2.7 The summary of these consultations is contained in **Table 1**.

Table 1: Outcome of Consultations

Consultee and Date of Correspondence	Statutory or Non-Statutory	What was the Consultation Regarding	Outcome of Consultation	Method of Communication
BBRC and WYE – 2018	Non-statutory	Location of non-statutory sites and historical ecological records.	The closest designated wildlife site was approximately 0.3km northwest of the Site. Numerous protected species records also returned	Email
South Yorkshire Badger Group	Non-statutory	Location of badger records	No records of setts or animals	Email
Multi Agency Geographic Information for the Countryside (NAGIC) – March 2019	Statutory.	Location of statutory sites.	Notton Wood Local Nature Reserve (LNR) was the only designated wildlife site within 2km of the Site. The LNR is an area of mixed woodland attracting a varied amount of wildlife located approximately 0.3km northwest of the Site. The Site is also within a Special Site of Scientific Interest (SSSI) Risk Zone but the development type is not included within a risk category.	Via website.

Extended Phase 1 Habitat Survey

- 2.8 A Site survey was undertaken on 21st October 2019 by Chris Grocock MSc BSc (Hons) GradCIEEM. Chris has extensive experience in survey and site assessment for protected species and is appropriately qualified for the surveys based on the CIEEM competencies for species surveys (CIEEM, 2017). Chris is registered to use a Natural England Class Licence to survey for bats (2016-24827-CLS-CLS) and great crested newts (GCN) *Triturus cristatus* (2015-17144-CLS-CLS).
- 2.9 The visit was completed using Phase 1 habitat survey techniques as defined in the standard methodology (JNCC, 2010).
- 2.10 The aim of the visit was to gather sufficient baseline information on the habitats within the Site in order to allow an interpretation of the ecological value of the land.

2.11 In addition, the methodology was extended to include a search for incidental evidence of protected / notable fauna and an assessment of the Site's potential to support protected / notable fauna. Specific consideration was given to the following species:

- Birds;
- Bats;
- Amphibians, including GCN;
- Reptiles;
- Badgers *Meles meles*;
- Priority Species, such as hedgehog *Erinaceus europaeus*.

2.12 Standard methodologies were used where applicable.

2.13 Habitats adjacent to the Site were viewed, where possible, from the Site boundaries in order to assess their potential to support protected species that could be utilising the survey Site.

Survey Comments

2.14 The survey methodology highlights habitats and features with potential for protected / notable species but is not designed to provide a comprehensive presence / absence survey.

2.15 In line with standard guidance, the results and recommendations within this report are valid for up to two years from the date of survey, assuming there are no significant changes to the survey Site or its immediate surroundings. Updated survey work may be required to support any future planning applications outside of this time period.

Assessment

2.16 The Ecological Impact Assessment has been undertaken following guidelines provided by CIEEM (CIEEM, 2019).

2.17 In order to assess the significance of effects, Important Ecological Features that could potentially be affected by the development have been identified and described and the potential effects quantified using a range of parameters (e.g. extent, magnitude and duration).

2.18 For the purposes of this assessment, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national / local nature conservation policy) or more wide-ranging (enhancement of biodiversity) (CIEEM, 2019).

2.19 Only where significant effects are predicted have mitigation measures been proposed, although it should be noted that a number of precautionary measures have been included and these are detailed within this document for completeness.

2.20 The potential for mitigation and enhancement measures were then considered to avoid, reduce or compensate for any significant adverse effects, where possible.

2.21 The current guidelines identify various characteristics that can be used to identify ecological resources or features likely to be important in terms of biodiversity. These include:

- naturalness;
- animal or plant species, sub-species or varieties that are rare or uncommon, either internationally, nationally or more locally, including those that may be seasonally transient;
- ecosystems and their component parts, which provide the habitats required by important species, populations and/or assemblages;
- endemic species or locally distinct sub-populations of a species;
- habitats that are rare or uncommon;
- habitats that are effectively irreplaceable;
- habitat diversity;
- size of habitat or species population;
- habitat connectivity and/or synergistic associations;
- habitats and species in decline;
- rich assemblages of plants and animals;
- large populations of species or concentrations of species considered uncommon or threatened in a wider context;
- plant communities (and their associated animals) that are considered to be typical of valued natural / semi-natural vegetation types, including examples of naturally species-poor communities; and
- species on the edge of their range, particularly where their distribution is changing as a result of global trends and climate change.

