BIRCHWOOD WAY

SOMERCOTES

Ecological Impact Assessment



Client:

Clowes Developments (UK)

Report Reference:

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ARBORICULTURE
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1 EXECUTIVE SUMMARY

1.1 Background

i RammSanderson Ecology Ltd was instructed by Clowes Developments to carry out an Ecological Impact Assessment of land at Birchwood Way, Somercotes to inform proposals for commercial redevelopment of the site.

ii The site extended to approximately 11.5ha and was located to the north east of Somercotes, approximately 17km to the north west of Nottingham. It was predominantly a series of grazed field compartments generally homogenous in structure and dominated by common grass species. The field compartments were bound by hedgerows dominated by native species with scattered semi-mature and mature trees. An area of semi-mature woodland was also present as the most north-western compartment on-site along with an area of hardstanding currently used as a materials storage yard.

Table 1: Summary of Ecological Features

Ecological Feature	Comment	Avoidance	Mitigation	Compensation/Enhancement	Residual Impact
Designated Sites	The site lies within the Impact Risk Zone for Bagthorpe Meadows SSSI, however, the proposals are not of a type considered to impact this nationally designated site. Pennytown Ponds LNR is located adjacent to the northern site boundary Alfreton Tunnels Cutting LWS is also located within 0.5km of the site boundary.	N/A	Dust suppression techniques to be utilised throughout construction phase Strictly follow Pollution Prevention Guidelines PPG1 to reduce potential pollution impacts	New hedgerows, woodland, wildflower meadow planting, pond and wetland creation (including willow carr) to increase connectivity of Pennytown Ponds LNR to site	Not significant
Habitats	Majority of habitats to be lost includes species poor and heavily poached grassland. Loss of hedgerows and broadleaved woodland (Habitats of Principal Importance)	Retain hedgerows where possible	Where possible, retention of hedgerow and trees in accordance with root protection areas.	Replace lost hedgerows at a ratio of 2:1 New woodland, wildflower meadow planting, pond and wetland creation (including willow carr)	Currently significant positive

Ecological Feature	Comment	Avoidance	Mitigation	Compensation/Enhancement	Residual Impact
Great Crested Newt	Four ponds within 500m of the site. Ponds 1-3 are densely stock fishing and P4 was located beyond a barrier to dispersal. Therefore, great crested newt are considered to be absent from site	N/A	N/A	Creation of new ponds and associated wetlands as well as refugia	Positive
Bats	Three trees with high bat roosting potential (T8, T10 and T12), five trees with moderate bat roosting potential (T4, T6-7, T9 and T16), and seven trees with low bat roosting potential (T1-2, T5, T11, T13-15) located on site. Following completion of nocturnal surveys between May-July 2021, no bat roosts were identified on site. The woodland and hedgerows also offer value for foraging and commuting bats	Retain trees and hedgerows where possible	<u>Roosting:</u> Any trees assessed as offering bat roosting potential should be felled under ecological supervision utilising techniques such as soft felling Use a bat sensitive lighting strategy <u>Activity:</u> TBC Use a bat sensitive lighting strategy	Creation of additional hedgerows, woodland, wetland and grassland habitats habitat Bat boxes	TBC – further activity surveys are scheduled for August-October 2021
[redacted]					
Birds	The scrub, woodland and hedgerows offer optimal nesting bird habitat.	Retain trees and hedgerows where possible	Vegetation clearance should be completed during the period Sept-end Feb to avoid nesting birds. Where this is not possible, an ecologist	Creation of hedgerows, woodland and scrub habitats.	Not significant

Ecological Feature	Comment	Avoidance	Mitigation	Compensation/Enhancement	Residual Impact
Reptiles	No reptiles recorded on site, however, the woodland, scrub and tall ruderal habitats present opportunities for foraging, commuting and refuge seeking reptiles with grass snake known to occur at Penny Town Ponds LNR	Retain hedgerows where possible	Use habitat manipulation to make works area unsuitable following methods set out in a PMW/CEMP	Creation of additional hedgerows, woodland, wetland and grassland habitats habitat	Potential Positive
Riparian Mammals	No suitable habitats on site of within zone of influence	N/A	N/A	N/A	N/A
Terrestrial Invertebrates	The site does not provide habitats suited to any principal or endangered invertebrate species	N/A	N/A	Creation of wildflower meadows supplemented with trefoil species to enhance provision of larval host plant for the dingy skipper. Creation of woodlands and wetlands.	Significant positive
Aquatic Invertebrates	No suitable habitats on site of within zone of influence	N/A	N/A	N/A	N/A
Fish	No suitable habitats on site of within zone of influence	N/A	N/A	N/A	N/A
Principal Species	Species such as hedgehog are potentially present locally	Retain hedgerows where possible	Best practice methods with regards to terrestrial mammals during construction phase	Creation of additional hedgerows, woodland, and grassland habitats habitat	Not significant
Biodiversity	Woodland and internal network of hedgerows to be lost to facilitate proposals. However,	Retain hedgerows	N/A	Creation of broadleaved woodland, willow scrub, wildflower meadows,	Currently significant positive – c.28% net gain.

Ecological Feature	Comment	Avoidance	Mitigation	Compensation/Enhancement	Residual Impact
	majority of site comprises modified grassland of low distinctiveness.	where possible		scrub, ponds and associated marginal planting. Detailed within Section 7 and RSE_4008_BIA	

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2 INTRODUCTION AND BACKGROUND

2.1 Purpose and Scope of this Report

i RammSanderson Ecology Ltd was commissioned by Clowes Developments to assess the potential for protected species and habitats to be present on the land off Birchwood Way, Somercotes, to inform a planning proposal for a commercial development of the site. The site extended to approximately 11.5ha and was located to the north east of Somercotes, approximately 17km to the north west of Nottingham. It was predominantly a series of grazed field compartments generally homogenous in structure and dominated by common grass species. The field compartments were bound by hedgerows dominated by native species with scattered semi-mature and mature trees. An area of semi-mature woodland was also present as the most north-western compartment on-site along with an area of hardstanding currently used as a materials storage yard.

ii In 2008 FPCR completed an ecological appraisal at Birchwood Lane, Somercotes. Following the initial phase 1 habitat survey, subsequent aerial tree climbing surveys were carried out on seven trees that were assessed as having bat roosting potential, no evidence of roosting bats was observed within the trees that were climbed; further recommendations were made for trees that were unsafe to climb, however no nocturnal surveys were undertaken on any trees (FPCR, 2008). Two bat activity surveys were also undertaken on the site in August and September 2008. Following the surveys, the site was assessed as having a high bat activity level (FPCR, 2008), with the majority of the bat activity occurring along the site's hedgerows. A suite of seven reptile surveys were also undertaken on the site between August – September 2008 and again in 2013, no reptiles were found during either set of reptile surveys, however historical records show the presence of grass snake (*Natrix helvetica*) to have been present on site in 2006. No GCN surveys were undertaken and no H.S.I undertaken of ponds within 500m (FPCR, 2008; 2016) due to barriers to dispersal and fish stocking. In 2016 FPCR did an updated phase 1 of the site (FPCR, 2016). No further surveys were recommended due to the retention of trees, and previous reptile survey results. Enhancements such as bat and bird boxes, as well as provisions for hedgehogs were made. The site obtained planning permission in 2009 for B1, B2 and B8 employment uses (AVA/2009/0318). A summary of previous planning conditions related to ecology are provided below:

"The recommendations of the Bats and Trees summary, undertaken by FCPR dated December 2007, Bat Transect Survey Report undertaken by FPCR dated November 2008 and the Ecological Appraisal undertaken by FPCR, dated November 2008 shall be complied with throughout the construction works. The mitigation and enhancement recommendations shall be incorporated into the development, including the provision of bat and bird boxes in a scheme first submitted to and agreed in writing by the LPA."

"Any vegetation removal should be undertaken outside of the main breeding bird season or if this is not possible, any vegetation should be surveyed immediately prior to removal by a suitably experienced ecologist."

"Prior to any works commencing a Habitat Management Plan shall be submitted to and approved in writing by the LPA, in consultation with DWT. The development shall be carried out with the approved Habitat Management Plan unless otherwise agreed by LPA.

iii In addition, an updated Preliminary Ecological Appraisal was subsequently conducted by RammSanderson Ecology in June 2020. (RammSanderson 2020). Prior to issue of this document, and following the initial

phase 1 walkover survey of the site, further surveys for bats, hedgerows and breeding birds were recommended by RammSanderson Ecology (2020).

iv To complete an EcIA of the proposals, a desk-based assessment, Extended Phase 1 Habitat Survey and protected species assessments were carried out. It should be noted that this is a draft document, as protected species assessments are still pending. This report is a stand-alone EcIA which has been prepared following current guidance (CIEEM, 2018). Once protected species surveys are completed and appended to this report, this report can be used to lawfully determine a planning application in line with current planning policy. This report does not form part of a wider discipline Environmental Impact Assessment (EIA) of Environmental Statement (ES), nor does it confer the need for any such documentation.

v The study area was defined depending on the proposals, desk study and applicable legislation (Section 10) as shown in the enclosed Site Location Plan (Figure 1) and Phase 1 Habitat plan (Figure 3) plus a buffer zone extended to include the Zone of Influence (see section below) of the proposals (hereafter referred to as the "Site").

vi This ecological impact assessment is based on a review of the development proposals provided by the Client in Drawing: 220019-MP03 (Appendix 3), desk study data (third party information) and surveys of the Site. The aims of this report are to:

- Classify the habitat types at the site based on standard Phase 1 Habitat survey methodology;
- Evaluate any potential for protected species to be present;
- Identify any ecological constraints that may affect the scheme design;
- Provide recommendations for any further actions that might be required (for example, to monitor badger setts periodically through construction);
- Identify likely significant effects on ecological receptors;
- Assess if the proposals are compliant with legislation and policy relating to biodiversity; and
- Identify opportunities for ecological enhancement to provide net biodiversity gain in line with the National Planning Policy Framework (NPPF, 2019).

vii This report pertains to these results only; recommendations included within this report are the professional opinion of an experienced ecologist and therefore the view of RammSanderson Ecology Ltd.

viii The surveys and desk-based assessments undertaken as part of this review and subsequent report are prepared in accordance with the British Standard for Biodiversity Code of Practice for Planning and Development (BS42020:2013) and follow current guidance (CIEEM, 2018).

2.2 Zone of Influence

i The Zone of Influence (ZoI) is used to describe the geographic extent of potential impacts of a proposed development. The Zone is determined by the development proposals in relation to individual species ecological requirements indicated in best practice guidelines.

ii In relation to great crested newts (GCN), the zone of influence is considered to be up to 500m from the site boundaries, as this is the distance that Natural England would require to be considered in relation to GCN licensing.

iii As bats are highly mobile species, the ZoI for these can be 5km from a site wherein high-quality habitat will be impacted by proposals.

iv As bats are highly mobile species, the ZoI for these can be 5km from a site wherein high-quality habitat will be impacted by proposals.

v For designated sites, the Zone of Influence can be >10km from the site and this is termed the Impact Risk Zone (IRZ). Where sites occur within an IRZ the requirement for a Habitat's Regulations Assessment or Environmental Impact Assessment may be triggered.

2.3 Site Context and Location

i The site measures approximately 11.5ha and was located to the north east of Somercotes, approximately 17km to the north west of Nottingham. The site was bordered to the north by a large industrial estate, to the east by a partially abandoned scrap yard, to the south by residential development and to the west by allotment gardens. The central grid reference of the site being SK 4320 5418. The site was predominantly a series of grazed field compartments generally homogenous in structure and dominated by common grass species. The field compartments were bound by hedgerows dominated by native species with scattered semi-mature and mature trees. An area of semi-mature woodland was also present as the most north-western compartment on-site along with an area of hardstanding currently used as a materials storage yard. In addition to this, an area of land in the south-western corner of the site was dominated by dense scrub with a broadleaved treeline along the eastern boundary.

N

Summercotes

Leabrooks

0 0.5 1 km

0 100 200 m

Alfreton

Ripley

0 5 10 km

RammSanderson

Client:
Clowes Development Ltd.

Project:
Birchwood Lane

Date:
02/07/2020

Drawing
Site Location and Context

Drawn By:
LF

Drawing No.
RSE_4008_Site Location& Context Plan

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3 METHODOLOGY

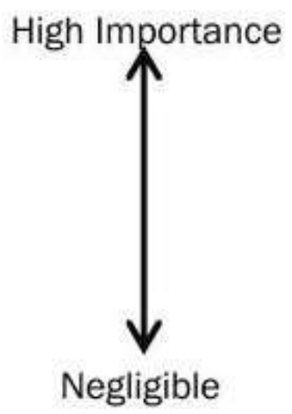
3.1 Ecological impact Assessment

i The ecological impact assessment is based on the standard best practice methodology provided by the Guidelines for Ecological impact Assessment (CIEEM, 2018). The assessment identifies important sites, habitats, species and other ecological features that are of conservation value based on factors such as legal protection, statutory or local site designations such as Sites of Special Scientific Interest (SSSI) or Local Wildlife Sites (LWS) or inclusion on Red Data Book Lists or Local Biodiversity Action Plans.

ii The importance of an ecological feature is considered within a defined geographical context. The following frame of reference is used, or adapted to suit local circumstances:

- International and European
- National
- Regional
- Metropolitan, County, vice-county or other local authority-wide area
- River Basin District
- Estuarine system/Coastal cell
- Local
- Below Local level e.g. on site only

Importance



iii Consideration of impacts at all scales is important, and essential if objectives for no net loss of biodiversity and maintenance of healthy ecosystems are to be achieved. In identifying impacts, the review considers the Client's Site proposals and any subsequent recommendations made are proportionate / appropriate to the site and have considered the Mitigation Hierarchy as identified below:

- **Avoid:** Provide advice on how the development may proceed by avoiding impacts to any species or sites by either consideration of site design or identification of an alternative option.
- **Mitigate:** Where avoidance cannot be implemented mitigation proposals are put forward to minimise impacts to species or sites as a result of the proposals. Mitigation put forward is proportionate to the site.
- **Compensate:** Where avoidance cannot be achieved any mitigation strategy will consider the requirements for site compensatory measures.
- **Enhance:** The assessment refers to planning policy guidance (e.g. NPPF) to relate the ecological value of the site and identify appropriate and proportionate ecological enhancement in line with both national and local policy.

iv For the purpose of this EcIA, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' (explained in 3.1.i.) 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). Effects are considered significant at the range of scales from international to local. A significant effect is an effect that is sufficiently important to require assessment and reporting so that the ecological consequences of the project are understood. In broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).

v Note: The following definitions are used for the terms 'impact' and 'effect' throughout this report:

- **Impact** – Actions resulting in changes to an ecological feature. For example, the construction activities of a development removing a hedgerow.

- **Effect** – Outcome to an ecological feature from an impact. For example, the effects on a dormouse population from loss of a hedgerow.

3.2 Desk Based Assessment

i Data regarding statutory and non-statutory designated sites, plus any records of protected or Priority species and habitats was requested from the local ecological records centre and online resources, details of which are provided in Table 2 below.

Table 2: Consulted resources

Consultee/Resource	Data Sought	Search Radius from Boundary
Derbyshire Wildlife Trust	Non-Statutory Site Designations	2km
	Protected/Principal Species Records	2km
www.magic.gov.uk[1] [2]	Statutory Site Designations (Impact Risk Zones)	20km
	Habitats of Principal Importance (NERC Act, 2006)	1km
	European Protected Species Licences	5km

NB: Desk study data is third party controlled data, purchased or consulted for the purposes of this report only. RammSanderson Ecology Ltd cannot vouch for its accuracy and cannot be held liable for any error(s) in these data.

3.3 Phase 1 Habitat Survey

i An extended Phase 1 Habitat Survey of the site was completed to identify habitats present. All habitats within the site boundary were described and mapped following standard Phase 1 Habitat Survey methodology (JNCC, 2010), which categorises habitat type through the identification of individual plant species.

ii Nomenclature follows Stace (Stace, 2010) for vascular plant species and the DAFOR scale for relative abundance was used in the field to determine dominant plants within habitats and communities (D = dominant, A = abundant, F = frequent, O = occasional and R = rare).

3.4 Protected / Priority Species Scoping Assessment

i The habitats on site were assessed for their suitability for supporting any legally protected or Priority species that would be affected by the proposed development. This includes invasive non-native plant species such as Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*) and giant hogweed (*Heracleum mantegazzianum*).

ii The full scope of species assessments and survey methods are detailed in Appendix 2. Any incidental sightings of individual species or field signs such as footprints, latrines or feeding remains discovered during the survey were noted.

[1] Multi Agency Geographic Information for the Countryside Interactive GIS Map.
[2] MAGIC resource was reviewed on the 27/04/2021

3.5 Biodiversity Impact Assessment

i BIA is being undertaken using DEFRA 3.0 Metric. Separate detailed spreadsheets will be provided showing these calculations.

3.6 Limitations

i It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation could ensure the complete characterisation and prediction of the natural environment.

ii While dense scrub limited the survey within the broadleaved woodland and the most south-westerly land parcel, it was still possible to accurately identify these habitats. However, invasive, or protected species may have been unrecorded due to the density and height of the scrub.

iii Due to the date of submission of this Draft EcIA, it was not possible to conduct the remaining bat surveys or breeding bird surveys and the results of these will be appended to this report following their completion.

iv The first bat activity transect in April had to be called off prematurely due to health and safety concerns from the surveyors from charging livestock. However, static detectors were still able to be deployed during this time, and further surveys are scheduled throughout the bat activity season (May-October). As such, this is not deemed to be a limiting factor on assessing the value of the site to commuting and foraging bats in terms of habitat suitability however until the surveys have been completed it is not possible to determine potential impact to individual species or the value of the site's species assemblage.

3.7 Accurate lifespan of ecological data

i The majority of ecological data remain valid for only short periods due to the inherently transient nature of the subject. The survey results contained in this report are considered accurate for approximately 18 months from the date of survey, notwithstanding any considerable changes to the site conditions, the presence of mobile species such as bats, otters and badgers or where species/county specific guidance dictates otherwise (CIEEM, 2019).

4 BASELINE CONDITIONS

4.1 Desk Based Results

4.1.1 Statutory Designated Sites and Non-Statutory Designated Sites[3]

i The nearest statutorily designated site was Pennytown Ponds LNR which was located adjacent to the north western site boundary and is designated for its ponds and the fauna they support. The site also lies within the Impact Risk Zone for Bagthorpe Meadows SSSI for infrastructure (including aviation proposals) and air pollution (livestock and poultry units).

ii The nearest non-statutorily designated site is Alfreton Tunnels Cutting South LWS, located 0.52km north-east of the sites' boundary, designated for its unimproved neutral grassland.

4.1.2 Habitat Connectivity Analysis and Closest Relevant Records

i In assessing the site, a review of online resources and desk study data was undertaken to assesses the site with respect to its connectivity to the wider environment, particularly along linear features (rivers, railways, canals etc.) and any designated or protected sites. This assessment enables the evaluation of a particular proposal in context of the wider environment with regard to the site itself and any species which may utilise the site.

ii The site has some connectivity to a strip of woodland leading north from the northern corner of the site and to woodland and lakes to the west. However, there are roads and development reducing these links, particularly to north and west of the site. In addition, the site is connected to the wider landscape via a series of hedgerows leading south. However, the site is surrounded by roads, with the northern area of the site bounded by industrial development. Therefore, the site is most likely to offer connectivity to aerial species such as birds and bats, rather than terrestrial.

4.2 Botanical Survey Results

4.2.1 Surveyors Competency and Survey Conditions

i The survey was carried out by Lauri Leivers BSc GradCIEEM whom has been an ecologist for five years. Lauri holds a class 2 licence for great crested newts (2018-37695-CLS-CLS) and FISC Level 3 botany. The survey was completed during suitable conditions as detailed in the table below (A full list of surveyors and survey conditions are provided in Appendix 1 for the protected species surveys.)

Table 3: Summary of conditions during survey

Abiotic Factor	Survey 1
Survey type	PEA
Date completed	22/06/2020
Temperature (°C)	16

[3] Full desk study results are provided in Appendix 4.

Abiotic Factor	Survey 1
Wind speed (Beaufort Scale)	2
Cloud cover (Oktas Scale)	4
Precipitation	0

4.2.2 Habitats

ii The site has been zoned into areas of different habitats and characters, as per the figure below, for ease of description.

Figure 2: Site Areas



iii Area 1 was the largest area of the site and comprised of poor semi-improved grassland, the most abundant habitat type on site. This area was horse grazed and intersected by hedgerows. Section 2 comprised a broadleaved woodland with pathways utilised by dog walkers. Section 3 was an area of hardstanding and section 4 comprised dense continuous scrub. Sections 3 and 4 had no access at the time of the survey. The boundaries of the site comprised full board wooden panel and concrete post fencing, wooden post and metal wire/mesh fencing and hedgerows.

iv The grassland habitats on site were generally of limited botanical interest and poor species diversity. The scattered trees and hedgerows offered value as ecological corridors for the dispersal of fauna and flora into the wider countryside.

v Whilst none of the hedgerows on site were considered to be 'ecologically important' under the Hedgerow Regulations 1997, all hedgerows formed of >80% native woody species are Habitats of Principal Importance (HPI) under the NERC Act 2006. In addition, the broadleaved woodland on site is also a HPI under Section 41 of the NERC Act 2006, and an LBAP. As such, these habitats are a material consideration during planning.

vi No protected or Priority plant species were observed where full access was gained, and all plant species encountered were common, widespread and characteristic of the common habitat types they represent. The table below summarises the habitat types identified on site and the potential impacts as a result of the proposals and their ecological significance. Habitat types detailed below are listed in order of the JNCC (2010) Handbook. The species list provided in this report reflect only those taxa observed during the survey.

Table 4: Results of Phase 1 Site Survey

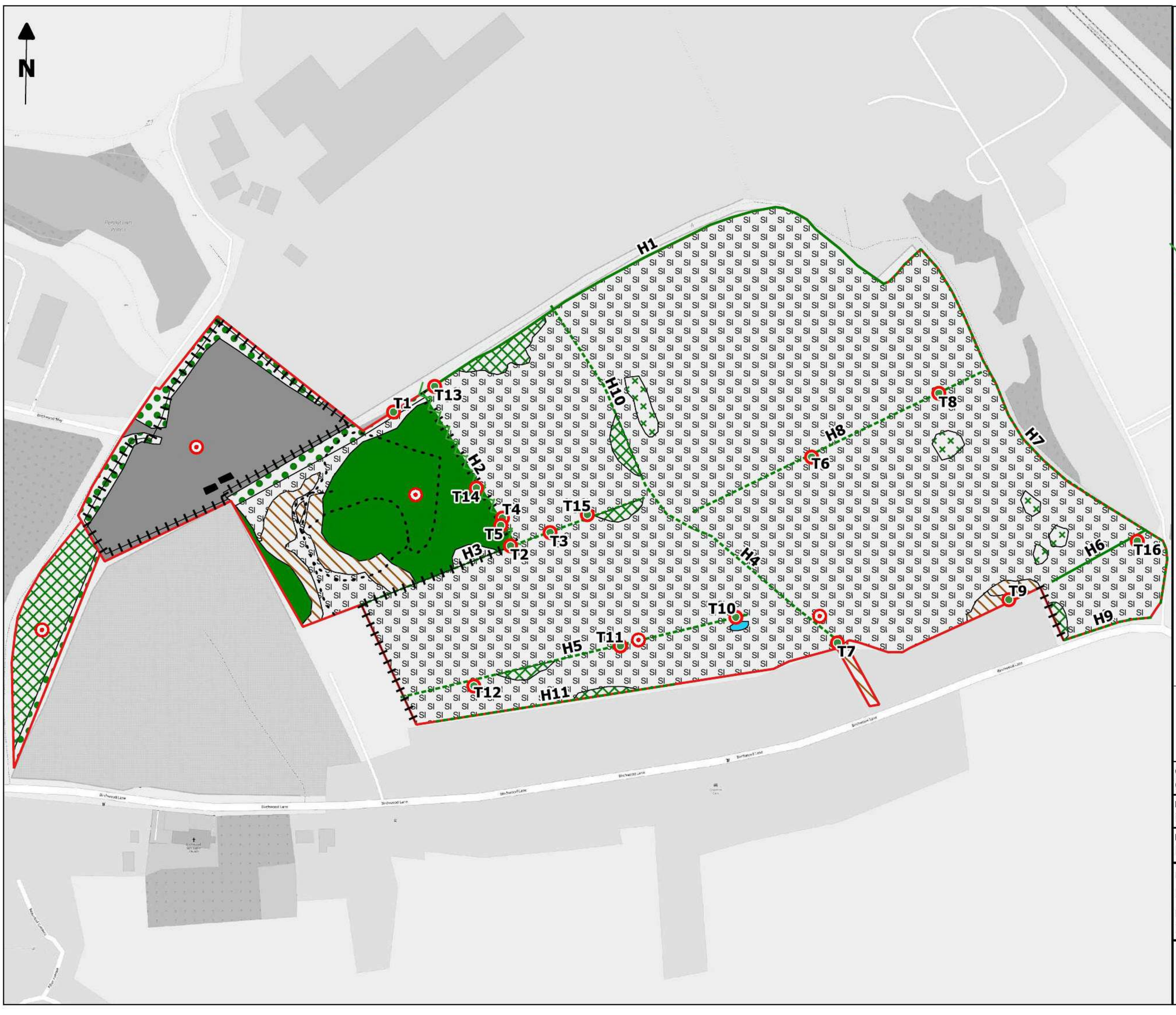
Habitat	Description	Area (m²)	Proportion of site (%)	Ecological Importance & Outcome of Proposal	Photograph
A1.1.1 Broadleaved Woodland Semi Natural	Two parcels of broadleaved woodland were located to the west of the grazing fields on site, these were separated by a walkway of poor semi-improved grassland and tall ruderal. These were comprised of equally abundant mature and semi-mature ash (*Fraxinus excelsior*), and oak (*Quercus robur*) with a densely vegetated understorey comprised of frequent elder (*Sambucus nigra*), field maple (*Acer campestre*) and hawthorn (*Crataegus monogyna*), occasional holly (*Ilex aquifolium*) and rarely occurring crab apple (*Malus sylvestris*). The ground flora comprised areas of locally dominant nettle (*Urtica dioica*) and bramble (*Rubus fruticosus agg*) with occasional herb Robert (*Geranium robertianum*) and cleavers (*Galium aparine*) and rarely recorded dog's mercury (*Mercurialis perennis*). Due to the dense scrub understory, it was not possible to fully investigate all areas within the woodland.	8,063	6%	Inherently important & support wide range of species, including nesting birds & possible bat roosts To be lost to facilitate proposals	
A2.1 Dense scrub	Parcels dominated by bramble, blackthorn (*Prunus spinosa*) and hawthorn were present within Area 1 and this was the dominant habitat type within Area 4, restricting access. Butterfly bush (*Buddleia*) was abundant, and Dog rose (*Rosa canina*) was also present occasionally throughout. A stand of dense scrub dominated by blackthorn (*Prunus spinosa*) was present along the northern boundary, and the scrub within Area 4 was dominated by bramble	4,390	3%	Limited botanical interest but may support a wide range of fauna To be lost to facilitate proposals	

Habitat	Description	Area (m^2)	Proportion of site (%)	Ecological Importance & Outcome of Proposal	Photograph
	with occasional spear thistle (*Cirsium vulgare*).				
A2.2 Scattered Scrub	Areas of scattered scrub were present within the south eastern section of the grazed fields (compartment 1), this was dominated by young hawthorn only	912	<1%	Limited botanical interest but may support a wide range of fauna To be lost to facilitate proposals	
A3.1 Broadleaved Scattered Trees	This area was located between Areas 2 and 3, along the western edge of Area 3 and along the eastern edge of Area 4. This habitat type ran along the edges of a public footpath and there was no dominant species. The species composition was formed of abundant willow (*Salix sp*) and ash (*Fraxinus excelsior*) and oak with occasional wych elm (*Ulmus glabra*) and hawthorn and rarely recorded field maple.	3,392	2%	Inherently important & support wide range of species, including nesting birds & possible bat roosts To be lost to facilitate proposals	

Habitat	Description	Area (m^2)	Proportion of site (%)	Ecological Importance & Outcome of Proposal	Photograph
B6 Poor semi-improved grassland	Poor semi-improved grassland formed the majority of the site (grazed fields and a strip of mown grassland). The sward height of the graced fields was 1-5cm, and the mown walkway was 5-10cm. Within the grazed area, perennial ryegrass (*Lolium perenne*) was dominant, with abundant Yorkshire fog grass (*Holcus lanatus*) and false oat (*Arrhenatherum elatius*), with frequent white clover (*Trifolium repens*), cock's-foot (*Dactylis glomerata*), and rough meadow grass (*Poa trivialis*). Occasional common sorrel (*Rumex acetosa*), ribwort plantain (*Plantago lanceolata*), couch grass (*Elymus repens*) and creeping cinquefoil (*Potentilla reptans*) and rare herb Robert, and sow thistle (*Sonchus sp*). The species composition was the same throughout the mown walkways, the exception being that false oat grass was dominant, and perennial ryegrass occasional.	91,293	75%	Short grazed and mown management practices limit's ability to support faunal species. Of lower ecological value To be lost to facilitate proposals	
C3.1 Tall Ruderal	Tall ruderal vegetation was frequently present within the site as an understorey habitat to the hedgerows, and border to the mown walkways thought he woodland. This was dominated by rosebay willowherb (*Chamerion angustifolium*) and common nettle. Abundant broad-leaved dock (*Rumex obtusifolius*), and occasional mugwort (*Artemisia vulgaris*), creeping thistle (*Cirsium arvense*) and spear thistle (*Cirsium vulgare*).	2,906	2%	Limited botanical value. Habitats do have some value to faunal species for nesting, foraging, refuge and commuting To be lost to facilitate proposals	

Habitat	Description	Area (m^2)	Proportion of site (%)	Ecological Importance & Outcome of Proposal	Photograph
G Standing Water	This was an area of standing water (1.5mx0.5m) situated within the grazed section of the site, this depression appeared to have been formed from a tyre rut. The water depth was 2-3cm and this area was almost dry. The water column was silty and turbid with no emergent or aquatic vegetation implying this area is ephemeral and holds water only after periods of heavy rainfall.	47	<1%	An ephemeral tyre track – not inherently important To be lost to facilitate proposals	
J2.1 Intact hedge – native species rich	Eleven hedgerows were recorded across the site. These were a mixture of species rich, species poor and intact/defunct. Full details of the hedgerows are provided in Appendix ..	1,893m (total combined length)	1%	May support a range of protected species, primarily nesting birds. Additional native woody species to increase botanical diversity is recommended Majority lost to facilitate proposals	
J3.6 Building	Two buildings were located on the hard standing to the west of the site. These were prefabricated metal containers in a good state of repair.	58	<1%	N/A	

Habitat	Description	Area (m^2)	Proportion of site (%)	Ecological Importance & Outcome of Proposal	Photograph
J6 Hardstanding	A hardstanding compound was located within the north-western portion of the site	9,384	7%	N/A	



Key

- Boundary
- A1.1.1 - Broadleaved woodland - semi-natural
- A2.1 - Scrub - dense/continuous
- A2.2 - Scrub - scattered
- A3.1 - Broadleaved Parkland/scattered trees
- B6 - Poor semi-improved grassland
- C3.1 - Other tall herb and fern - ruderal
- G1 - Standing water
- J3.6 - Buildings
- J6 - Hard Standing
- J2.1.1 - Intact hedge - native species-rich
- J2.1.2 - Intact hedge - species-poor
- J2.2.2 - Defunct hedge - species-poor
- J2.4 - Fence
- Other 1 - Pathway
- Target Note
- Tree with Bat Potential

Target Notes
TN1 - No Access to area
TN2 - Limited access to area

Trees with bat potential
T1 - Ash with low potential
T2 - English oak with low potential
T3 - English oak with moderate potential
T4 - Ash with moderate potential
T5 - Ash with moderate potential
T6 - English oak with high potential
T7 - Oak sp. with moderate potential
T8 - Ash with moderate potential
T9 - Ash with moderate potential
T10 - Oak sp. with high potential
T11 - English oak with low potential
T12 - Ash with high potential
T13 - Ash with low potential
T14 - English oak with low potential
T15 - Ash with high potential
T16 - Ash with moderate potential

RammSanderson

Client:
Clowes Development ltd.

Project:
Birchwood Lane, Somercotes

Drawing Title:
Phase 1 Habitat Plan - A3

Drawing No.: RSE_4008_Phase 1 Habitat Plan
Rev: V1
Drawn By: LAJM
Scale: 1:2,100 @ A3
Date: 08/07/2020

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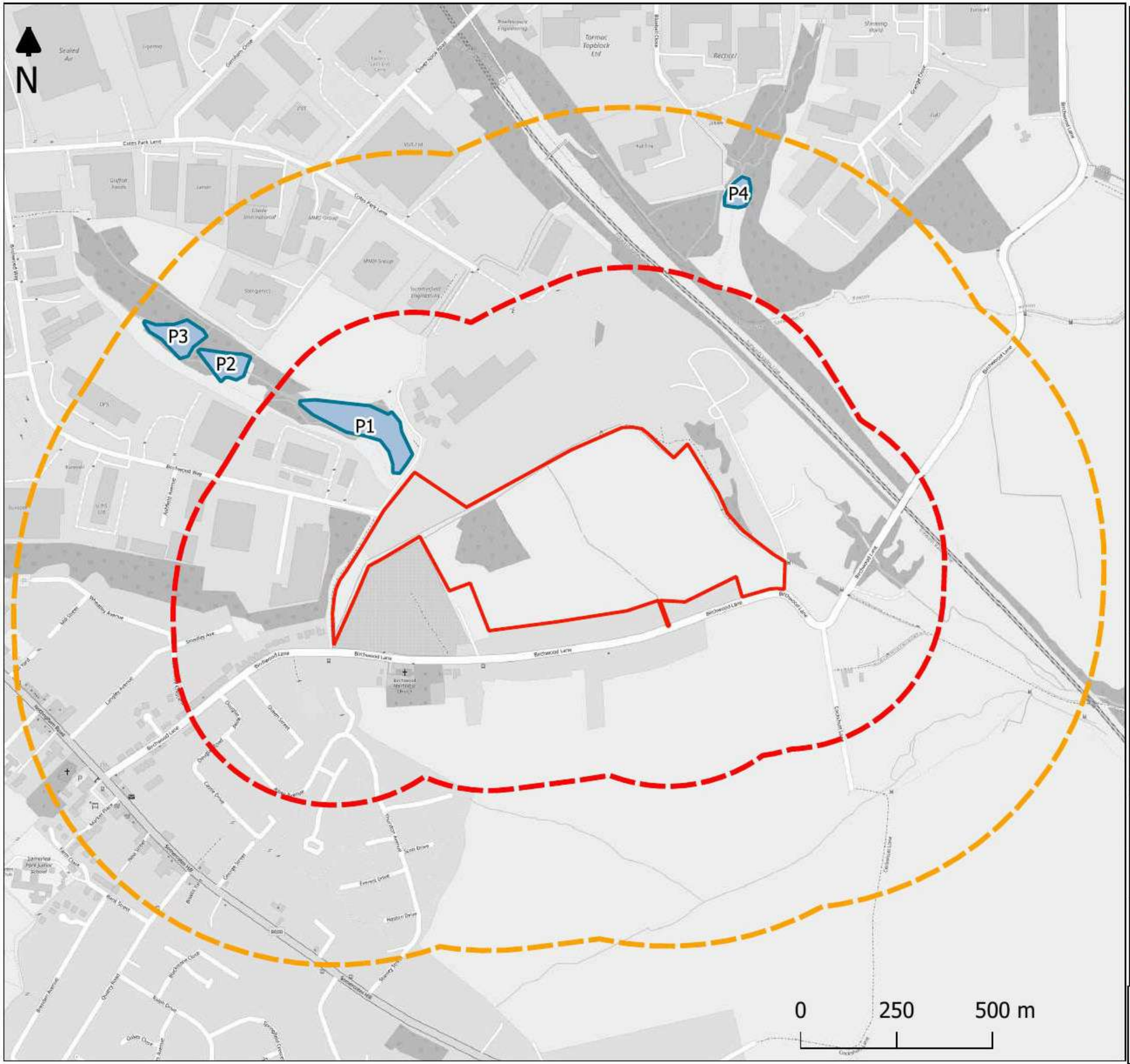
Protected Species Survey Results

4.2.3 Great Crested Newt (GCN)

vii No ponds were located on site, the standing water identified on site was considered to be an ephemeral tyre track approximately 3cm deep, which was not classified as a pond. There were, however, four ponds within 500m of the site boundary. Ponds 1-3 to the west of the site where densely stock fishing lakes knows as Pennytown Ponds. Due to predation from fish decimating great crested newt populations these were scoped out of further assessment as they are unsuitable to support breeding GCN. This approach was also taken by FPCR in their assessment of these habitats in previous years. P4 was located to the north-east of the site beyond a road and industrial development (partial barrier to dispersal for this species). Furthermore, P4 is surrounded by woodland which is the optimal habitat for GCN. Therefore, it is unlikely that if GCN are present within this pond that they would commute onto the suboptimal habitats present on site and across a road. Therefore, GCN are considered most likely absent from site.



Key

- Pond Locations
- Site Boundary
- 250m buffer
- 500m buffer

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Client:
Clowes Development Ltd.