Significance Criteria

2.22 Current guidelines propose the following frame of reference for defining geographic context, which should be adapted to suit local circumstances:

- International and European;
- National;
- Regional;
- Metropolitan, County, vice-county or other local authority-wide area;
- Local.

3. BASELINE CONDITIONS

Designated Sites

- 3.1 Notton Wood Local Nature Reserve (LNR) was the only designated wildlife site within 2km of the Site. The LNR is an area of mixed woodland attracting a varied amount of wildlife located approximately 0.3km northwest of the Site.
- 3.2 The Site is also within a Special Site of Scientific Interest (SSSI) Risk Zone, but the development type is not included within a risk category.
- 3.3 There were no European Sites within 5km of the Site.

Habitats and Botanical Species

- 3.4 The Extended Phase 1 Habitat Survey Results map is provided in **Appendix 2**. Relevant photographs are shown in **Appendix 3**. Botanical species nomenclature follows Stace (2019).

Arable

- 3.5 The majority of the habitats on-site comprised an arable field which had become encroached upon by grass and tall ruderal species. As well as cereal crop, species present were false oat grass *Arrhenatherum elatius*, poppy *Papaver* sp., daisy *Bellis perennis*, common ragwort *Jacobaea vulgaris*, plantain *Plantago* sp., broadleaved dock *Rumex angustifolium*, common nettle *Urtica dioica*, creeping thistle *Cirsium arvense* and cock's foot grass *Dactylis glomerata*.

Tall Ruderal

- 3.6 An area of tall ruderal was present towards the northeast corner of the site including rosebay willowherb *Epilobium angustifolium*, mugwort *Artemisia vulgaris*, common nettle and bracken *Pteridium* sp. Scattered scrub species were present within the tall ruderal including hawthorn *Crataegus monogyna*, oak *Quercus* sp. and bramble *Rubus fruticosus*.

Mature Trees

- 3.7 Numerous mature trees were present within the hedgerows including ash *Fraxinus excelsior*, oak *Quercus* sp. and willow *Salix* sp. Additionally, three stand-alone mature oak and a single ash tree were present within the arable field.

Boundaries

- 3.8 Boundary features are described below; numbering refers to the map in **Appendix 2**.

B1 – Gappy hedgerow comprising ash, silver birch *Betula pendula*, snowberry *Symphoricarpos* sp., hawthorn, elder *Sambucus nigra*, ash, oak, hazel *Corylus avellana*, dog rose *Rosa canina* and beech *Fagus sylvatica*. Associated grown flora included

rosebay willowherb, mugwort, common nettle and bracken. This hedgerow continued on the opposite side of a track towards the northeast corner of the site (see map in **Appendix 2**). The track itself comprised bare earth with ephemeral/short perennial vegetation including white clover *Trifolium repens*, plantain, vetch *Vicia* sp. and meadow grass *Poa* sp.. The hedgerow measured up to 4m tall and 3m wide.

B2 – Hedgerow comprising of oak, dog rose, ash, hazel, elder, field maple *Acer campestre* and holly *Ilex aquifolium*, measuring up to 4m tall and 3m wide.

B3 – Hedgerow comprising of oak, blackthorn *Prunus spinosa*, hawthorn holly and bramble, measuring up to 4m tall and 3m wide.

B4 – Hedgerow comprising of blackthorn, willow, bramble, hawthorn and elder. A dry ditch was present within the hedgerow. The hedgerow measured up to 4m tall and 3m wide.