Project:
Birchwood Lane

Drawing Title:
Waterbody Plan

Drawing No.		Rev:
RSE_4008_F02		V1
Drawn By:	Scale:	Date:
LF	1:13,403	02.07.2020

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4.2.4 Bats

Trees

viii All of the trees on site were subject to a Ground Level Tree Assessment (GLTA). Fifteen trees (T1-2 and T4-16) were assessed as offering low – high potential to support roosting bats (RammSanderson 2020).

ix Following the initial GLTA, all trees assessed as moderate or high bat roosting potential (T4-10, T12 and T15-16) were subject to a climbed Aerial Tree Assessment. This additional assessment identified three trees with high bat roosting potential (T8, T10 and T12), five trees with moderate bat roosting potential (T4, T6-7, T9 and T16), and seven trees with low bat roosting potential (T1-2, T5, T11, T13-15).

x As such, further nocturnal surveys for trees assessed as moderate-high potential were conducted between May-July 2021 to fully ascertain these trees' provision as bat roosts, and the requirement for a Protected Species Licence (PSL) should they require removal.

xi Any trees assessed as offering low bat roosting potential that require removal to facilitate the works should be felled under a Precautionary Method of Works (PMW) under ecological supervision, utilising techniques such as soft felling.

xii Full results of tree assessments are shown in Appendix 6, with the results of the nocturnal surveys summarised below:

Emergence Survey 1 – 19.05.2021 - Dusk

xiii Ten surveyors were optimally positioned to survey T4, T6-8, T9-10, T12 and T16 (see Figure 11 for surveyor locations). Sunset was at 21:05, and the survey commenced at 20:25. The first bat recorded was at 21:08 which was a solitary a common pipistrelle (*Pipistrellus pipistrellus*).

xiv No bats were recorded emerging from any of the trees during the survey. Throughout the survey, the site was used for foraging and commuting by common pipistrelle bats, with one *Myotis sp.* call recorded at 22:31 towards the end of the survey. In addition, one bat was recorded exiting the woodland within the northern portion of the site at 21:24, however, this bat was not echolocating at the time. The last bat was recorded at 22:34 and the survey concluded at 22:35.

Re-entry Survey 2 – 10.06.2021 - Dawn

xv Nine surveyors were optimally positioned to survey T4, T6-8, T9-10, T12 and T16 (see Figure 12 for surveyor locations). Sunrise was at 04:40, and the survey commenced at 02:40. The first bat recorded was at 02:40 which was a common pipistrelle.

xvi No bats were recorded re-entering any of the trees during the survey. Throughout the survey, the site was used for foraging and commuting by common pipistrelle bats, with occasional *Myotis sp.* recorded towards the end of the survey. The last bat was a common pipistrelle which was heard and not seen by the surveyors and was recorded at 04:19. The survey concluded at 04:55.

Emergence Survey 3 – 13.07.2021 – Dusk

xvii Five surveyors were optimally positioned to survey 6, T8, T10 and T12 (see Figure 13: July Dusk Emergence Results for surveyor locations). Sunset was at 21:26, and the survey commenced at 21:11. The first bat recorded was at 21:29 which was a solitary a common pipistrelle.

xviii No bats were recorded emerging from any of the trees during the survey. Throughout the survey, the site was used for foraging and commuting by common pipistrelle bats, with occasional *Myotis sp.* recorded towards the end of the survey. In addition, a noctule (*Nyctalus noctula*) was also recorded at 21:59 and 22:46, however, this bat was only heard and not seen by the surveyors. The last bat was recorded at 23:21 and the survey concluded at 23:25.

xix The bat activity plans in Appendix 6: Bat TREE Survey ResultSgive further detail of the foraging and commuting behaviours witnessed.

Foraging Habitat

xx The hedgerows present on the site provided potential foraging and commuting habitat, as well as providing connectivity to the wider landscape, which included wetland areas, woodlands, and a railway. Therefore, it is likely that the hedgerows and woodland on site offer commuting and foraging resources for bats. In assessing the site against criteria in best practice guidelines (Collins J., eds, 2016) the site was considered to offer moderate quality foraging and commuting habitat for bats.

xxi As such, activity surveys are to be conducted each month April-October with five days of static activity monitoring as per BCT guidelines. The results of these surveys so far are summarised below:

Bat Activity Transect 1 – 20.04.2021 - Dusk

xxii Sunset was at 20:15 and the survey commenced at 20:00 until 20:45. This transect was called off early due to health and safety concerns from the surveyors from charging livestock. The transect route followed route 1 as can be seen in Figure 14 and was undertaken in suitable conditions. The first bat was observed at 20:16 and was a common pipistrelle commuting along the south-eastern site boundary. Common pipistrelles were the only bat species observed during this transect, with the last common pipistrelle observed commuting east across the site at 20:39. However as stated this was not a full survey and concluded at least an hour and 15 minutes early.

Bat Activity Transect 2 – 19.05.2021 – Dusk

xxiii Sunset was at 21:05 and the survey commenced at 20:51 until 23:00. The transect route followed route 1 as can be seen in Figure 15 and was undertaken in suitable conditions. The first bat was a common pipistrelle, observed at 21:17 commuting west-east along the central hedgerows. Common pipistrelles were the most frequently observed bat species during this transect, with *Myotis sp.* calls occasionally heard throughout the survey. The last bat observed was a common pipistrelle at 22:46 which was only heard, and not seen, by the surveyors.

Bat Activity Transect 3 – 16.06.2021 – Dusk

xxiv Sunset was at 21:35 and the survey commenced at 21:35 until 23:35. The transect route followed route 1 as can be seen in Figure 156 and was undertaken in suitable conditions. The first bat was a common pipistrelle, recorded at 22:01, however this bat was only heard and not seen by the surveyors. Common pipistrelles were, again, the most frequently observed bat species during this transect, with one noctule (*Nyctalus noctula*) call heard at 23:05. The last bat observed was a common pipistrelle at 23:25 which was observed commuting north-south along the central site hedgerow.

Bat Activity Transect 4 – 14.07.2021 – Dusk

xxv Sunset was at 21:25 and the survey commenced at 21:25 until 23:25. The transect route followed route 1 as can be seen in Figure 17 and was undertaken in suitable conditions. The first bat was a common pipistrelle, recorded at 21:41, and was foraging along the southern site boundary. During this transect, common pipistrelles were the only observed bat species, with the last bat recorded at 23:17 which was only heard and not seen by the surveyors.

Bat Activity Transect 5 – August 2021

xxvi TBC

Bat Activity Transect 6 – September 2021

xxvii TBC

Bat Activity Transect 7 – October 2021

xxviii TBC

Static monitoring results

xxix Two static detectors will be positioned in optimal bat foraging habitat on site and left for five nights each month April – October. One will be located along the southern site boundary, and the other within the parcel of broadleaved woodland. The locations of the statics are shown below.



Key

- Boundary
- Static Locations

RammSanderson

Client:
Clowes Developments

Project:
Birchwood Way, Somercotes

Drawing Title:
Static Locations

Drawing No.		Rev:
RSE_4008_Figure 5		V1
Drawn By:	Scale:	Date:
GC	1:1	26/04/2021

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Static 1

xxx To date, as can be seen from Table 14 Appendix 7: Bat Activity Transect AND STATIC Survey Results the species with the most passes from the static data was common pipistrelle which accounted for 98.9% of all bat passes recorded over the five nights during the static monitoring periods between April-July. Three other species, soprano pipistrelle (*Pipistrellus pygmaeus*) noctule (*Nyctalus noctula*) and *Myotis sp.*, have been recorded passing this location to date, therefore accounting for the remaining 0.4%, 0.4% and 0.2% of bat passes, respectively, at this location on site.

Static 2

xxxi As can be seen from Table 15 Appendix 7, the species with the most passes from the static data was also common pipistrelle, also with an average of 96.2% of all passes recorded over the five nights of recording during the static monitoring periods between April-June. Noctule, soprano pipistrelle and *Myotis sp.* were also recorded passing this location, accounting for 3.6%, 0.1% and 0.1% of bat passes, respectively.

xxxii In summary, to date, low numbers of common and widespread bat species have been recorded on site. The vast majority of bat passes on site have been recorded by Static 2, within the woodland, where this static has recorded feeding buzzes and social calling. Further static monitoring will be undertaken between August-October 2021.

xxxiii Full results are shown in plans in Appendix 7..

Buildings

xxxiv B1 and B2 offered negligible potential to support roosting bats as both were single skin sealed metal container units with no egress points. As such, bat building roosts are considered absent from site.

4.2.5 Birds

xxxv The hedgerows, scattered trees and broadleaved woodland on site offer suitable habitat for a broad variety of nesting birds. Records for song thrush, turtle dove, bullfinch and cuckoo were returned and suitable habitats for these species are present on site. As such, breeding bird surveys were recommended for the site.

xxxvi The site supports an assemblage of typical species for the habitat present such as robin (*Erithacus rubecula*), wren (*Troglodytes troglodytes*), blackbird (*Turdus merula*), dunnock (*Prunella modularis*), greenfinch (*Carduelis chloris*), goldfinch (*Carduelis cardualis*), blue tit (*Cyanistes caeruleus*) and great tit (*Parus major*) amongst other common resident species. Several of the summer migrants including blackcap (*Sylvia atricapilla*), chiffchaff (*Phylloscopus collybita*) and willow warbler (*Phylloscopus trochilus*) have also been observed on site. The main areas of bird interest are the hedgerows and the and the woodland on site, with the vast majority of activity recorded in these habitats.

xxxvii One species listed under Schedule 1 of the Wildlife and Countryside Act 1981 *as amended* was recorded on site. Sixty-seven redwings (*Turdus iliacus*) were recorded within the hedgerows on site during the March survey. Redwing are a winter visitor to the UK and, as such, it has been considered that the flock observed during this survey were due to migrate to summer breeding grounds imminently. This was confirmed during the April survey, as redwing were not observed on site. As such, redwing are not considered to be breeding on site.

xxxviii Meadow pipit (*Anthus pratensis*) was also observed during the March survey; however, the grass is considered to be too heavily grazed to provide suitable nesting habitat for this and other ground nesting bird species and so these species are not considered to be breeding on site.

Table 5: Summary of Species Observed on Site during Breeding Bird Surveys

Common Name	Scientific Name	Location and Habitat	Conservation Status
Blackbird	*Turdus merula*	Resident year round, probable breeder. Associated with all areas of the site.	BoCC Green
Blackcap	*Sylvia atricapilla*	Summer visitor, possible breeder. Associated with the woodland on site.	BoCC Green
Blue tit	*Cyanistes caeruleus*	Resident year round, probable breeder. Associated with all areas of the site	BoCC Green
Chaffinch	*Fringilla coelebs*	Resident year round, probable breeder. Associated with all areas of the site	BoCC Green
Chiffchaff	*Phylloscopus collybita*	Summer visitor, possible breeder. Associated with woodland on site	BoCC Green
Collared dove	*Streptopelia decaocto*	Resident year round, probable breeder. Individual seen flying over site during May survey.	BoCC Green
Dunnock	*Prunella modularis*	Resident year round, probable breeder. Associated with all areas of the site.	BoCC Amber
Goldcrest	*Regulus regulus*	Resident year round, probable breeder. Associated with woodland on site.	BoCC Green
Goldfinch	*Carduelis Carduelis*	Resident year round, probable breeder. Associated with all areas of the site	BoCC Green
Great spotted woodpecker	*Dendrocopos major*	Resident year round, probable breeder. Individual seen flying over site during May survey.	BoCC Green
Great tit	*Parus major*	Resident year round, probable breeder. Associated with all areas of the site	BoCC Green
Greenfinch	*Carduelis chloris*	Resident year round, probable breeder. Associated with all aspects of the site.	BoCC Green
House sparrow	*Passer domesticus*	Resident year round, probable breeder. Associated with the hedgerows on site.	BoCC Red
Little owl	*Athene noctua*	Resident year round, possible breeder. Associated with the hedgerows on site.	Introduced
Meadow pipit	*Anthus pratensis*	Resident year round, unlikely breeding on site due to heavy grazing. Small flock seen flying over site during March survey.	BoCC Amber
Mistle thrush	*Turdus viscivorus*	Resident year round, probable breeder. Associated with hedgerows on site	BoCC Red
Pied wagtail	*Motacilla alba*	Resident year round, possible breeder. Individual seen flying over site during March survey.	BoCC Green
Redwing	*Turdus iliacus*	Winter visitor, unlikely breeding on site. Associated with the hedgerows on site.	WCA (1), BoCC Red

Common Name	Scientific Name	Location and Habitat	Conservation Status
Robin	*Erithacus rubecula*	Resident year round, probable breeder. Associated with all aspects of the site.	BoCC Green
Song thrush	*Turdus philomenos*	Resident year round, possible breeder Associated with hedgerows and woodland on site.	BoCC Red
Stock dove	*Columba oenas*	Resident year round, possible breeder. Individual seen flying over site during March survey.	BoCC Amber
Willow warbler	*Phylloscopus trochilus*	Summer visitor, possible breeder. Associated with the hedgerows on site.	BoCC Amber
Woodpigeon	*Columba palumbus*	Resident year round, probable breeder. Associated with hedgerows on site.	BoCC Green
Wren	*Troglodytes troglodytes*	Resident year round, probable breeder.	BoCC Green

4.2.6 Reptiles

xxxix 32 records of grass snake were identified within 2km of the site boundary during the desk study, with the closest of these being located on site. Whilst the majority of habitats on site were considered to be of very limited value for reptiles, consisting largely of grazed fields, the field margins, woodland edges and tall ruderal offer some limited suitable habitat. However, previous surveys on site, last conducted by FPCR in 2016 have failed to detect any reptiles and the habitats on site have not significantly changed since these surveys were carried out. Therefore, either low populations of reptiles persist on site or the records are of transient animals which may cross through the site, it is unlikely that the site support an established, viable reptile population.

4.2.7 Riparian Mammals and Freshwater Invertebrates

xl No habitats suitable for supporting water vole (*Arvicola amphibius*), otter (*Lutra lutra*) or white clawed crayfish (*Austropotamobius pallipes*) were identified on site. Large fish-stocked ponds (P1-P3) were, however, located within 100m of the north-western site boundary, providing suitable habitats for otter and water vole. Furthermore, local records of water vole 20m east of the site were returned. In addition, the broadleaved woodland on site present opportunities for otter holts. Whilst no holts were identified on site during the initial Phase 1 survey, areas of the broadleaved woodland were inaccessible, and so could not be fully explored for signs of otter.

[redacted]

4.2.9 Other Priority Fauna Species

xlii The habitats on site were suitable for hedgehogs (*Erinaceus europaeus*), with this species also being an LBAP Priority Biodiversity Species for Derbyshire.

xliii Due to a lack of suitable habitats, the site is not considered likely to support any other legally protected or Priority species.

4.2.10 Terrestrial Invertebrates

xliv Two species of conservation concern were recorded in the desk study. Dingy skipper (*Erynnis tages*) is a widespread species in Britain, that have larvae that feed on bird's foot trefoil (*Lotus corniculatus*) and greater bird's foot trefoil (*Lotus uliginosus*) and horseshoe vetch (*Hippocrepis comosa*). Latticed heath (*Chiasmia clathrata*) is also widely distributed in Britain, and the larval host plants include clovers (*Trifolium sp.*), trefoils and lucerne (*Medicago sativa*).

4.2.11 Biodiversity

xlv When assessed against the DEFRA Metric 3.0 Biodiversity Impact Assessment calculator, the site contains 34.38 baseline biodiversity units for habitat areas and 12.10 units for linear features (hedgerows). The most distinctive habitats on site were the broadleaved woodland and hedgerow habitats. The modified grassland accounted for the majority of the biodiversity units due to the extensive area this habitat covers.

5 IMPACTS AND MITIGATION (CUMULATIVE AND/OR IN ISOLATION)

5.1 Planning Application Search

i A search was conducted of planning applications within 1 mile of the proposed development, using the planning finder (www.planningfinder.co.uk) and allocated policies within Amber Valley Borough Council Adopted Local Plan. The search was limited to the two-year period preceding the date of issue of this report. Excluding householder or retention applications (i.e., typically local-scale residential or commercial developments where an impact has already occurred), and withdrawn and refused applications, the following applications were identified as having the greatest potential to act in-combination with one or more of the proposed developments:

- Subdivision of Pilkington UK Ltd premises up to nine separate employment units comprising 8 no. B2/B8 and 1 no. E(g) 18/00625/FUL
- Residential development of 34 No. dwellings with new roads, infrastructure, external works and landscaping including demolition of existing buildings AVA/2021/0140
- Parking for operational vehicles, provision of three portakabin style buildings (two for office use and one for welfare facilities); use of vehicle washdown; installation of fuel bunker / bowser; additional column lighting; and staff parking AVA/2020/0513
- Policy ER3 of the Amber Valley Borough Council Adopted Local Plan
- Policy ER4 of the Amber Valley Borough Council Adopted Local Plan

ii Policies ER3 and ER4 of the Amber Valley Borough Council Adopted Local Plan covers the site assessed within this Ecological Impact Assessment, and therefore potential impacts to ecological receptors from this policy will be assessed within this report. As such, this policy will not be considered further with regards to cumulative impacts. Most of the remaining applications listed above would lead to a permanent net habitat loss of grassland, hedgerow, and/or wooded habitats to varying degrees, in addition to buildings that may support roosting bats and nesting birds. However, the requirement for a measurable net gain in biodiversity within the NPPF should work to offset any habitat loss. These projects may also result in increases to noise and lighting pollution during the construction phase of these projects, with impacts to bats and other protected species which could act in-combination with the proposed development to elevate impact significance.

iii There is considered to be potential for in-combination impacts with the other applications identified as a result of increased amounts of habitat loss in combination with the proposals for the applicant Site. However, it is not possible to fully assess potential impacts until the outstanding surveys have been completed and the ecological baseline for the site has been fully established.

5.2 Habitats

i The majority of habitats on site were of limited ecological value, with the site primarily consisting of heavily grazed, species poor grassland. The boundary hedgerows and woodlands are Habitats of Principal Importance and will be largely to be lost within the current proposals. The hedgerows do not qualify as an important under the Hedgerow Regulations Act 1997 however they are valuable ecological corridors for a number of species. As such, the removal of the woodland and hedgerows on site, in the absence of mitigation or compensation, would results in a loss of habitat connectivity to the wider landscape. This is of particular importance for Pennytown Ponds LNR to the north of the site, as the development in the absence of habitat creation on site would be further isolated by industrial development. In addition, the loss of the woodland and hedgerows on site, in the absence of mitigation or compensation, would result in a complete loss of structural diversity of the site.

ii As such, any species rich hedgerows that are removed should be replaced on a 2:1 basis on site, with species poor hedgerows replaced on a 1:1 basis. Furthermore, the new woodland planting proposed for the site will also help to compensate for the removal of the existing woodland. In addition, any retained trees and hedgerows should be protected in accordance with BS 5837:2012 during construction.

iii In addition to the new woodland planting, a range of habitat creation is also proposed for the site, Including:

- Wildflower meadows
- Ponds and associated wetlands (including willow carr)
- Species rich hedgerow planting

5.3 Statutorily and Non-Statutorily Designated Sites

5.3.1 Statutorily Designated Sites

i The site lies within the Impact Risk Zone for Bagthorpe Meadows SSSI for infrastructure (including aviation proposals) and air pollution (livestock and poultry units). As the proposals currently indicate a commercial development of the site, this development type does not fall under either of the Impact Risk Zones considered to pose a potential negative impact on this nationally designated site, as defined by Natural England. As such, the proposals are considered to have negligible impacts upon Bagthorpe Meadows SSSI.

ii The nearest statutorily designated site was Pennytown Ponds LNR which was located adjacent to the northwestern site boundary and is designated for its ponds and the fauna they support. Whilst the site is not functionally linked to this nationally designated site, given the proximity of the development area to this site, mitigation measures will need to be implemented to prevent any indirect negative impacts (such as pollution) occurring during the development.

iii As the ponds located within Pennytown Ponds LNR are located within 100m of the development site, the works carry risk of potential silt and pollution impacts. Pollution Prevention Guidelines: PPG1 should be followed strictly, and all measures put in place to minimise the risks. An action plan should be put in place for any accidents, including ensuring adequate spill kits are on site and all measures are in place to prevent runoff into the this nationally designated site.

iv In addition, it is anticipated that the proposed ecological buffer surrounding the central commercial development on site will enhance the connectivity of Pennytown Ponds LNR to the development site, through the provision of new woodlands, wildflower meadows and wetlands.

v All other statutorily designated sites were considered to be too far afield to suffer any negative impacts from the development, and the site did not fall within any other sites' Impact Risk Zone.

vi As such, the development is not likely to give rise to any significant adverse impacts on any statutorily designated sites. The development proposals will not result in the loss of habitats or features identified as being important by any local statutory designations and there will be no likely significant effects on biodiversity. It is therefore concluded that the proposed development will not result in likely significant effects and that an Environmental Statement is not required to accompany the application for the proposed development.

5.3.2 Non-Statutorily Designated Sites

vii The nearest non-statutorily designated site is Alfreton Tunnels Cutting South LWS, located c.0.5km north-east of the sites' boundary, designated for its unimproved neutral grassland. Planned development works are not likely to impact upon this site, as the sites are not functionally linked, however, given its proximity to the site, it is advised that some mitigation be put in place to ensure no impacts occur during the development.

viii Mitigation measures such as dust suppression techniques and pollution prevention measures (detailed above) should be utilised during the development to prevent indirect negative impacts upon these designated sites.

5.4 Fauna

5.4.1 Bats

Bat Tree Roosts

i Following the updated climbed Aerial Tree Assessments on site, three trees were assessed as offering high bat roosting potential (T8, T10 and T12) with a further five trees assessed as offering moderate bat roosting potential (T4, T6-7, T9 and T16). In addition, seven trees (T1-2, T5, T11 and T13-15) were identified on site as offering low bat roosting potential.

ii Following further nocturnal surveys completed on the moderate-high potential trees between May-July 2021, no bat roosts were identified within these trees. As such, bat roosts are considered to be likely absent from site and therefore the removal of these trees will not require a European Protected Species Licence (EPSL).

iii The absence of bats can never be completely ruled out, however, and the suitability of the features on these trees may be frequented opportunistically by individual bats during the summer months. As such, given the suitability of the features observed on these trees for roosting bats, any trees assessed as offering bat roosting potential that require removal to facilitate the works should be felled under a Precautionary Method of Works (PMW) under ecological supervision, utilising techniques such as soft felling.

iv In addition, a sensitive lighting strategy should also be implemented across the site to prevent indirect impacts to any potential roosts within the locality, as detailed below.

Bat Foraging Habitat

v To date, only four bat activity transects have currently been completed on site. During this survey, common pipistrelle was the only recorded species on site, recorded utilising the site as a commuting and foraging resource. Further bat activity surveys are currently scheduled for August-October 2021 and, as such, impacts to foraging and commuting bats cannot yet be fully assessed.

vi The boundary hedgerows on site do, however, provide ecological commuting routes for bats and these are to be maintained within the proposals. As such, whilst the results of the bat activity surveys are still pending, any retained hedgerows should be kept as dark corridors post development to maintain the ecological linkage to the wider landscape, particularly to the north of the site. Light spill onto the hedgerows should be minimised and should follow the guidance set out in Bats and Lighting in the UK (BCT and ILP, 2018). Therefore, associated site lighting proposals must consider the following:

- Avoid lighting where possible;
- Install lamps and the lowest permissible density;
- Lamps should be positioned to direct light to avoid upward spill onto any green corridors that could be used by commuting bats or features with bat roost potential;
- LED lighting – with no/low UV component is recommended;
- Lights with a warm colour temperature – 3000K or 2700K have significantly less impact on bats;
- Light sources that peak higher than 550nm also reduce impacts to bats; and
- The use of timers and dimmers to avoid lighting areas of the site all night is recommended.

5.4.2 Birds

vii The broadleaved woodland, scattered trees and hedgerow habitats within the site provide suitable habitat for a variety of nesting birds, including Red and Amber listed BoCC species. Current survey results indicate

that the habitats of the most importance to birds within the site are the hedgerows and the parcel of woodland. The grassland on site was considered to be too heavily grazed to provide suitable nesting habitat for ground nesting birds and these are therefore not considered to be breeding on site.

viii The majority of hedgerows and the parcel of woodland are to be lost to facilitate the proposals, in addition to potential disturbance impacts in the absence of mitigation. As such, the proposals have potential to impact some notable and common bird species. Unmitigated, works undertaken during the breeding season (March-September inclusive) could result in the loss of breeding habitat and the disturbance/mortality of nests.

ix Where possible, perimeter hedgerows will be retained and loss to the site's internal hedgerow network compensated for through additional native hedgerow planting. Wildflower meadows will also be created throughout the site, forming part of the ecological buffer surrounding the commercial development. Areas of woodland are also proposed to be planted within this ecological buffer, therefore providing a long-term nesting provision for a variety of bird species, as well as compensation for the woodland lost on site. In addition, a series of ponds are to be created specifically for wildlife and subsequently managed as wildlife ponds. The areas surrounding these ponds will be seeded with a native wetland seed mix. These habitat enhancements will provide both suitable nesting habitat on site in the long term, as well as foraging areas for a variety of bird species.

x In addition to specific mitigation measures, any tree management works, or vegetation clearance should take place outside the bird nesting season to ensure compliance with the general protection afforded to wild birds under the Wildlife and Countryside Act 1981 (as amended). If this is unavoidable, the trees, scrub and hedgerows and should be carefully checked, by a suitably qualified ecologist, prior to removal. Where active nests are found, working restrictions would be put in place until follow up survey can demonstrate that all chicks have fledged

5.4.3 Reptiles

xi The majority of habitats on site are considered to be unsuitable for reptiles, primarily consisting of heavily grazed and therefore frequently disturbed grassland. In addition, previous reptile surveys of the site did not identify any reptiles on site (FPCR 2016). The hedgerows, woodland, scrub and areas of tall ruderal vegetation do, however, provide suitable habitats for foraging, commuting and refuge seeking reptiles. Furthermore, Pennytown Ponds LNR is located adjacent to the northern site boundary and is known to host a good population of grass snake (*Natrix helvetica*). As such, there remains a residual risk for reptiles to pass through the site, utilising features such as the hedgerows, and therefore a careful works procedure with regard to reptiles is recommended for site vegetation clearance.

[redacted]

[redacted]

5.4.5 Terrestrial Invertebrates

xv Dingy skipper and latticed heath are unlikely to occur on site as the larval food plants for both of these species are absent from site. Therefore, the loss of habitats on the site is unlikely to be significant to any local population of these Species of Principal Importance. Furthermore, the creation of wildflower meadows throughout the site, with targeted supplementation of trefoil species, should serve to increase the availability of these larval host plants locally. Therefore, there is likely to be a significant positive impact on terrestrial invertebrates' post development.

5.4.6 Biodiversity

xvi Following input of habitat data into the DEFRA Metric 3.0, it has been considered there will be a quantified net gain of 9.83 habitat units (28.59%) and 3.86 linear units (31.87%) across the site. Whilst the development results in the loss of existing broadleaved woodland, this net gain is primarily due to the extensive habitat creation within the ecological buffer surrounding the central commercial development. This habitat creation includes new areas of broadleaved woodland, wildflower meadows, wildlife ponds and associated marginal planting and species rich hedgerows. In addition, the provision of this habitat creation/enhancement also presents the opportunity to create habitat provisions for a variety of species, such as herpetofauna hibernacula/refugia, as described in Section 7.

6 DISCUSSION AND RECOMMENDATIONS

6.1 Protected / Priority Species and Habitats Impact Appraisal

i The potential for protected species or habitats to be present on site and impacted by the proposals following mitigation is provided below.

Table 6: Summary of Residual Impacts

Ecological Feature	Importance (Geographic Frame of Reference)	Potential Effect	Mitigation Proposed	Proposed Mechanism to Secure	Residual Impact
Statutory Designated Sites	County or above	Pennytown Ponds LNR is located adjacent to the northern site boundary and therefore may be impacted indirectly during the development	Dust suppression techniques to be utilised throughout construction phase Strictly follow Pollution Prevention Guidelines PPG1 to reduce potential pollution impacts New woodland planting, as well as willow scrub, wildflower meadows, wildlife ponds and associated marginal planting to increase connectivity of this nationally designated site to the development site.	Planning condition – PMW and CEMP	Not significant
Non-statutory designated sites	County	Alfreton Tunnels Cutting LWS is located within 500m of the site boundary and therefore may be impacted indirectly during the development	Dust suppression techniques to be utilised throughout construction phase Strictly follow Pollution Prevention Guidelines PPG1 to reduce potential pollution impacts	Planning condition – PMW and CEMP	Not significant
Habitats including Priority flora	Local	Majority of habitats to be lost includes species poor and heavily poached grassland. Loss of hedgerows and broadleaved woodland (Habitats of Principal Importance)	Where possible, retention of hedgerow and trees in accordance with root protection areas, enhancement planting of species poor hedgerows, and replace lost hedgerows at rate of 2:1. New woodland planting, as well as willow scrub, wildflower meadows, wildlife ponds and associated marginal planting.	Planning condition – LEMP and CEMP	Currently significant positive

Ecological Feature	Importance (Geographic Frame of Reference)	Potential Effect	Mitigation Proposed	Proposed Mechanism to Secure	Residual Impact
Reptiles	Local	Transient individuals could be injured during initial site set up, clearance and groundwork	Use habitat manipulation to make works area unsuitable following methods set out in a PMW/CEMP New woodland, willow scrub and wetland areas will enhance the site for reptiles, with particular respect to grass snakes	Planning condition – details in PMW and CEMP	Positive
Bats – Roosting	Local	No tree roosts identified on site however, potential disturbance of opportunistic bats utilising suitable roosting features during summer months	Any trees assessed as offering bat roosting potential should be felled under ecological supervision utilising techniques such as soft felling Avoid lighting / use light spill accessories and use sensitive lighting scheme	Planning condition – details in PMW and CEMP	Not significant
Bats – Foraging/Commuting	Local	Potential removal of suitable foraging habitat and severance of commuting routes – further activity transects are scheduled between May-October 2021	TBC Avoid lighting / use light spill accessories and use sensitive lighting scheme	TBC	TBC
Great crested newts	Local	None	N/A	N/A	N/A
Riparian mammals and Freshwater invertebrates	Local	None	N/A	N/A	N/A
[redacted]					
Breeding birds	County/National	Damage or destruction of nests, impacts upon populations of conservation note	Where possible, retention of hedgerow and trees in accordance with root protection areas, enhancement planting of species poor hedgerows, and replace lost hedgerows at rate of 2:1.	Planning condition – LEMP and CEMP	Not significant

Ecological Feature	Importance (Geographic Frame of Reference)	Potential Effect	Mitigation Proposed	Proposed Mechanism to Secure	Residual Impact
			New woodland planting, as well as willow scrub, wildflower meadows, wildlife ponds and associated marginal planting. Provision of bird boxes throughout the site Any tree management works, or vegetation clearance should take place outside the bird nesting season. If this is unavoidable, the trees, scrub and hedgerows and should be carefully checked, by a suitably qualified ecologist, prior to removal. Where active nests are found, working restrictions would be put in place until follow up survey can demonstrate that all chicks have fledge		
Terrestrial Invertebrates	Local	Loss of woodland and hedgerows. Larval host plant for locally occurring species (such as dingy skipper) currently not on site and so impacts reduced to minimal	Creation of woodlands, wetlands, and wildflower meadows with targeted supplementary seeding of trefoil species for dingy skipper larvae.	Planning condition – details in a LEMP	Significant positive
Biodiversity	Local	Increase in native habitat area	Creation of broadleaved woodland, willow scrub, wildflower meadows, scrub, ponds and associated marginal planting. Detailed within Section 7 and RSE_4008_BIA	Planning condition - LEMP	Currently significant positive

7 COMPENSATION AND ENHANCEMENT RECOMMENDATIONS

7.1 Habitats

7.1.1 Woodland Planting

i The National Planning Policy Framework and local development plan requires ecological enhancement of sites subject to development proposals to the extent that they provide a net biodiversity gain. Where new landscape planting is proposed species commonly occurring locally such as horse chestnut and oak could be used. Other species such as silver birch (*Betula pendula*), rowan (*Sorbus aucuparia*) and whitebeam (*Sorbus aria*) would make attractive additions to the Site. In particular rowan will provide a valuable source of berries late into the winter months and provide an important food source for native and migratory bird species. Ash and elm should currently be avoided due to the prevalence of 'Ash die-back' and 'Dutch elm disease', as stocks of these species cannot be guaranteed to be free from these afflictions. The use of native species in tree planting is also encouraged as these can harbour a high diversity of invertebrates. For example, English oak trees have over 400 associated invertebrate species (Kennedy & Southwood, 1984). Other suggested planting of benefit to invertebrates includes:

- Willow (*Salix sp.*)
- Hawthorn (*Crataegus monogyna*)
- Blackthorn (*Prunus spinosa*)
- Hazel (*Corylus avellana*); and
- Birch (*Betula sp.*)

ii The addition of fruit trees throughout the site, including apple (*Malus sp.*) and cherry (*Prunus sp.*) would also provide suitable foraging enhancements for badgers across the site.

iii Trees will be planted in groups at irregular spacing intervals between rows. This is typically preferred if a more natural appearance is desired or if wildlife and conservation are prime objectives. This variable spacing also allows space for natural regeneration to supplement the planted trees.

iv In addition, the understory of the new woodland should be sown with a shade tolerant wildflower seed mix, such as Emorsgate's EW1 Woodland Mixture, to increase the diversity of the ground flora.

7.1.2 Hedgerows

v Where hedgerows are proposed to be created and enhanced, a minimum of 6 species should be planted, which may include blackthorn (*Prunus spinosa*), field maple (*Acer campestre*), alder (*Alnus glutinosa*), common dogwood (*Cornus sanguinea*), hazel (*Corylus avellane*) and guelder rose (*Viburnum opulus*), Standard trees such as English oak (*Quercus robur*) and wild cherry (*Prunus avium*) can also be planted at 50m intervals.

vi Planting should be undertaken during early winter, providing the ground is not frozen. Planting up gaps can be done in conjunction with coppicing existing plants, to give new plants minimum competition. To further reduce competition and aid establishment of the planted-up sections, the bases of the plants would be kept weed free through spot treatment of herbicide for the first three years

7.1.3 Wildflower Meadows

vii Creating wildflower meadows will provide a broad variety of food sources for a diverse range of invertebrates, including lepidopterans and pollinators. This will, in turn provide an ample food source for insectivores such as bats, hedgehogs, herpetofauna and birds.

viii The ground could be prepared for supplementary planting with minimal effort, using a chain harrow. Any existing vegetation should be removed, and the soil should be raked to break it up, producing a fine, firm later of soil. It is recommended that Long Season Meadow Mix (available from Naturescape) is used to allow for a long growing season, producing an aesthetically pleasing meadow of flowers, thus negating the requirement for an extensive mowing regime. In addition, the wildflower meadow seed mixes should be supplemented with additional plant species of local provenance, including bird's foot trefoil and greater bird's foot trefoil to increase the provision of the larval host plant of the dingy skipper within the locality. Seeds should be sowed during autumn or spring, and if there is a dry period, the soil being sowed should be watered.

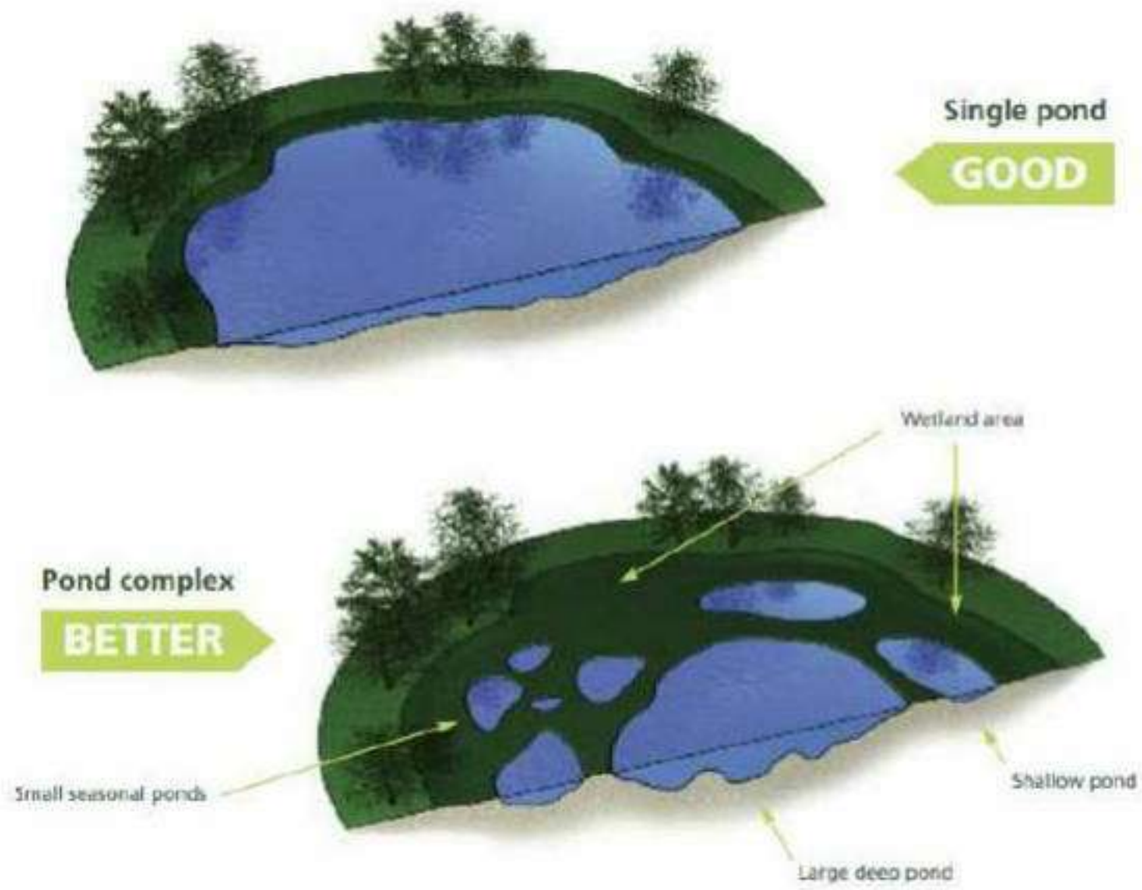
ix Once established, the grassland will only require mowing in September (with the arisings being left for 48hrs prior to removal to allow the seeds to disperse for the following year). Any cutting should be removed from the ground, so that a low level of fertility is maintained, and any unwanted weeds such as nettles or thistles should be removed during the first year of management.