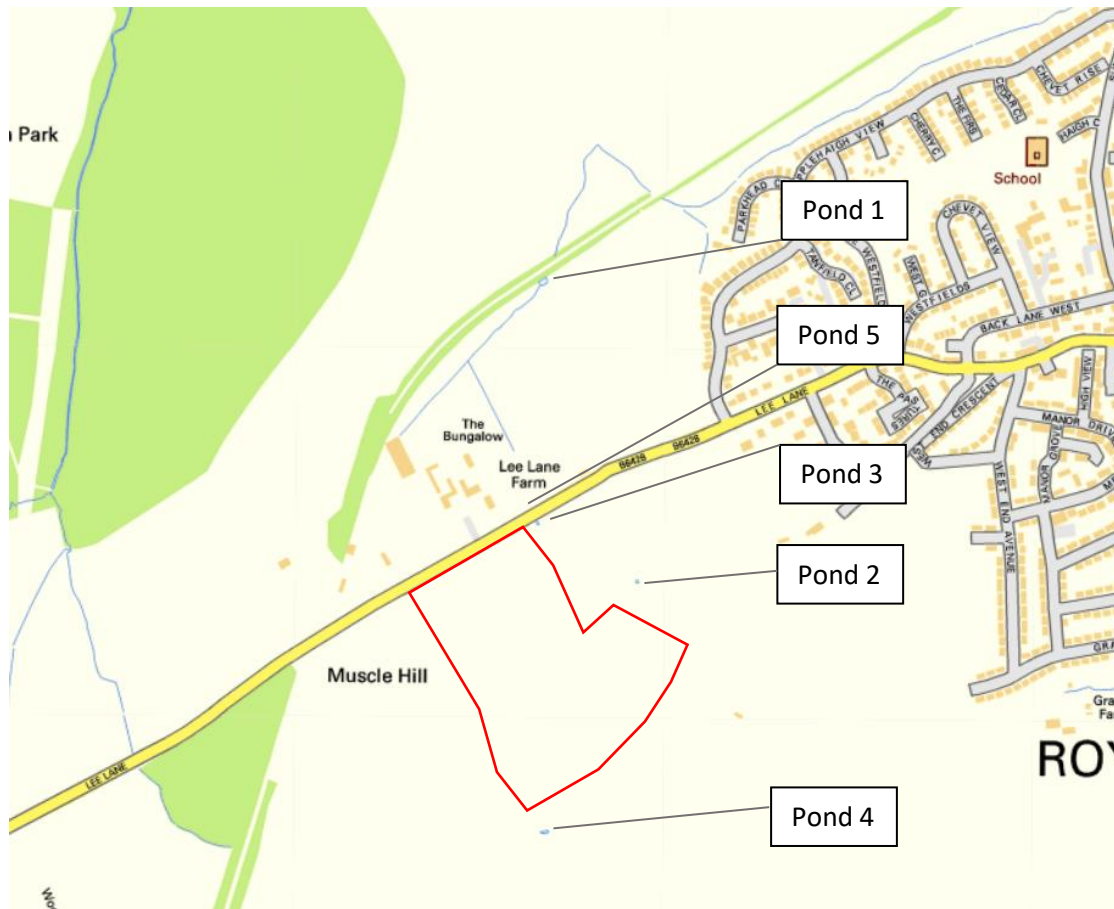
B5 – Hedgerow comprising of willow, oak, dog rose, hedge bindweed *Calystegia sepium*, silver birch and hawthorn. A dry ditch was present within the hedgerow. The hedgerow measured up to 4m tall and 3m wide.

Protected / Notable Species

Amphibians

- 3.9 The Site provided suitable terrestrial habitat for amphibians including great crested newts (GCN) *Triturus cristatus* providing suitable vegetative cover and foraging areas, particularly within the boundaries. A search of aerial photography and OS maps highlighted the presence of five ponds within 500m of the Site as indicated on **Figure 2**.
- 3.10 Ponds 1 and 2 were within/on the boundaries of the land covered by the previous survey conducted by RSK. Pond 1 was not recorded by RSK and therefore it is assumed to not be present. Pond 2 was recorded by RSK and found to be ephemeral and unsuitable to support GCN. Ponds 3 and 4 were visited as part of the current application. Pond 4 was found not to be present. Pond 3 was also found to be ephemeral and therefore unlikely to support GCN.
- 3.11 Pond 5 is present and on the opposite side of Lee Lane. However, based on historical aerial imagery, it does not appear to be present at the time of the RSK survey being conducted in 2012. No additional ponds were recorded from aerial imagery within 500m of Pond 5 and there were no desk study records of GCN within 2km of the Site. Therefore, it was considered highly unlikely that this pond would have been colonised by GCN since its construction in 2012. Additionally, Lee Lane itself is a busy road with kerb stones along much of its length and is therefore likely to act as a dispersal barrier to GCN.
- 3.12 GCN were considered unlikely to be present on-site and are not considered further within this report.