7.1.4 Ponds and Associated Wetlands

x If planted sympathetically, these could provide significant ecological enhancement to the site. Areas of permanent wet waterbodies and associated vegetation can provide an important invertebrate habitat area and increasing the foraging capacity for fauna. The value of these ponds for wildlife can be maximised by utilising the following principles, recommended from the Freshwater Habitats Trust:

- Creating complexes of ponds rather than single waterbodies
- Include both permanent and seasonal ponds
- Almost all pond slopes are at least 12° in gradient
- Create broad, undulating wetland areas around and between ponds
- Create underwater bars and shoals to benefit aquatic plants

Figure 6: Pond Complex Example



© Freshwater Habitats Trust

xi Where the ponds are designed to hold some degree of permanent standing water, they could be planted with native marginal plug planting species and with marginal vegetation, such as Naturescapes N8 Water's Edge

Meadow Mixture is recommended. This comprises 24 wildflower species and 9 grass species. The species in this mix will tolerate flooding once established and many would grow in the ponds themselves.

xii Where areas of willow scrub are proposed to be planted, this should utilise a mixture of native willow species such as goat willow (*Salix caprea*), grey willow (*Salix cinerea*) and crack willow (*Salix fragilis*). These areas of scrub should also be managed sensitively for wildlife, with sections cleared on a rotational basis to produce clearings within this habitat. In addition, areas of scrub should be planted around the new ponds to provide suitable refugia for any herpetofauna (amphibians and reptiles) that may utilise these habitats. The provision of this scrub would also provide suitable habitat for a variety of nesting bird species.

7.2 Protected/Principal Species

i Additional enhancements that could easily be met within the development scope include the incorporation of bat and bird nest boxes. Boxes could be placed on retained trees within the Site boundaries. The tree mounted bat boxes should face south (for additional warmth), and be positioned at least 4 metres from the ground, with the entrances being free of overhanging branches. It is also recommended that bird nest boxes be placed 1.5m below each bat box, to ensure that the birds have somewhere to nest and do not inhabit the bat boxes. Use of boxes such as the Vivara woodstone box provide a long-term nest box solution requiring limited replacement unlike wooden boxes which need regular replacement as a result of weathering. Suitable bat box dimensions are 430mm high X 270mm wide X 140mm deep. The boxes are designed to mimic natural roost sites and to provide a stable environment.

Figure 7: Bat Box Example



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Figure 8: Bird Box Example



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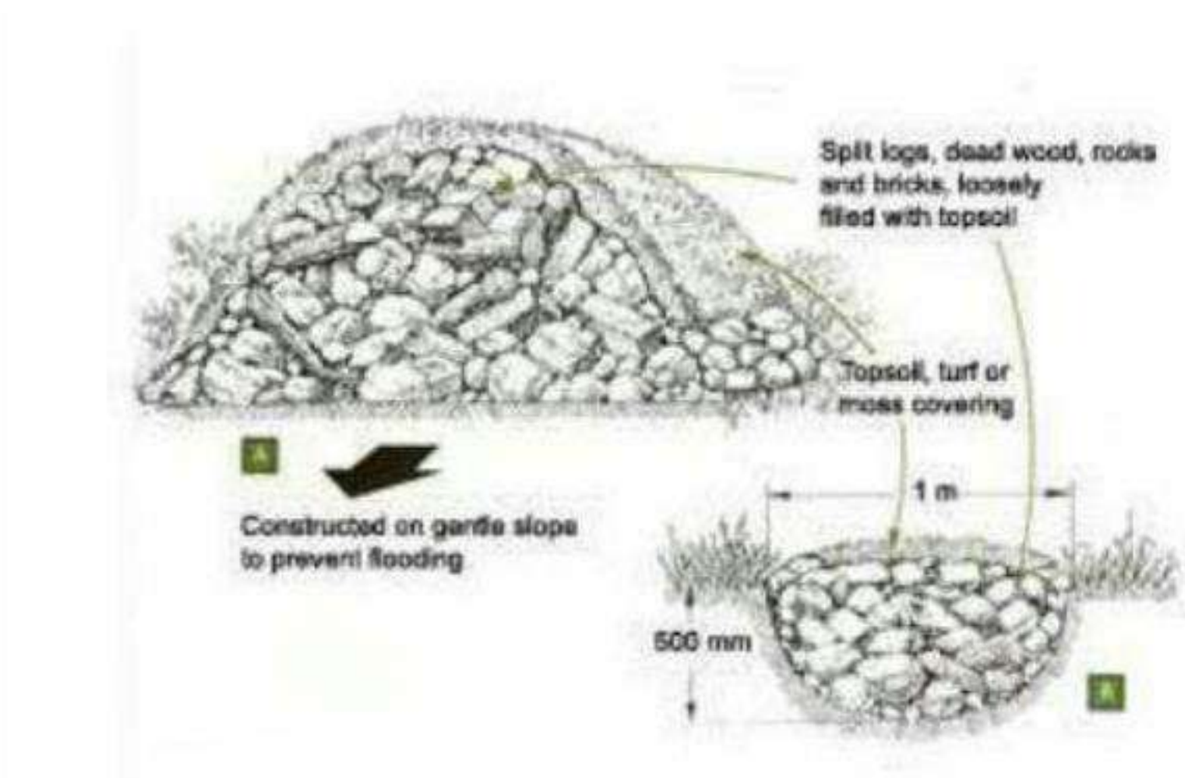
ii Log piles, rocks and dead wood under dense ground cover could also be created across the Site for herpetofauna hibernacula. These will provide important places for herpetofauna to rest during the day or during cold or dry weather. Hibernacula should be c. 2m2 long, a minimum of 0.5m wide and c.1m in height and comprise log or debris piles with a cap composed of topsoil and a turf covering.

Figure 9: Hibernacula Example

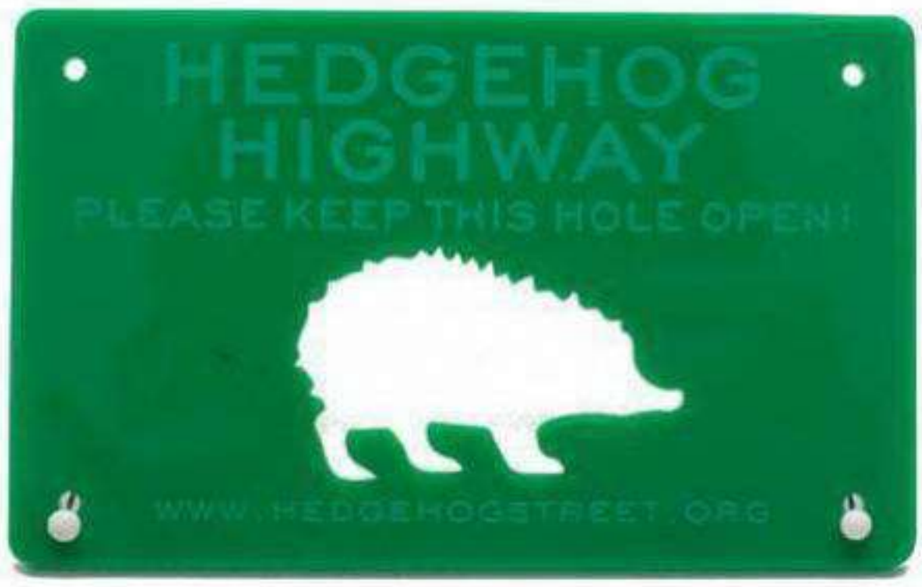


© FrogLife 2001

iii Additional enhancements for invertebrates could also be easily met within the development scope by including insect houses on any retained trees on site. These nest boxes will help to provide a variety of niches for a diverse spectrum of invertebrates to inhabit, and therefore help to increase the terrestrial invertebrate species diversity on site.

iv Where any permanent fencing is to be constructed, small 15x15cm mammal holes should be installed within these fences. 'Hedgehog Highway' signs (available from the British Hedgehog Preservation Society) could be installed above these holes to prevent them being filled in in the future. This will help to maintain their permanency and so the connectivity for mammals, such as hedgehogs, to the site and the surrounding landscape

Figure 10: Hedgehog Highway



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8 MONITORING

i TBC following final bat activity surveys

9 REFERENCES

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10 LEGISLATION AND PLANNING POLICY

10.1 General & Regionally Specific Policies

i Articles of British legislation, policy guidance and both Local Biodiversity Action Plans (BAPs) and the NERC Act, 2006 are referred to throughout this report. Their context and application is explained in the relevant sections of this report. The relevant articles of legislation are:

- The National Planning Policy Framework (2019)
- ODPM Circular 06/2005 (retained as Technical Guidance on NPPF 2019)
- Local planning policies EN12, EN13 & EN14 (Amber Valley Borough Council).
- The Conservation of Habitats & Species (Amendment) (EU Exit) Regulations 2019 (as amended);
- The Wildlife and Countryside Act 1981 (as amended);
- EC Council Directive on the Conservation of Wild Birds 79/409/EEC;
- National Parks and Access to the Countryside Act 1949;
- The Protection of Badgers Act 1992;
- The Countryside and Rights of Way Act 2000;
- The Hedgerow Regulations 1997;
- The Natural Environment and Rural Communities (NERC) Act 2006;
- Local Biodiversity Action Plan for Lowland Derbyshire

ii Specifically, EN12 of the Amber Valley Borough Council States:

"Planning permission will not be granted for development which would destroy or adversely affect, either directly or indirectly, designated Sites of Special Scientific Interest, as shown on the Proposals Map, unless there are overwhelming benefits resulting from development which would outweigh their national importance for biodiversity

Where there is a risk of damage to a designated Site, the Borough Council will impose conditions on planning permissions or alternatively seek to enter into Section 106 Agreements with developers to ensure appropriate protection measures"

iii EN13 states:

"Development will not be permitted which would have an adverse impact upon species specifically protected under the schedules of the Wildlife and Countryside Act 1981 (as amended) or the Protection of Badgers Act 1992 or that are listed as Nationally Rare, or their habitats

Where development is permitted that would affect these species, or their places of shelter or breeding, conditions and/or planning obligations will be used to:

a) facilitate the survival of individual members of the species

b) reduce disturbance to a minimum

c) provide adequate alternative habitats to sustain the current levels of population."

iv EN14 stipulates:

"Planning permission will only be granted for development affecting areas of nature conservation interest if full account is taken of its likely impact on nature conservation and where there are benefits resulting from development which would outweigh their importance for nature conservation. The areas include currently designated Local

Nature Reserves and Sites of Importance for Nature Conservation, as shown on the Proposals Map

Where development would result in an adverse impact on, or loss of an area of nature conservation interest, the Borough Council will impose conditions on planning permissions or alternatively seek to enter into Section 106 Agreements with developers to ensure the provision of new areas of nature conservation interest, including potential Local Nature Reserves"

v In relation to these proposals relevant sections of the NPPF, 2021 are:

"174. 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.

175. Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework58; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

176. Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks) and the Broads. The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.

177. When considering applications for development within National Parks, the Broads and Areas of Outstanding Natural Beauty, permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of: a) the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy; b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.

178. Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 176), planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.

179. To protect and enhance biodiversity and geodiversity, plans should: a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity

180. When determining planning applications, local planning authorities should apply the following principles: a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused; b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest; c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

181. The following should be given the same protection as habitats sites: a) potential Special Protection Areas and possible Special Areas of Conservation; b) listed or proposed Ramsar sites; and c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

182. The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site."

10.2 Bats and Great Crested Newts

i Great crested newt and species of British bats are fully protected within UK Law under *Wildlife and Countryside Act 1981* (as amended) through their inclusion in Schedule 5. Under the Act, they are protected from:

- Intentional or reckless killing, injury, taking;
- Damage to or destruction of or, obstruction of access to any place of shelter, breeding or rest;
- Disturbance of an animal occupying a structure or place;
- Possession or control (live or dead animals);

- Selling, bartering or exchange of these species, or parts of.

ii This law is reinforced by the UK's transposition of the EU Habitats Regulations under *The Conservation of Habitats & Species (Amendment) (EU Exit) Regulations 2019 (as amended)*. These Regulations also prohibit:

- the deliberate killing, injuring or taking of great crested newt or bats;
- the deliberate disturbance of any great crested newt or bat species in such a way as to be significantly likely to affect:
- their ability to survive, hibernate, migrate, breed, or rear or nurture their young; or
- the local distribution or abundance of that species.
- damage or destruction of a breeding site or resting place;
- the possession or transport of great crested newt or bats or any other part of.

iii Under certain circumstances a licence may be granted by Natural England to permit activities that would otherwise constitute an offence. In relation to development, a scheme must have full planning permission before a licence application can be made.

iv In addition, seven British bat species are listed as Species of Principal Importance (SPI) under the Natural Environment and Rural Communities (NERC) Act, 2006. These are barbastelle (*Barbastellus barbastellus)*, Bechstein's (*Myotis bechsteinii)*, noctule (*Nyctalus noctula)*, soprano pipistrelle (*Pipistrellus pygmaeus)*, brown long-eared (*Plecotus auritus)*, greater horseshoe (*Rhinolophus ferrumequinum)* and lesser horseshoe (*Rhinolophus hipposideros)*.

v Under the National Planning Policy Framework 2019 the presence of any protected species is a material planning consideration. The Framework states that impacts arising from development proposals must be avoided where possible or adequately mitigated/compensated for and that opportunities for ecological enhancement should be sought.

10.3 Birds

i The Wildlife and Countryside Act 1981 (as amended) is the Priority legislation affording protection to UK wild birds. Under this legislation all birds, their nests and eggs are protected by law and it is an offence, with certain exceptions, to recklessly or intentionally:

- Kill, injure or take any wild bird;
- Take, damage or destroy the nest of any wild bird while it is in use or being built;
- Take or destroy the egg of any wild bird.

ii For birds listed on Schedule 1 of the Act, it is an offence to disturb any bird while it is building a nest, is at or near a nest with young; or disturb the dependant young of such a bird.

iii Species listed in Annex 1 of the EU Birds Directive 1994 (e.g. barn owl) are required to have special conservation measures taken to preserve their habitats and sites to be classified as Special Protection Areas (SPAs) where appropriate.

10.4 Reptiles

i All reptile species are partially protected under Schedule 5 (Sections 9(1) and 9(5)) of the Wildlife and Countryside Act 1981 (as amended). This legislation protects these animals from:

- Reckless or intentional killing and injury;
- Selling, offering for sale, possessing or transporting for the purpose of the sale or publishing advertisements to buy or sell a protected species.

i In addition to the above legislation, UK rare reptiles; sand lizards (*Lacerta agilis*) and smooth snakes (*Coronella austriaca*), are listed under The Conservation of Habitats & Species (Amendment) (EU Exit) Regulations 2019 (as amended). This makes it an offence to;

- Capture, kill, injure and disturb;
- Take or destroying eggs;
- Damage or destroy breeding/resting places;
- Obstruct access to resting places; and
- Possess, advertise for sale, sell or transport for sale, live or dead (part or derivative).

ii Where these animals are confirmed as present on land that is to be affected by development guidance recommends that:

- The animals should be protected from injury or killing during construction operations;
- Mitigation should be provided to maintain the conservation status of the species locally;
- Under the National Planning Policy Framework 2019 the presence of any protected species is a material planning consideration. The Framework states that impacts arising from development proposals must be avoided where possible or adequately mitigated/compensated for and that opportunities for ecological enhancement should be sought.

10.5 Water Vole

ii Water voles (*Arvicola amphibius*) are protected under Schedule 5 Section 9 of the Wildlife & Countryside Act 1981 (as amended). It is an offence to intentionally kill, injure or capture a water vole, to intentionally or recklessly damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection or to disturb water voles while they are using such a place.

10.6 White-clawed Crayfish

iii White-clawed crayfish (*Austropotamobius pallipes*) are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended and under the Act it is an offence to intentionally take white-clawed crayfish from the wild and to sell them. This species is also protected under the Habitat Regulations 2010 (as amended), requiring the designation of Special Areas of Conservation to protect important populations of this species.

10.7 Otter

iv The European otter (*Lutra lutra*) is the only native UK otter species. It is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981. This law is reinforced by the UK's transposition of the EU Habitats Regulations under The Conservation of Habitats & Species (Amendment) (EU Exit) Regulations 2019 (as amended). Together, these Regulations make it an offence to:

- capture, kill, disturb or injure otters (on purpose or by not taking enough care)
- damage or destroy a breeding or resting place (deliberately or by not taking enough care)
- obstruct access to their resting or sheltering places (deliberately or by not taking enough care)
- possess, sell, control or transport live or dead otters, or parts of otters

v A convicted offence could get an unlimited fine and up to 6 months in prison.

[redacted]

10.9 Hedgehogs, Brown Hare and Common Toads

i Under the NERC Act 2006, the hedgehog (*Erinaceus europaeus*), brown hare (*Lepus europaeus*) and common toad (*Bufo bufo*) are categorised as a 'Species of Principal Importance' for biodiversity. Listing as SPI reflects concerns that populations have suffered a rapid and sustained decline in the UK. As such, they are a material consideration during planning.