Figure 2: Pond Locations



Badgers

- 3.13 No evidence of badgers was found on-site such as hairs, latrines, footprints or setts. The habitats did provide suitable foraging habitat for badgers and it cannot be ruled out that they may cross the Site periodically. There were no desk study records of this species.

Bats

- 3.14 Several of the mature trees on-site contained features potentially suitable to support roosting bats including cracks and rot holes and were subsequently categorised as low-moderate potential to support roosting bats as indicated on the plan in **Appendix 2**.
- 3.15 The Site offered potential for foraging and commuting bats along the hedgerows but was generally considered to be of low habitat quality for bats; the arable land unlikely to attract a large abundance of insect prey.
- 3.16 There was one desk study of record of bats from within 2km of the Site within the past ten years comprising common pipistrelle *Pipistrellus* sp. At the time of this report being issued, additional bat records had not been received from South Yorkshire Bat Group.

Birds

- 3.17 Blackbird *Turdus merula* was the only bird species recorded on-site and is listed as green on the latest Birds of Conservation Concern List (Eaton et al, 2015).
- 3.18 The Site offered foraging and nesting opportunities for birds, although the Site was unlikely to support an important assemblage of birds. The best opportunities for foraging and nesting were within the hedgerows and mature trees, although there were also opportunities for ground nesting species.
- 3.19 **Table 1** lists Desk Study records of birds within 2km of the Site.

Table 2: Desk Study Bird Records

Species	Common Name
<i>Accipiter nisus</i>	Sparrowhawk
<i>Alauda arvensis</i>	Skylark
<i>Anas platyrhynchos</i>	Mallard
<i>Anthus pratensis</i>	Meadow Pipit
<i>Apus apus</i>	Swift
<i>Aythya fuligula</i>	Tufted Duck
<i>Buteo buteo</i>	Buzzard
<i>Carduelis cannabina</i>	Linnet
<i>Carduelis carduelis</i>	Goldfinch
<i>Carduelis flammea</i>	Redpoll
<i>Certhia familiaris</i>	Treecreeper
<i>Columba oenas</i>	Stock Dove
<i>Delichon urbica</i>	House Martin
<i>Dendrocopos major</i>	Great Spotted Woodpecker
<i>Emberiza citrinella</i>	Yellowhammer
<i>Emberiza schoeniclus</i>	Reed Bunting
<i>Falco peregrinus</i>	Peregrine
<i>Falco tinnunculus</i>	Kestrel
<i>Fringilla coelebs</i>	Chaffinch
<i>Hirundo rustica</i>	Swallow
<i>Larus argentatus</i>	Herring Gull
<i>Larus fuscus</i>	Lesser Black-Backed Gull
<i>Larus ridibundus</i>	Black-Headed Gull
<i>Locustella naevia</i>	Grasshopper Warbler
<i>Milvus milvus</i>	Red Kite
<i>Motacilla alba</i>	Pied Wagtail