10.10 Hedgerows

viii All native hedgerows (including species-poor ones) are listed under Section 41 of the NERC Act (2006) and are a Local Biodiversity Action Plan (LBAP) habitat. All native hedgerows are considered to be of high conservation value.

ix The Hedgerow Regulations (1997) classifies a hedgerow as 'important' if it:

- Satisfies at least 1 of the criteria listed in Part II of Schedule 1
- Has existed for 30 years or more

x Any person wishing to remove a hedgerow is required to submit a hedgerow removal notice to the LPA

xi Items of Legislation that are pertinent regarding hedgerows include:

- Hedgerow Regulations 1997
- The countryside Rights of Way Act 2000
- Natural Environment and Rural Communities Act (NERC) 2006
- Planning Policy Statement (PPS) 9: Biodiversity and Geological Conservation
- The UK Biodiversity Action Plan (UK BAP)
- The Conservation of Habitats & Species Amendments (EU Exit) Regulations 2019 (as amended)

11 APPENDIX 1: SURVEY CONDITIONS

i The initial PEA survey was carried out by Lauri Leivers BSc whom has been an ecologist for five years. Lauri holds a class 2 licence for great crested newts (2018-37695-CLS-CLS) and Field Identification Skills Certificate (FISC) Level 3 in botany.

ii The bat surveys were overseen by Vicky Rowe PgDip BSc (Hons) ACIEEM. Vicky has been a professional ecologist since 2007 and holds a class 2 licence for bats (2019-39607-CLS-CLS) as well as a class 1 great crested newt licence (2015-18127-CLS-CLS). During the aerial tree assessments, Vicky was assisted by Tom Cole MSc BSc (Hons). Vicky was also assisted by Gabrielle Cruttenden MSc BSc (Hons), Alex Bull, Alex Finlow, Athina Constantinou MSc BSc (Hons), Ellie Orme, Emilia Adamson MBiolSci (Hons), Emily McFarlane, Luke Barnard and Zoe Capewell Sinnott during the first dusk emergence survey.

iii During the dawn re-entry survey, Vicky Rowe was assisted by Chloe Newbury BSc (Hons), Rachel Cooper, Alex Camilleri, Vicky Philpott BSc (Hons), Aleah Maltby MSc BA (Hons), Emilia Adamson MBiolSci (Hons) and Catherine Firth. Vicky Philpott also holds a class 2 licence for bats (2018-38017-CLS-CLS).

iv During the final dusk emergence survey, Vicky Rowe was assisted by Chloe Newbury BSc (Hons), Tom Cole MSc BSc (Hons), Nicola Woods and Zoe Capewell Sinnott.

v Senior ecologist Amy Skuce BSc (Hons) and assistant ecologist Emilia Adamson MBiolSci (Hons) conducted the first bat activity transect. Amy has been a professional ecologist since 2014 and holds as class 1 licence for great crested newts (2016-23118-CLS-CLS) as well as a FISC Level 4 in botany. Ecologist Clare Stalford and assistant ecologist Aleah Maltby MSc BA (Hons) conducted the second bat activity transect. Clare has been a professional ecologist since 2016 and holds a class 1 licence for great crested newts (2016-26026-CLS-CLS) and hazel dormice (2016-26516-CLS-CLS). Ecologist Gabrielle Cruttenden MSc BSc (Hons) and assistant ecologist Emilia Adamson MBiolSci (Hons) conducted the remaining activity transects. Gabrielle also holds a class 1 licence for great crested newts (2021-52823-CLS-CLS).

vi The breeding bird surveys were led by Jake Hill BSc (Hons). Jake has been a professional ecologist since 2018, and holds a barn owl licence (CL29/00529).

vii The surveys were completed during suitable conditions as detailed in the table below.

Table 7: Survey Conditions

Survey type	Date completed	Temperatures (°C)	Times	Wind speed (Beaufort Scale)	Cloud cover (Oktas Scale)	Precipitation
PEA	22/06/2020	16	N/A	2	4	0
Aerial Tree Assessments	16/03/2021	8	N/A	2	4	0
	17/03/2021	5	N/A	1	4	0
Breeding Bird Survey 1	18/03/2021	4	07:00 – 09:30	1	8	0
Breeding Bird Survey 2	15/04/2021	1	07:30 – 09:30	0	0	0
Breeding Bird Survey 3	14/05/2021	10	06:30 – 08:30	1	8	0
Dusk Emergence Survey 1	19/05/2021	12	20:50 – 22:35	0	0	0

Survey type	Date completed	Temperatures (˚C)	Times	Wind speed (Beaufort Scale)	Cloud cover (Oktas Scale)	Precipitation
Dawn Re-entry Survey 1	10/06/2021	17	02:40 – 04:55	3	8	0
Dusk Emergence Survey 2	13/07/2021	18	21:11 – 23:26	0	6	0
Bat Activity Survey 1	20/04/2021	14	20:00-20:45	1	7	0
Bat Activity Survey 2	19/05/2021	12	20:50 – 23:00	0	0	0
Bat Activity Survey 3	16/06/2021	22	21:35 – 23:35	0	3	0
Bat Activity Survey 4	14/07/2021	17	21:25 – 23:25	0	0	0
Bat Activity Survey 5	August 2021		TBC			
Bat Activity Survey 6	September 2021		TBC			
Bat Activity Survey 7	October 2021		TBC			

12 APPENDIX 2: SPECIES SPECIFIC SURVEY METHODOLOGY

12.1 Bats

12.1.1 Preliminary Roost Assessment

i The overall value of the site and its connectivity to the wider countryside was assessed in relation to bats. The likelihood of bats roosting at the site or moving through the site between local roost sites and foraging/mating/hibernation habitats was considered.

ii The site, including the trees and boundary trees, were assessed by an ecologist and graded as to their suitability for supporting roosting bats using the Bat Conservation Trust's *Bat Surveys for Professional Ecologists: Good Survey Guidelines* (Collins, J. Eds. 2016), an extract of which is provided interpreted in Table 9.

Table 8: Criteria for bat roost potential assessment of buildings and trees

Roost Potential	Description	Surveys Required (Buildings)	Surveys Required (Trees)
Confirmed roost	Evidence of roosting bats found during initial daytime inspection.	3 – including 1 dawn as a minimum	3 – including 1 dawn as a minimum
High *	Structures with one or more features suitable for bat roosting, with obvious suitability for larger numbers of bats.	3 – including 1 dawn as a minimum	3 – including 1 dawn as a minimum
Moderate	Structure with one or more potential roost sites that could be used due to size, shelter and protection but unlikely to support a roost of high conservation status.	2– including 1 dawn as a minimum	2– including 1 dawn as a minimum
Low	Structure with one or more potential roosting sites used by individual bats opportunistically. Insufficient space, shelter or protection to be used by large numbers of bats.	1 Survey	Precautionary Mitigation Approach, some instances may require further survey
Negligible	No or negligible features identified that are likely to be used by roosting bats	None	None

** Unless it is a confirmed roost, additional surveys are required of buildings to assess presence / likely absence of a roost. The number of surveys are indicative to give confidence in a negative result, i.e. where no bats are found, confidence in a result can be taken.*

12.1.2 Activity Surveys

iii The site-wide bat activity surveys were based on guidance given within good practice guidelines published by the Bat Conservation Trust (Collins, J. Eds. 2016). Two techniques were used: walked transects and fixed point (static detector) surveys. Surveys were undertaken during April-October 2021.

Walked Transects

iv The Site was studied using available aerial photography and ordnance survey maps to assess potential flight lines within the site, including commuting corridors and foraging areas. The route focussed on those features offering the highest potential for bat foraging, commuting or roosting, but covered all areas due to the view across the open pasture fields.

v During walked transects of the site, surveyors walked the transect route, making 2-5-minute stops at predetermined intervals throughout the route. The starting point of the transect for each survey was altered to ensure coverage of different parts of the transect at different times of the night. This approach was adopted to remove any sampling bias that could be introduced into the survey data if each survey had started at the same point on the transect.

vi Each transect survey covered the period of peak bat activity, which is considered to be from sunset until around 2 hours after sunset (dusk transect). For all surveys, surveyors used an EM Touch bat detector and iPad, which logged GPS locations and recorded the calls of all bats encountered. This equipment allowed surveyors to listen to, identify and record calls during the survey. Notes were made by the surveyor during the survey on the time of bat observations, species heard and, where possible, direction of flight and behavioural notes regarding their activity (e.g. feeding, commuting, passing, social calling).

vii A qualitative assessment was made of bat activity highlighting areas where bats were seen to:

- Forage - Either occasionally or regularly: Occasional meaning one or two foraging episodes across the transect period, regular meaning foraging behaviour noted on three or more occasions during the transect survey.
- Commute - Commuting activity would be characterised by a number of bats entering the site and flying purposefully in a direct line: e.g. following a hedge or flying across open areas.
- Interact - These behaviours could include regular chasing, 'lekking' or bats recorded making regular social calls

Static Surveys

viii In addition to manually walked transects, two automated bat detectors (SM2s) were installed on Site.

ix Detectors were housed in waterproof containers with an unobstructed opening for the microphone. Static detectors units were installed in areas which were considered to be most impacted by the proposals.

x The units were set to commence recording any bat echolocation calls from 30 minutes before sunset until 30 minutes after sunrise, i.e. throughout the night. This supporting data increases the robustness of the data collected by the transect surveys as it increases coverage of the Site.

xi The results section in this report refers to 'passes' as the number of AnaLook sound files containing bat calls. A sound file is created when bat echolocation calls are detected by the AnaBat detector. A sound file does not necessarily correspond with the number of bats recorded but can indicate the level of bat activity. For example, if a higher number of sound files have been recorded in a given length of time, or for a given area, compared with any other then this indicates a greater level of bat activity in that time-frame and/or area. Similarly, the number of sound files per species can allow comparison of the level of activity between the different species of bats detected, but does not necessarily represent a higher number of actual individuals (for example, because a single bat may fly past the bat detector more than once).

12.2 Breeding Bird Survey

i A breeding bird survey will be carried out at the Site following a method based on the British Trust for Ornithology's (BTO) Common Bird Census (CBC) methodology[4]. A total of four visits will be carried out between April and June 2021.

ii Each of the visits will commenced shortly after dawn and last for up to 2 hours. Visits must be carried out in suitable weather conditions with winds less than force 3 on the Beaufort scale and no precipitation.

iii On each visit the entirety of the Site will be surveyed, with the surveyor coming within 50 metres of all points within the Site boundary. The location and activity of each bird detected (visually and/or aurally) will be recorded.

iv Birds are considered to be demonstrating breeding behaviour if they were singing, displaying, alarm calling, carrying food, and undertaking distraction displays or if eggs or chicks were found. All birds engaged in other forms of behaviour are considered to be feeding, passing through or loafing within the Site boundary and are not, therefore, considered to be breeding in the location of the observation.

v The location of each registration will be mapped using standard two-letter BTO Codes, and bird activity recorded using BTO behaviour codes.

vi The field maps from the four visits were analysed and combined to produce the final territory location map which was used to estimate the breeding densities of each species. As territory locations are derived from a combination of each visit map (as per the CBC methodology), it should be noted that these do not generally represent specific nest locations (this is not the aim of this survey method which was designed to estimate population sizes)

12.3 Hedgerows

i The hedgerows within the Site were initially surveyed to assess the probability that they would qualify as 'important' under the Hedgerow Regulations 1997 on the basis of the ecological criteria of the legislation.

ii Specific hedgerow surveys of those considered possible to qualify as important were undertaken.

iii Regulation 4 of the Hedgerow Regulations 1997 sets out that:

- "For the purposes of section 97 (hedgerows) of the Environment Act 1995 and these Regulations, a hedgerow is "important" if it, or the hedgerow of which it is a stretch, -
- has existed for 30 years or more; and
- satisfies at least one of the criteria listed in part II of Schedule 1"

iv The criteria listed in Part II of Schedule 1 are divided into 2 main sections, namely 'Archaeology and History' and 'Wildlife and Landscape'. If a hedgerow meets any one of each of the criteria listed, it qualifies as important. The majority of these criteria are split into parts, with sub-criteria to be applied in turn to each hedgerow.

v Consideration has only been given to the 'Wildlife and Landscape Criteria'. Criteria by which the importance of a hedgerow is judged in 'Wildlife and Landscape' terms are set out at criteria 6 – 8 of Schedule 1 Part II of the Regulations.

[4] Gilbert G., Gibbons D.W. and Evans J. (1998). *Bird Monitoring Methods: A manual of techniques for key UK species*. RSPB, Bedfordshire. - See more at: http://www.cieem.net/birds#sthash.XztkCHsC.dpuf

vi Criterion 6 refers to the presence of rare, Priority or protected species within a hedgerow or records of such species, which are held by a biological records centre (or similar).

vii In addition to this methodology, the Hedgerow Evaluation and Grading System (HEGS), which provides a rapid assessment of habitat quality, grading on a scale from +1 to -4 (with +1 being the highest ecological quality), was used to provide an indication of the conservation value of hedgerows present on site (Clements & Toft, 1993).

Birchwood Business Park | Landscape Strategy



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Native structural planting areas to site boundaries to provide visual mitigation and increase site bio-diversity.



Attenuation pond, swales and surrounding area will be planted with native grasses and wildflowers and a permanent wet pond created to improve bio-diversity



Where required internal native hedgerows will be trimmed to prevent overhanging of adjacent hardstandings



Creating wildflower meadows will provide a broad variety of food sources for a diverse range of invertebrates, including lepidopterans and pollinators.

Revisions | Dwn. | Date

Scale: 1:1000 @A1

0 10m 100m

Project
Birchwood Business Park, Somercotes

Drawing
Landscape Strategy

DRAFT

Status
For Planning Only

Date
06.08.2021

Dwg. No.	Revision	Drawn	Checked
21.1543.001	-	cjn	cjc

Landscape Institute Registered Practice

Key Design Objectives

To design a scheme that enhances the extant landscape character of the surrounding area.

To integrate the proposed development and associated infrastructure into the existing landscape, minimising the impact on surrounding areas by the use of predominantly native tree, shrub and hedgerow planting.

Protecting valuable existing landscape features where possible and introducing new habitat types such as hedgerows, areas of native shrubs, meadows and wetland habitats. Existing trees and hedgerows will be retained and protected where possible to provide valuable mature landscape features.

Creating wildlife corridors through the site will assist to maintain existing bat commuting corridors and enable other wildlife to connect with existing green infrastructure, ensuring the site will be a positive benefit to the environment.

To plant additional trees around the site and set the development within the landscape. Species will be selected that increase food provision and potential roosting sites for birds. In addition trees will increase the potential for linear foraging routes for bats and increase the value of the site by providing plant species that will encourage insects. Trees will also assist in mitigating the effects of potential climate change and help to mitigate flooding.

Existing hedgerow/tree groups along all boundaries will be retained and any gaps will be filled with locally native species. New tree and shrub planting along the site boundary will not only help to visually mitigate the development but also provide additional bio-diversity benefits.

Landscape Character

To design seeks to enhance the local landscape character by;

- *Small-medium scale woodland planting.*
- *Promote linked extensions to ancient woodland by natural regeneration and planting.*
- *Re-establish and enhance physical links between existing isolated woodland and hedgerows.*
- *Ensure the management and enhancement of hedgerow trees, through selection and natural regeneration, or by planting.*
- *Conserve and enhance the tree groups that occur within and around rural settlements and isolated farmsteads.*

Legend

Plot Boundary

Existing Trees and Hedgerows Retained
The development recognises the value of the existing trees and hedgerows in the landscape and their immediate mitigation impact on the proposed development. They will be retained to protect local amenity, maintain local biodiversity and to add visual and immediate green infrastructure to the development. The development has been carefully designed to retain the integrity of all root protection areas.

Proposed Native Structure Planting
Large areas of native broad leaved woodland areas will be created to provide screening to the development as well as valuable habitat and green infrastructure.
Species shall include Blackthorn (*Prunus spinosa*), Field Faple (*Acer campestre*), Alder (*Alnus glutinosa*), Common Dogwood (*Comus sanguinea*), Hazel (*Corylus avellana*) and Guelder Rose (*Viburnum opulus*), Standard trees such as English Oak (*Quercus robur*) and Wild Cherry (*Prunus avium*) shall also be planted throughout the area.

Proposed Native Hedgerows
Mixed native shrubs such as Hawthorn, Blackthorn, Holly and Dog Rose, providing addtional screening as well as valuable habitat and green infrastructure.

Proposed areas of Willow Carr Woodland
Areas of willow scrub are proposed to be planted, utilising a mixture of native willow species such as goat willow (*Salix caprea*), grey willow (*Salix cinerea*) and crack willow (*Salix fragilis*). These areas of scrub will be managed sensitively for wildlife, with sections cleared on a rotational basis to produce clearings within the habitat. In addition, areas of scrub should be planted around the new ponds to provide suitable refugia for any herpetofauna (amphibians and reptiles) that may utilise these habitats. The provision of this scrub would also provide suitable habitat for a variety of nesting bird species

Proposed Tree Planting
Tree planting will be added across the site. Where practical, native only species will be used. The trees will not only mitigate the effects of the development and improve the visual amenity of the area they will provide considerable habitat and improve the appearance of the site.
The addition of fruit trees throughout the site, including apple (*Malus sp.*) and cherry (*Prunus sp.*) would also provide suitable foraging enhancements for badgers across the site.

Proposed Hornbeam Hedge
Where space is limited, Native Horbeam (*Carpinus betulus*) hedges will be planted to provide evergreen infrastructure to the development. Hedges will be maintained at a height of 900mm with neat trimmed appearance to reduce the visual impact of cars and hardstandings

Grasslands for Ecological Value
Areas of grass that will be managed for their ecological benefit. Creating wildflower meadows will provide a broad variety of food sources for a diverse range of invertebrates, including lepidopterans and pollinators. This will, in turn provide an ample food source for insectivores such as bats, hedgehogs, herpetofauna and birds.

Species will be dependant on prevailing ground within each area.

Native Meadow Mix
Long Season Meadow Mix (available from Naturescape) is used to allow for a long growing season, producing an aesthetically pleasing meadow of flowers, thus negating the requirement for an extensive mowing regime. In addition, the wildflower meadow seed mixes should be supplemented with additional plant species of local provenance, including bird's foot trefoil and greater bird's foot trefoil to increase the provision of the larval host plant of the dingy skipper within the locality.

Woodland Edge Wildflower Mix
Naturescape N9F, mix of 25 native wildflower species suitable for the edge of woodlands where there can be both sun and semi-shade, including Yarrow, Foxglove and Common Knapweed. This will ensure good establishment irrespective of the site conditions.

Clover Rich Amenity Grass
Areas of grass that will be managed on a regular basis to have close mown appearance. Seed mix will have high proportion of clover to provide additional foraging source for bees and other insects.

Ponds & Associated Wetlands
These areas will provide significant ecological enhancement to the site. Areas of permanent wet waterbodies and associated vegetation will provide an important invertebrate habitat area and increasing the foraging capacity for fauna.

The ponds, swales and margins will be seeded with mixes as follows to create a variety of habitat types.

Waters Edge Meadow Mixture
Where the ponds are designed to hold some degree of permanent standing water, they will be planted with native marginal plug planting species and with marginal vegetation, such as Naturescapes N8F Water's Edge Meadow Mixture. This comprises 24 wildflower species and 9 grass species. The species in this mix will tolerate flooding once established and many would grow in the ponds themselves.

Foopaths
Permissive footpaths will be created through the site to allow public access, the footpaths will be fenced to limit access into the ecological enhancement areas

Public Right of Way
The existing right of way through the site will be diverted and returned to its original route. The footpath surface will be 1.2m wide Breedon gravel path.

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14 APPENDIX 4: DESK STUDY RESULTS

i A total of five statutory designated sites were recorded within the search area, the details of which are summarised in Table 12 below. The site is located within the Impact Risk Zone of Bagthorpe Meadows SSSI.

Table 9: Statutory Designated Sites

Site Name	Designation	Location	Brief Description
Pennytown Ponds	LNR[5]	Adjacent NW of site	The site is covered by the Lowland Derbyshire Biodiversity Action Plan. The ponds on site support a wide range of water fowl and invertebrates
Carr Wood	LNR	3.7km SW	Carr woods comprises of 4ha of mixed woodland and unimproved grassland. It has been largely left to regenerate since the 1920's.
Hammersmith Meadows	LNR	3.8km SW	No information available
Oakerthorpe	LNR	3.8km NW	The site supports a range of amphibians, reptiles and water vole. A large variety of flora can also be found on the reserve
Bagthorpe Meadow	SSSI[6]	4km SE	Designated for its plant communities that indicate unimproved neutral hay meadows.
Bogs Farm Quarry	SSSI	4.6km E	The site comprises of unimproved acid grassland, flushes, open pools and woodland. The site is of regional importance.
Annersley Woodhouse Quarries	SSSI	4.7km E	The site is of national importance and is designated for its unimproved dry calcareous grassland and marshy grassland communities. As well as a nationally important breeding population of Great Crested Newts

xii The Site lies within 5km of Bagthorpe Meadows SSSI and lies within the Impact Risk Zone for this nationally designated site for the following categories:

- **Infrastructure**: Airports, helipads and other aviation proposals
- **Air Pollution**: Livestock & poultry units with floorspace >500m^2, slurry lagoons >750m^2 and manure stores >3,500t.

xiii As the proposals currently indicate a commercial development of the site, the development does not fall under either of the aforementioned Impact Risk Zones for this nationally designated site, as defined by Natural England

xiv Fifteen non-statutorily designated sites were also identified within the search radius, details of which are provided in Table 2.

[5] LNR – Local Nature Reserve
[6] SSSI – Site of Special Scientific Interest

Table 10: Non-Statutory Designated Sites

Site Name	Designation	Location	Brief Description
Alfreton Tunnels Cutting South	LWS[7]	0.52km NNE	Designated for its unimproved neutral grassland
Alfreton Tunnels Railway Cutting	LWS	0.70km N	Designated for its Ephemeral/ grassland
Skew Bridge Birch Shrub	LWS	1.13km E	Designated for its mosaic of habitats
Alfreton Tunnels	LWS	1.31km NNW	Designated for its unimproved neutral grassland
Clover Nook Pond	LWS	1.32km N	Designated for its lowland swamp
Pye Bridge Gas Works	LWS	1.34km SE	Designated for its mosaic of habitats
Foxhole Copse	LWS	2.0km S	Ancient semi-natural woodland, plantation on ancient woodland site
Pye Bridge Pond	LWS	1.45km SE	Designated for its standing open water
Alfreton Tunnels Cuttings North	LWS	1.63km NNW	Designated for its mosaic of habitats
Broadmeadows Fields	LWS	1.79km NE	Secondary broad-leaved wet woodland
Carnfield Wood and Outseats	LWS	1.79km NNW	Designated for its Ancient semi-natural woodland
Leabrooks disused railway	LWS	1.83km SW	A site noted for its scrub habitats
Carnfield Hill	LWS	2km N	Designated for its Ephemeral/ grassland
Alfreton Tunnels Railway Land	LWS	2.24km NNW	Designated for its unimproved neutral grassland

xv Habitats of Principal Importance (HPIs under NERC Act, 2006) within 1km of the site were identified and are shown in table 8. There closest is a parcel of deciduous woodland within the western compartment of the site.

[7] LWS – Local Wildlife Site

Table 11: Habitats of Principal Importance within 1km of the Site

Habitat	Quantity	Closest Habitat - Distance to Site	Closest Habitat - Direction to Site
Deciduous Woodland	16	On Site	On Site
Traditional Orchard	2	137m	South

ii Records of previous European Protected Species Licences (EPSL) were discovered within a 5km search area around the site. This included:

- 5 records of bat licences, the closest licence was for Brandt's, brown long eared and common pipistrelle bats. Located 1.2km South of the site

xvi Protected species records were received from Derbyshire Wildlife Trust. A summary of the records considered most relevant to the site and/or proposed development are provided in Table 15. Full species records are available to view upon request.

Table 12: Summary of Protected and Notable Species Records

Common Name	Scientific Name	Records	Conservation Status
Amphibians			
Great crested newts	*Triturus cristatus*	9 records; closest record 1.47km N	EPS[8], NERC[9], WCA (5)[10]
Mammal			
Common pipistrelle	*Pipistrellus pipistrellus*	6 records, closes record on site	EPS, WCA
Soprano Pipistrelle	*Pipistrellus pygamus*	2 records, closest record 58m SW	EPS, WCA, NERC
Noctule	*Nyctalus noctula*	2 records, closest record 58m SW	EPS, WCA, NERC
Water vole	*Arvicola amphibius*	14 records, closest record 0.20km E	WCA, NERC
Pipistrelle sp	*Pipistrellus sp*	9 records, closest record 0.5km SSW	EPS, WCA, NERC
European hedgehog	*Erinaceus europaeus*	11 records, closest record 0.5km SSW	NERC
Brown hare	*Lepus europaeus*	2 records, closest record located 1.30km W	NERC

[8] EPS – European Protected Species - protected by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019
[9] NERC – Species of Principle Importance under Section 41 of the Natural Environment Rural Communities Act (2006) Species of Principal Conservation Importance; UKBAP & LBAP
[10] WCA (5) – Schedule 5 protected species - Wildlife & Countryside Act (1981)

Common Name	Scientific Name	Records	Conservation Status
Brown long-eared bat	*Plecotus auritus*	4 records, closest record1.44km S	EPS, WCA, NERC
[redacted]			
Birds			
Swift	*Apus apus*	38 records, closest record 0.22km WSW	BoCCAmber
Song thrush	*Turdus philomelos*	11 records, closest record 0.28km W	BoCCRed, NERC
Turtle dove	*Streptopelia turtur*	1 record located 0.72km SW	BoCCRed, NERC
Bullfinch	*Pyrrhula pyrrhula*	2 records, closest record 1.29km SSE	BoCCAmber, NERC
Cuckoo	*Cuculus canorus*	1 record, closest record located 1.81km WSW	BoCCRed, NERC
Reptile			
Grass snake	*Natrix natrix*	32 records, closest record on site	Partial protection under WCA, NERC
Slow worm	*Anguis fragilis*	2 records, closest record 0.85km SW	Partial protection under WCA, NERC
Invertebrates			
Dingy skipper	*Erynnis tages*	9 records, closest record 33m NE	NERC
Latticed heath	*Chiasmia clathrata*	1 record, located 0.7km W	NERC
Invasive Species			
Japanese knotweed	*Reynoutria japonic*	35 records, closest record 0.78km W	WCA (9)[12]
Himalayan balsam	*Impatiens glandulifera*	7 records, closest record 0.5km E	WCA (9)
Canadian Waterweed	*Elodea canadensis*	2 records, closest record 0.5km E	WCA (9)

NB: The desk study data is third party controlled data, purchased for the purposes of this report only. RammSanderson Ecology Ltd cannot vouch for its accuracy and cannot be held liable for any error(s) in these data.

[11] PBA – Protection of Badgers Act 1992
[12] WCA (9) - Schedule 9 Wildlife and Countryside Act 1981 (as amended)

15 APPENDIX 5: HEDGEROW SURVEY RESULTS

Table 13: Hedgerow Survey Results

Hedge Number	Length (m)	Phase 1 Classification	Species	HEGS Score	Important Hedgerow (Hedgerow Regulations)	BIA Score	Photograph
H1	329	Intact species poor	Hawthorn Blackthorn Ash Oak Birch	3 (Moderate)	N	Moderate	
H2	109	Intact species rich	Ash Crab Apple Elder Field Maple Hawthorn Holly Oak	3 (Moderate)	N	Moderate	

Hedge Number	Length (m)	Phase 1 Classification	Species	HEGS Score	Important Hedgerow (Hedgerow Regulations)	BIA Score	Photograph
H3	185	Defunct species poor	Field Maple Ash Elder Oak Hawthorn Blackthorn	2 (Moderately High)	N	Moderate	
H4	149	Defunct species poor	Hawthorn Elder Blackthorn Oak Ash	4- (Poor)	N	Poor	
H5	217	Defunct species poor	Hawthorn Elder Ash Oak	3- (Moderate)	N	Moderate	

Hedge Number	Length (m)	Phase 1 Classification	Species	HEGS Score	Important Hedgerow (Hedgerow Regulations)	BIA Score	Photograph
H6	65	Intact species poor	Hawthorn Elder Ash	4- (Poor)	N	Poor	
H7	307	Defunct species poor	Hawthorn Elder Ash	2+ (High)	N	Moderate	

Hedge Number	Length (m)	Phase 1 Classification	Species	HEGS Score	Important Hedgerow (Hedgerow Regulations)	BIA Score	Photograph
H8	198	Defunct species poor	Hawthorn Elder Ash	3 (Moderate)	N	Moderate	
H9	55	Defunct species poor	Hawthorn Elder Ash	3 (Moderate)	N	Moderate	
H10	129	Defunct species poor	Hawthorn Elder Ash	3+ (Moderate)	N	Moderate	

Hedge Number	Length (m)	Phase 1 Classification	Species	HEGS Score	Important Hedgerow (Hedgerow Regulations)	BIA Score	Photograph
H11	148	Defunct species poor	Elder Leylandii Hawthorn Cherry	4- (Low)	N	Poor	

16 APPENDIX 6: BAT TREE SURVEY RESULTS

Tree ref	Species	Bat roosting features	GLTA Grading (2020)	Aerial Assessment Grading (2021)	Photographs
1	Common Ash	Heavily matted ivy (>50mm dia.) at 7m – south (FPCR 2016)	Low	Low	N/A
2	English Oak	Hazard beam at 10m – west (FPCR 2016)	Low	Low	N/A
3	English Oak	Knot hole (natural) at 3m – west (FPCR 2016)	Negligible	Negligible	N/A
4	Common Ash	Large central trunk cavity that provides suitability for a number of bats (RammSanderson 2020) Aerial Assessment 2021 - Do not climb again - Large trunk cavity starting at 4m extending up, unable to fully assess as would not advise using upper branches for anchors	Moderate	Moderate	

Tree ref	Species	Bat roosting features	GLTA Grading (2020)	Aerial Assessment Grading (2021)	Photographs
5	Common Ash	Ash tree with trunk cavity that potential extends up into the tree trunk, provides suitability for a number of bats (RammSanderson 2020) Aerial Assessment 2021 - Three features forming bowls, no upward or downward extent	Moderate	Low	
6	English Oak	Large trunk cavity facing south, extends up from ground and potentially extends up into the tree trunk. Provides suitability to allow bats to tuck up into the cavity (RammSanderson 2020) Aerial Assessment 2021 - Multiple features not extending, features with	Moderate	Moderate	

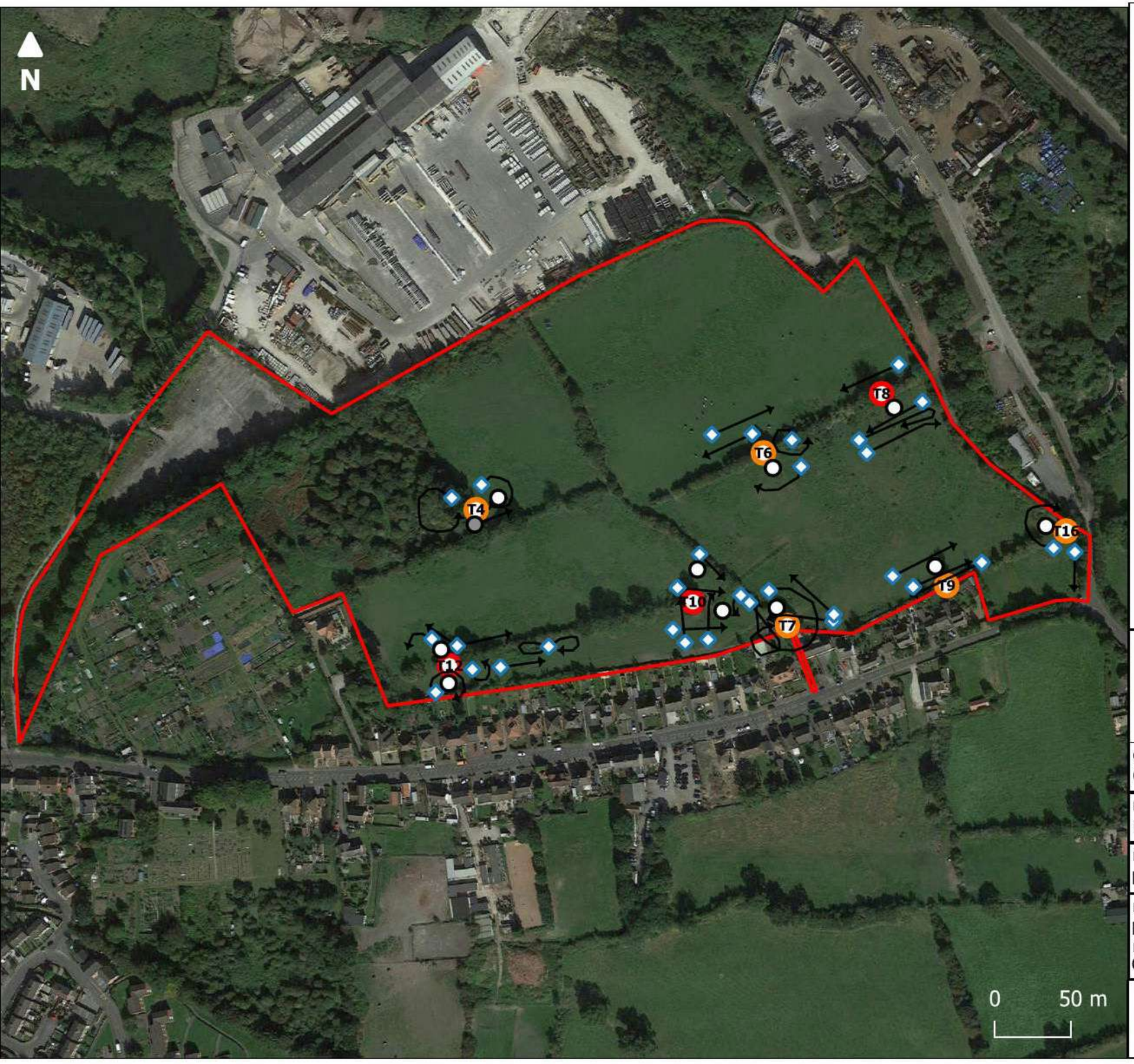
Tree ref	Species	Bat roosting features	GLTA Grading (2020)	Aerial Assessment Grading (2021)	Photographs
		shelter still very open and accessible to predators			
7	Oak sp.	Trunk cavity that extends up from the ground, potentially extends up into the tree providing suitability for bats (RammSanderson 2020) Aerial Assessment 2021 - Large cavity, fairly open on one side, some shelter behind rams horns	Moderate	Moderate	
8	Common Ash	Rot hole at 4m – south (FPCR 2016) Aerial Assessment 2021 - Large trunk cavity extending into hollow limb	Moderate	High	

Tree ref	Species	Bat roosting features	GLTA Grading (2020)	Aerial Assessment Grading (2021)	Photographs
9	Common Ash	Outside of site boundary. Trunk cavity on the northern aspect (RammSanderson 2020) Aerial Assessment 2021 - Not Climbed, not within land parcel, behind fence to private garden	Moderate	Moderate	
10	Oak sp.	Tree has a rot hole and woodpecker hole, providing suitability for a number of bats (RammSanderson 2020) Aerial Assessment 2021 – as previous. High potential.	High	High	
11	English Oak	Other vertical or horizontal crack or split at 3m – north (FPCR 2016)	Low	Low	N/A

Tree ref	Species	Bat roosting features	GLTA Grading (2020)	Aerial Assessment Grading (2021)	Photographs
12	Common Ash	Tree has a number of features. A rot hole is present that appears to be damp, limiting suitability for bats. A crack limb is present on the northern aspect. A missing limb is also present however this appears to be superficial (RammSanderson 2020) Aerial Assessment 2021 - Not Climbed, unsafe due to large amounts of deadwood limiting anchor points	High	High	

Tree ref	Species	Bat roosting features	GLTA Grading (2020)	Aerial Assessment Grading (2021)	Photographs
13	Common Ash	Dense ivy cover, provides potential cover for individual bats (RammSanderson 2020)	Low	Low	
14	English Oak	Knot hole (natural) at 3m – 2016)	Low	Low	N/A
15	Common Ash	Woodpecker hole facing east, rot hole facing south east provide suitability for a number of bats (RammSanderson 2020) Aerial Assessment 2021 - Woodpecker hole with birds nest at base, feature forms bowl with limited extent into branch	High	Low	

Tree ref	Species	Bat roosting features	GLTA Grading (2020)	Aerial Assessment Grading (2021)	Photographs
16	Common Ash	Knot roll that has potential to extend into tree and provide suitability for a low number of bats (RammSanderson 2020) Aerial Assessment 2021 - Not Climbed, too close to access track to scrap yard, lorries going past constantly	Moderate	Moderate	



Key

- Site Boundary
- Surveyor Position
- Tree with high bat roosting potential
- Tree with moderate bat roosting potential
- Common Pipistrelle
- Bat Species
- Flight Direction Arrows

RammSanderson

Client:
Clowes Developments

Project:
Birchwood Way, Somercotes

Drawing Title:
Dusk Results Plan - 19/05/2021

Drawing No.		Rev:
RSE_4008_Figure		V1
Drawn By:	Scale:	Date:
GC	1:3,378.089459	24/05/2021

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Key

- Site Boundary
- Surveyor Position
- Tree with high bat roosting potential
- Tree with moderate bat roosting potential
- Common Pipistrelle
- Flight Direction Arrows

RammSanderson

Client:
Clowes Developments

Project:
Birchwood Way, Somercotes

Drawing Title:
Dawn Results Plan - 10/06/2021

Drawing No.		Rev:
RSE_4008_Figure		V1
Drawn By:	Scale:	Date:
GC	1:3,378.089459	24/06/2021

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Key

- Site Boundary
- Tree with high bat roosting potential
- Tree with moderate bat roosting potential
- Common Pipistrelle
- Flight Direction Arrows
- Surveyor Position

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Project:
Birchwood Way, Somercotes

Drawing Title:
Dusk Results Plan - 13/07/2021

Drawing No.		Rev:
RSE_4008_Figure		V1
Drawn By:	Scale:	Date:
GC	1:3,378.089459	21/07/2021

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Key

- Route 1
- Route 1 Point Counts
- Route 1 Start/Finish
- Flight Direction
- Common Pipistrelle