Species	Common Name
<i>Motacilla alba</i>	White Wagtail
<i>Motacilla flava</i>	Yellow Wagtail
<i>Oenanthe oenanthe</i>	Wheatear
<i>Passer domesticus</i>	House Sparrow
<i>Phylloscopus collybita</i>	Chiffchaff
<i>Phylloscopus trochilus</i>	Willow Warbler
<i>Prunella modularis</i>	Dunnock
<i>Pyrrhula pyrrhula</i>	Bullfinch
<i>Regulus regulus</i>	Goldcrest
<i>Sitta europaea</i>	Nuthatch
<i>Sturnus vulgaris</i>	Starling
<i>Sylvia atricapilla</i>	Blackcap
<i>Sylvia borin</i>	Garden Warbler
<i>Sylvia communis</i>	Whitethroat
<i>Sylvia curruca</i>	Lesser Whitethroat
<i>Tachybaptus ruficollis</i>	Little Grebe
<i>Turdus iliacus</i>	Redwing
<i>Turdus philomelos</i>	Song Thrush
<i>Turdus pilaris</i>	Fieldfare
<i>Turdus viscivorus</i>	Mistle Thrush
<i>Vanellus vanellus</i>	Lapwing

Reptiles

- 3.20 No reptiles or evidence of reptiles was recorded on-site. The habitats on-site were sub-optimal comprising homogenous, heavily managed vegetation lacking in refugia or hibernacula. Furthermore, there were no desk study records of reptiles within 2km of the Site. Reptiles were considered highly unlikely to be present on-site and are not considered further within this report.

Other Species

- 3.21 The site provided opportunities for hedgehogs *Erinaceus europaeus*. The site was considered unlikely to support any other protected species.

4. NATURE CONSERVATION EVALUATION

- 4.1 The valuation of the nature conservation interest of the ecological features present on the Site and whether or not they are subject to detailed impact assessment is summarised in **Table 3**.

Table 3: Nature Conservation Evaluation

Receptor	Important Ecological Feature	Value of Receptor or Value of Site to Receptor	Potential for Impact	Subject to Detailed Assessment
Designations				
Notton Woods	Yes – LNR	National	No – distance and lack of connectivity.	No
Habitats				
Arable Land, Tall Ruderal and Ephemeral/Short-perennial	No - Species are common and widespread. Not listed as Priority Habitat under the Natural Environment and Rural Communities (NERC) Act 2006.	Less than Local	Yes – direct habitat loss	No
Boundary hedgerows	Yes – Hedgerows comprising over 80% native species are included as Priority Habitats under the NERC Act 2006.	Local	No – based on the latest masterplan it is understood that boundary habitats are to be retained within the development.	No
Species				
Badger	Yes – protected under Protection of Badgers Act 1992	Local	Yes – may cross the Site periodically	Yes
Bats	Yes – legally protected under the Conservation of Habitats and Species Regulations 2019 (as amended) and the Wildlife and Countryside Act 1981 (as amended).	Local	Yes – tree removal has the potential to impact upon roosting bats and lighting schemes associated with the project have the potential to disturb commuting/foraging bats.	Yes

Receptor	Important Ecological Feature	Value of Receptor or Value of Site to Receptor	Potential for Impact	Subject to Detailed Assessment
Great Crested Newt	Yes – legally protected under the Conservation of Habitats and Species Regulations 2019 (as amended) and the Wildlife and Countryside Act 1981 (as amended).	Not applicable	No – highly unlikely to be present	No
Birds	Yes – legally protected under the Wildlife and Countryside Act 1981 (as amended).	Local	Yes – Potential loss of habitat for ground nesting species	Yes
Reptiles	Yes – legally protected under the Wildlife and Countryside Act 1981 (as amended).	Not applicable	No – highly unlikely to be present	No
Hedgehog	Yes - listed as Priority Species under the Natural Environment and Rural Communities (NERC) Act 2006.	Local	Potential for harm during construction phase	Yes

4.2 Therefore, the ecological receptors which are taken forward for further assessment are as follows:

- Badgers;
- Bats;
- Birds;
- Hedgehogs.

5. ASSESSMENT OF EFFECTS

Badgers

- 5.1 It cannot be ruled out that badgers may cross the Site periodically which have the potential to become trapped in excavations or open pipework. In the absence of mitigation, the operational phase has the potential to result in a temporary adverse effect of low magnitude of significance at the less than local level.

Bats

- 5.2 A mature tree within the arable field, which was highlighted as having low potential to support roosting bats, is to be felled; there is a small possibility that this work could result in the disturbance or injury of roosting bats and the destruction of a roost. It is understood that all other mature trees with the potential to support roosting bats are to be retained and protected during the works. In the absence of mitigation, the construction phase has the potential to result in a permanent adverse effect of low magnitude of significance at the less than local level.
- 5.3 Any new lighting associated with the development has the potential to disturb foraging and commuting bats along boundaries hedgerows. In the absence of mitigation, the operational phase has the potential to result in a permanent adverse effect of low magnitude of significance at the less than local level.

Birds

- 5.4 The boundaries trees and woodland which offered the best opportunities for birds are to be retained. The Site may support low breeding populations of common bird species within arable land also. There will be a loss of this nesting habitat and potential disturbance to nesting birds during the construction phase.
- 5.5 The construction phase will result in direct permanent nesting habitat loss for these species, resulting in a minor adverse effect of significance at the less than local level.

Hedgehogs

- 5.6 The Site may support low numbers of foraging hedgehogs. Ground clearance during the construction phase could result in harm to the animals if hedgehogs become trapped in open excavations. Given the small number of animals likely to use the Site, the impacts are considered to be of low magnitude. In the absence of mitigation, this is considered to be a temporary adverse impact with significance being at the local level.

6. MITIGATION MEASURES

Badgers

- 6.1 As a matter of good practice, any trenches dug as part of construction work will be covered over at night, or left with a ramp or sloping end, to prevent mammals from falling in and becoming trapped. Similarly, any pipes over 200mm in diameter will be capped off at night.

Bats

- 6.2 In line with best practice guidelines, no further survey work or mitigation is required for trees with low potential to support roosting bats. However, as a precaution, the tree within the arable field are to be soft felled i.e. they will be felled in sections with the arisings lowered to the ground and left in situ for 24 hours to allow roosting bats, in the unlikely event that they are present, to find alternative roosting provisions.
- 6.3 Additionally, to prevent disturbance to foraging and commuting bats, a sensitive lighting scheme will be implement following the latest guidance (i.e. Bats and artificial lighting in the UK, 2018).

Birds

- 6.4 As all species receive legal protection during nesting, any vegetation clearance including ground clearance will be conducted outside of the breeding bird season of March to August (inclusive). Vegetation clearance/ground clearance outside of this period will still be preceded by a nesting bird survey carried out by contractors, as some species can nest all year round. Vegetation clearance/ground clearance within this period will be preceded by a nesting bird check conducted by an ecologist. Any active nests, including those of ground-nesting species, will remain unaffected until all chicks have fledged.
- 6.5 Bird boxes will be incorporated into the new development to mitigate for the loss of this small areas of nesting habitat. Further details are provided in **Section 7**.

Hedgehogs

- 6.6 As a matter of good practice, any trenches dug as part of construction work will be covered over at night, or left with a ramp or sloping end, to prevent mammals from falling in and becoming trapped. Similarly, any pipes over 200mm in diameter will be capped off at night.

7. RESIDUAL EFFECTS

- 7.1 With the mitigation measures suggested and outlined above, no residual effects are envisaged.

8. COMPENSATION AND ENHANCEMENT MEASURES

General

- 8.1 Biodiversity Net Gain was written into the NPPF in 2019, is currently being written into a number of Local Plans and will be mandated by the government as part of the Environment Bill. The landscaping scheme should be designed to maximise the biodiversity present on the Site post-development, through the use of native plant species and a variety of habitat types, with the area of green space maximised within the constraints of the development. Where net gain cannot be achieved on Site, it may be necessary to also allow for off-site mitigation on other areas of land within the client's ownership and/or financial contribution to a third party such as the Environment Bank to fund off-site mitigation.

Bats

- 1.1 Opportunities for roosting bats should be incorporated into the final masterplan. These should be integrated into the new buildings. These should be positioned as close to the eaves as possible and comprise of *Schwegler type F1 tubes*. They should be positioned in locations sheltered from strong winds and away from direct sunlight for a significant proportion of the day, usually south to south-west.

Birds

- 8.2 Opportunities for nesting birds should be incorporated into the final masterplan. These should be integrated into new buildings. Bird boxes should be installed two to four metres above ground on the buildings and should offer unobstructed fly-in access. The boxes should face between north and east, thus avoiding full sun and prevailing wind.
- 8.3 Boxes for sparrows *Passer domesticus* and swifts *Apus apus* should be installed, focussing on those species whose populations are declining and are most likely to be associated with the built environment, as well as a number of general purposes boxes.
- 8.4 The following should be installed:
- Open fronted nest boxes such as Schwegler 26 Brick Box Nests which are designed to support a range of species. These can be sourced from the link below:
<https://www.wildcare.co.uk/schweglar-brick-box-type-26.html>
 - Sparrow terraces. These can be sourced from the link below:
<https://www.wildcare.co.uk/sparrow-terrace.html>
 - Manthorpe Swift bricks. These can be sourced from the link below:
<https://www.nhbs.com/manthorpe-swift-brick>

9. CUMULATIVE EFFECTS

- 9.1 The outcome of the Ecological Impact Assessment is that there will be no Residual Effects. Therefore the proposed works will not contribute to any impacts from related/nearby proposed developments and Cumulative Effects are not relevant.

10. SUMMARY

- 10.1 **Table 4** contains a summary of the likely significant effects of the Development relating to the construction phase, the completed development and cumulative effects.

Table 4: Significance

Receptor	Nature of Effect (Permanent/Temporary)	Significance (Major/Moderate/Minor) (Beneficial/Adverse/Negligible)	Mitigation / Enhancement Measures	Geographical Importance*							Residual Effects (Major/Moderate/Minor) (Beneficial/Adverse/Negligible)
				I	UK	E	R	C	B	L	
Construction											
Wildlife Designations	None envisaged	Not applicable									
Habitats	Natural habitats on-site are generally of low ecological value. Hedgerows would qualify as Priority habitats under the NERC Act 2006 but are to be retained and protected.	Not applicable									
Amphibians	None envisaged	Not applicable									
Badger	None envisaged	Not applicable									
Bats	Two trees identified as having low potential to support roosts to be felled.	Minor adverse effect at less than local level	Precautionary soft felling.							*	Negligible
Birds	Potential for disturbance during construction phase	Minor adverse effect at less than local level	Precautionary working methods/timing.							*	Negligible
Reptiles	None envisaged	Not applicable									
Hedgehogs	Potential for animals to fall into/become trapped in open excavations.	Minor adverse effect at less than local level	Precautionary working methods.							*	Negligible
Operational											
Bats	Potential for disturbance from lighting	Minor adverse effect at less than local level	Lighting scheme to follow best practice guidance.							*	Negligible
* Geographical Level of Importance I = International; UK = United Kingdom; E = England; R = Regional; C = County; B = Borough; L = Local											

11. REFERENCES

- 11.1 Bat Conservation Trust (2018) Bats and Artificial Lighting in the UK – Guidance Note 08/18
- 11.2 British Standards Institution (2013) BS42020:2013 Biodiversity – code of practice for planning and development. BSI Standards Ltd, London
- 11.3 Chartered Institute of Ecology and Environmental Management (2019) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. CIEEM, Winchester
- 11.4 Chartered Institute of Ecology and Environmental Management (2017) Guidelines for Ecological Report Writing. CIEEM, Winchester.
- 11.5 Chartered Institute of Ecology and Environmental Management (2017) Guidelines for Preliminary Ecological Appraisal. CIEEM, Winchester
- 11.6 Collins J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust, London.
- 11.7 Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708–746.
- 11.8 Joint Nature Conservation Committee (2010) Handbook for Phase 1 Habitat Survey: a technique for environmental audit. JNCC, Peterborough.
- 11.9 Ministry of Housing, Communities and Local Government (July 2018) National Planning Policy Framework. ISBN: 978-1-4098-5302-2
- 11.10 Multi-Agency Geographic Information for the Countryside Website.

<http://www.magic.gov.uk/>
- 11.11 Stace, C.S. (2019) New Flora of the British Isles, 4th edition. University Press, Cambridge

APPENDICES

APPENDIX 1: Relevant Legislation

European Protected Species

All British bat species, great crested newt and otters are fully protected through The Conservation of Habitats and Species Regulations 2019 (as amended) as a European Protected Species (EPS). They also receive some protection through inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

Under the legislation, it is an offence to deliberately capture, injure or kill these species. It is an offence to damage or destroy a breeding site or resting place of these species; or obstruct access to any structure or place which they use for that purpose.

It is also an offence to deliberately disturb these species. 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.

The 'appropriate authority' (Natural England in England) has powers to issue licences for various purposes including - (a) scientific or educational purposes... and (b) preserving 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. The appropriate authority shall not grant a licence under this regulation unless they are satisfied - (a) that there is no satisfactory alternative, and (b) that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range. It is an offence for any person authorised by virtue of a licence to which this paragraph applies to contravene or fail to comply with any condition which the licence requires him to comply with.

Nesting birds

All wild birds in the UK 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 the nest (whilst being built or in use) or its eggs. Bird species listed in Schedule 1 of the 1981 Act, receive further protection which makes it an offence to intentionally or recklessly disturb these species while building a nest or in, on or near a nest containing eggs or young; or to disturb dependent young of such a bird.

Badgers

The Protection of Badgers Act 1992 was introduced in recognition of the additional threats that badgers face from illegal badger digging and baiting. Under the Act, it is an offence *inter alia* to:

- Wilfully kill, injure or take a badger, or to attempt to do so;
- Cruelly ill-treat a badger; or
- Intentionally or recklessly interfere with a badger sett by:
 - damaging a sett or any part of one;
 - destroying a sett;
 - obstructing access to or any entrance of a sett;
 - causing a dog to enter a sett; or
 - disturbing a badger when it is occupying a sett.

Reptiles

Four species of reptile, the adder *Vipera berus*, grass snake *Natrix helvetica*, slow worm *Anguis fragilis* and common lizard *Lacerta vivipara* are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) as well as being listed on the UK Post-2010 Biodiversity Framework (formerly UK BAP).

In net effect, it is an offence to deliberately capture, injure or kill common lizard, adder, grass snake or slow worms.

Two reptiles, the sand lizard *Lacerta agilis* and the smooth snake *Coronella austriaca*, are European Protected Species under The Conservation of Habitats and Species Regulations 2019 (as amended). They are also listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are protected by Parts 4(b), 4(c) and 5 of Section 9 of that Act.

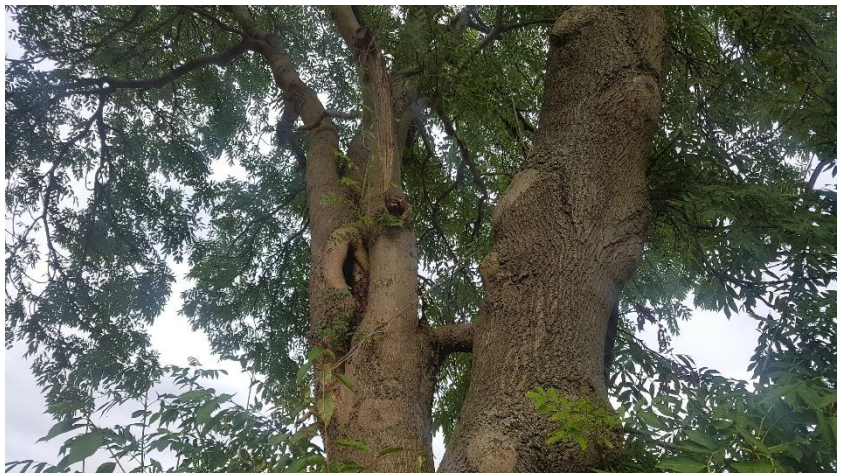
APPENDIX 2: Extended Phase 1 Habitat Map



APPENDIX 3: Site Photographs

Arable	
Track with adjacent tall ruderal	
Example hedgerow with mature trees	

Example tree with bat
roosting potential





BETTER SOLUTIONS, INTELLIGENTLY ENGINEERED