RammSanderson

Client:
Clowes Developments

Project:
Birchwood Way, Somercotes

Drawing Title:
Transect Results Plan - 20/04/2021- Dusk

Drawing No.		Rev:
RSE_4008_Figure 8		V1
Drawn By:	Scale:	Date:
GC	1:1	26/04/2021

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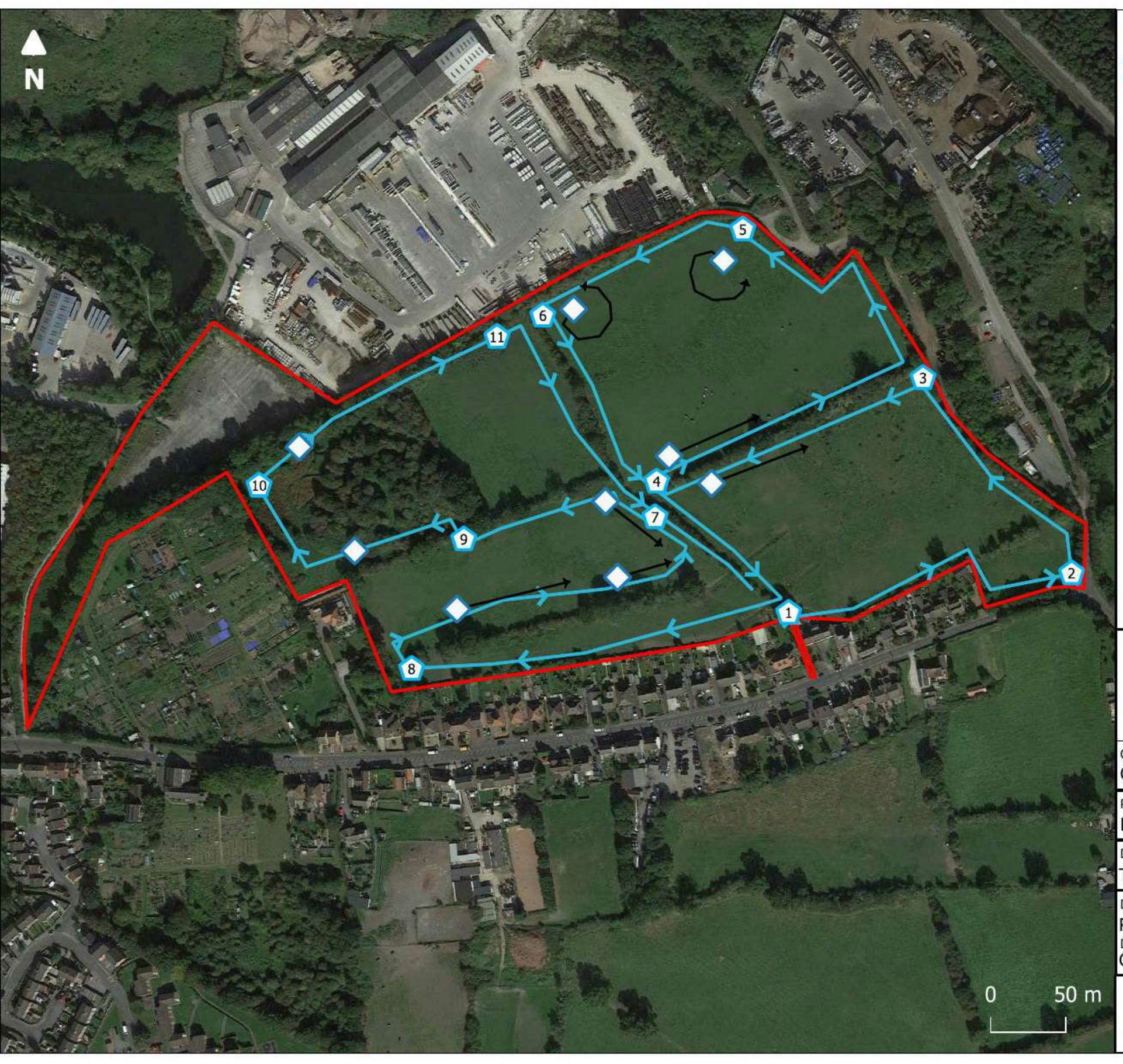

Key

- Route 1
- Route 1 Point Counts
- Route 1 Start/Finish
- Flight Direction
- Common Pipistrelle

RammSanderson

Client:
Clowes Developments

Project:
Birchwood Way, Somercotes

Drawing Title:
Transect Results Plan - 19/05/2021- Dusk

Drawing No.		Rev:
RSE_4008_Figure		V1
Drawn By:	Scale:	Date:
GC	1:3,378.089459	25/05/2021

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Key

- Route 1
- Route 1 Point Counts
- Route 1 Start/Finish
- Flight Direction
- Common Pipistrelle
- Noctule

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Clowes Developments

Project:
Birchwood Way, Somercotes

Drawing Title:
Transect Results Plan - 16/06/2021- Dusk

Drawing No.		Rev:
RSE_4008_Figure		V1
Drawn By:	Scale:	Date:
GC	1:3,378.089459	25/06/2021

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Key

- Route 1
- Route 1 Point Counts
- Route 1 Start/Finish
- Flight Direction
- Common Pipistrelle

RammSanderson

Client:
Clowes Developments

Project:
Birchwood Way, Somercotes

Drawing Title:
Transect Results Plan - 14/07/2021- Dusk

Drawing No.		Rev:
RSE_4008_Figure		V1
Drawn By:	Scale:	Date:
GC	1:3,378.089459	21/07/2021

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Figure 18: August Bat Transect Map

TBC

Figure 19: September Bat Transect Map

TBC

Figure 20: October Bat Transect Map

TBC

Table 14: Static 1

	Dates	PIPI	PIPY	PLAU	NYNO	Myotis sp	NYLE	WHBR	MYNA	Total number of nights
April	20/04/2021 – 25/04/2021	84	0	0	0	1	0	0	0	5
May	19/05/2021 – 23/05/2021	73	0	0	0	0	0	0	0	5
June	16/06/2021 – 20/06/2021	88	2	0	0	0	0	0	0	5
July	13/07/2021 – 17/07/2021	249	2	0	2	0	0	0	0	5
August	TBC									
September	TBC									
October	TBC									
Total Passes/ species		494	2	0	2	1	0	0	0	
Average passes/ species		14.1	0.05	0	0.05	0.03	0	0	0	
% of bat passes/ species		98.9	0.4	0	0.4	0.2	0	0	0	

Table 15: Static 2

	Dates	PIPI	PIPY	PLAU	NYNO	Myotis sp	NYLE	WHBR	MYNA	Total number of nights
April	20/04/2021 – 25/04/2021	334	0	0	3	1	0	0	0	5
May	19/05/2021 – 23/05/2021	565	0	0	1	1	0	0	0	5
June	16/06/2021 – 20/06/2021	308	0	0	0	0	0	0	0	5
July	13/07/2021 – 17/07/2021	604	2	0	63	0	0	0	0	5
August	TBC									
September	TBC									
October	TBC									
Total Passes/ species		1811	2	0	67	2	0	0	0	
Average passes/ species		60.4	0.1	0	2.2	0.07	0	0	0	
% of bat passes/ species		96.2	0.1	0	3.6	0.1	0	0	0	



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- Boundary
- Aggressive interaction
- = Alarm calling
- Asynchronous registration
- Bird singing
- Flight direction
- (f) Food
- juv Juvenile
- mat Material
- * Nest
- (p) Pair
- Simultaneous registration

Birds seen:
D.: Dunnock
R.: Robin
GT: Great tit
ST: Song thrush
GC: Gold crest
WR: Wren
BT: Blue tit
B.: Blackbird
CC: Chiffchaff
RE: Redwing
M: Mistle thrush
PW: Pied wagtail
WP: Woodpigeon
GO: Goldfinch
GR: Greenfinch
SD: Stock dove
HS: House sparrow
MP: Meadow pipit
CH: Chaffinch

Client:
Clowes Developments

Project:
Birchwood Way, Somercotes

Drawing Title:
Breeding Bird Survey Visit 1 - 18/03/2021

Drawing No.		Rev:
RSE_4008_Figure		V1
Drawn By:	Scale:	Date:
GC	1:2,201.656027	27/04/2021

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RammSanderson

- Boundary
- Aggressive interaction
- = Alarm calling
- Asynchronous registration
- Bird singing
- Flight direction
- (f) Food
- juv Juvenile
- mat Material
- * Nest
- (p) Pair
- Simultaneous registration

Birds seen:

D.: Dunnock
R.: Robin
GT: Great tit
ST: Song thrush
BC: Blackcap
WR: Wren
BT: Blue tit
B.: Blackbird
CC: Chiffchaff
LO: Little owl
WW: Willow warbler
PW: Pied wagtail
WP: Woodpigeon
GO: Goldfinch
GR: Greenfinch
SD: Stock dove
JD: Jackdaw
MG: Magpie
CH: Chaffinch
GR: Greenfinch
SG: Starling
GC: Goldcrest

Client:
Clowes Developments

Project:
Birchwood Way, Somercotes

Drawing Title:
Breeding Bird Survey Visit 2 - 15/04/2021

Drawing No.		Rev:
RSE_4008_Figure		V1
Drawn By:	Scale:	Date:
GC	1:2,201.656027	30/04/2021

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RammSanderson

- Boundary
- Aggressive interaction
- = Alarm calling
- Asynchronous registration
- Bird singing
- Flight direction
- (f) Food
- juv Juvenile
- mat Material
- * Nest
- (p) Pair
- Simultaneous registration

Birds seen:
D.: Dunnock
R.: Robin
GT: Great tit
ST: Song thrush
BC: Blackcap
WR: Wren
B.: Blackbird
CC: Chiffchaff
PW: Pied wagtail
WP: Woodpigeon
GO: Goldfinch
GR: Greenfinch
SD: Stock dove
JD: Jackdaw
MG: Magpie
CH: Chaffinch
GS: Great spotted woodpecker
CD: Collared dove
GC: Goldcrest
M.: Mistle thrush
HS: House sparrow

Client:
Clowes Developments

Project:
Birchwood Way, Somercotes

Drawing Title:
Breeding Bird Survey Visit 2 - 14/05/2021

Drawing No.		Rev:
RSE_4008_Figure		V1
Drawn By:	Scale:	Date:
GC	1:2,201.656027	25/05/2021

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19 APPENDIX 9: PHASE 1 SPECIES LIST

Table 16: Phase 1 Species List

Common Name	Scientific Name	DAFOR
BROADLEAVED WOODLAND		
Ash	*Fraxinus excelsior*	A
Oak	*Quercus robur*	A
BROADLEAVED WOODLAND UNDERSTOREY		
Bramble	*Rubus fruticosus*	O
Crab Apple	*Malus sylvestris*	R
Elder	*Sambucus nigra*	F
Field Maple	*Acer campestre*	F
Hawthorn	*Crataegus monogyna*	A
Holly	*Ilex aquifolium*	O
BROADLEAVED WOODLAND GROUND FLORA		
Common nettle	*Urtica dioica*	A
Herb Robert	*Geranium robertianum*	O
False oat grass	*Arrhenatherum elatius*	O
Dogs Mercury	*Mercurialis perennis*	R
Garlic Mustard	*Alliaria petiolata*	R

Common Name	Scientific Name	DAFOR
DENSE SCRUB		
Hawthorn	*Crataegus monogyna*	A
Bramble	*Rubus fruticosus*	A
Creeping Thistle	*Crisium arvense*	F
Spear Thistle	*Crisium vulgare*	O
Rosebay Willowherb	*Chamerion sngustfolium*	A
Broad leaved dock	*Rumex obtusifolius*	F
Dog Rose	*Rosa canina*	O
Buddleia	*Buddleja*	A
SEMI-IMPROVED GRASSLAND		
Yellow rattle grass	*Rhinanthus minor*	R
Perennial Rye Grass	*Lolium perenne*	D
Rough Meadow Grass	*Poa trivialis*	F
Common Couch	*Elymus repens*	O
Broadleaved dock	*Rumex obtusifolius*	O
Wood Avens	*Geum urbanum*	O
Bracken	*Pteridium aquilinum*	R
Foxglove	*Digitalis purpurea*	R

Common Name	Scientific Name	DAFOR
Yorkshire Fog	*Holcus lanatus*	F
Meadow Foxtail	*Alopecurus pratensis*	F
Mugwort	*Artemisia vulgaris*	O
Herb Robert	*Geranium roberrtianum*	O
Cleavers	*Galium aparine*	O
Common Knotgrass	*Polygonum aviculare*	R
False oat grass	*Arrhenatherum elatius*	A
Creeping Buttercup	*Ranunculus repens*	O
Self Heal	*Prunella vulgaris*	R
Creeping Cinqfoil	*Potentilla reptans*	O
Cocksfoot	*Dactylis glomerata*	F
Ragwort	*Jacobaea vulgaris*	O
Crested Dogtail	*Cynosurus cristatus*	O
Broad leaved Plantain	*Plantago major*	O
Ribwort Plantain	*Plantago lanceolata*	O
Red Clover	*Trifolium pratense*	O
Meadow Buttercup	*Ranunculus acris*	O

Common Name	Scientific Name	DAFOR
White Clover	*Trifolium repens*	F
Dandelion	*Taraxacum agg.*	F
Creeping Thistle	*Cirsium arvense*	R
Red Fescue	*Festuca rubra*	O
Annual Meadow Grass	*Poa annua*	F
Yellow Oat Grass	*Trisetum flavescens*	R
Dovesfoot Cranesbill	*Geranium molle*	R
Common Sorrel	*Rumex acetosa*	O
Sow thistle	*Sonchus oleraceus*	R
Redshanks	*Persicaria maculosa*	R
TALL RUDERAL		
Broad Leaved Willowherb	*Epilobium montanum*	O
Rosebay Willowherb	*Chamerion angustifolium*	D
Perennial Rye Grass	*Lolium perenne*	F
Common Nettle	*Urtica Dioica*	A
HEDGEROW 1		
Hawthorn	*Crategus monogyna*	D
Elder	*Sambucus nigra*	F

Common Name	Scientific Name	DAFOR
Ash	*Fraxinus excelsior*	R
HEDGEROW 2		
Ash	*Fraxinus excelsior*	A
Crab Apple	*Malus sylvestris*	R
Elder	*Sambucus nigra*	F
Field Maple	*Acer campestre*	F
Hawthorn	*Crataegus monogyna*	A
Holly	*Illex aquifolium*	O
Oak	*Quercus robur*	A
HEDGEROW 3		
Field Maple	*Acer Campestre*	O
Ash	*Fraxinus excelsior*	R
Elder	*Sambucus nigra*	O
Oak	*Quercus robur*	O
HEDGEROW 4		
Hawthorn	*Crategus monogyna*	D
Elder	*Sambucus nigra*	O
Blackthorn	*Prunus spinosa*	R

Common Name	Scientific Name	DAFOR
HEDGEROW 5		
Hawthorn	*Crategus monogyna*	O
Ash	*Fraxinus excelsior*	R
Blackthorn	*Prunus spinosa*	F
HEDGEROW 6		
Hawthorn	*Crategus monogyna*	D
Elder	*Sambucus nigra*	F
Ash	*Fraxinus excelsior*	R
HEDGEROW 7		
Hawthorn	*Crategus monogyna*	D
Elder	*Sambucus nigra*	F
Ash	*Fraxinus excelsior*	R
HEDGEROW 8		
Hawthorn	*Crategus monogyna*	D
Elder	*Sambucus nigra*	F
Ash	*Fraxinus excelsior*	R
HEDGEROW 9		
Hawthorn	*Crategus monogyna*	D

Common Name	Scientific Name	DAFOR
Elder	*Sambucus nigra*	F
Ash	*Fraxinus excelsior*	R
HEDGEROW 10		
Hawthorn	*Crategus monogyna*	D
Elder	*Sambucus nigra*	F
Ash	*Fraxinus excelsior*	R
HEDGEROW 11		
Elder	*Sambucus nigra*	O
Leylandii	*Leylandii sp*	O
Hawthorn	*Crategus monogyna*	D
Cherry	*Prunus sp*	O

20 APPENDIX 10: BIODIVERSITY IMPACT ASSESSMENT (BIA) CONDITIONS ASSESSMENT

Criteria	Pass/Fail	Further Comments
Woodland and forest – Other woodland; broadleaved	**Points**	
Age distribution of trees	2	Some limited age diversity but no deadwood, limited species diversity, few mature trees.
Wild, domestic and feral herbivore damage	3	
Invasive plant species	3	
Number of native tree species	3	
Cover of native tree and shrub species	3	
Open space within woodland	3	
Woodland regeneration	2	
Tree health	3	
Vegetation and ground flora	1	
Woodland and vertical structure	1	
Veteran trees	1	
Amount of deadwood	1	
Woodland disturbance	1	
Condition Score: Moderate	*27/39*	
Grassland – Modified grassland		
There must be 6-8 species per m^2	Pass	Pasture, horse grazing, PRG dominant, limited diversity and herbs less than 30%

Criteria	Pass/Fail	Further Comments
Sward height is varied (at least 20% of the sward is less than 7cm and at least 20% is more than 7cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed	Fail	
Some scattered scrub (including bramble) may be present but scrub accounts for less than 20% of total grassland area.	Pass	
Physical damage evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access or any other damaging management activities	Fail	
Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens	Fail	
Cover of bracken less than 20%	Pass	
There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species make up less than 5% of ground cover	Fail	
Condition Score: Poor		
Sparsely vegetated land – Ruderal/Ephemeral (Tall Ruderal)		
Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone should not account for more than 80% of the total habitat area	Fail	As the tall ruderal on site was dominated by rosebay willowherb, with abundant common nettle, this habitat was deemed to be in poor condition as it is considered to be ruderal habitat with low biodiversity value.
There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native or non-native but beneficial to wildlife	Fail	
Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area	Pass	
Condition Score: Poor		
Urban – Developed land; sealed surface		

Criteria	Pass/Fail	Further Comments
N/A - Other	*N/A*	*N/A*
Hedgerow 1		
A1 Height >1.5 m average along length	Pass	
A2 Width >1.5 m average along length	Pass	
B1 Gap between ground and base of canopy <0.5m for >90% of length (unless 'line of trees')	Pass	
B2 Gaps make up <10% of total length and no canopy gaps >5m	Fail	
C1 >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length is present on one side of the hedge (at least)	Fail	
C2 Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Fail	
D1 >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Pass	
D2 >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Pass	
Condition Score: Moderate		
Hedgerow 2		
A1 Height >1.5 m average along length	Pass	
A2 Width >1.5 m average along length	Pass	
B1 Gap between ground and base of canopy <0.5m for >90% of length (unless 'line of trees')	Pass	

Criteria	Pass/Fail	Further Comments
B2 Gaps make up <10% of total length and no canopy gaps >5m	Fail	
C1 >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length is present on one side of the hedge (at least)	Fail	
C2 Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Fail	
D1 >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Pass	
D2 >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Pass	
Condition Score: Poor		
Hedgerow 3		
A1 Height >1.5 m average along length	Pass	
A2 Width >1.5 m average along length	Pass	
B1 Gap between ground and base of canopy <0.5m for >90% of length (unless 'line of trees')	Pass	
B2 Gaps make up <10% of total length and no canopy gaps >5m	Fail	
C1 >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length is present on one side of the hedge (at least)	Fail	
C2 Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Fail	
D1 >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Pass	

Criteria	Pass/Fail	Further Comments
D2 >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Pass	
Condition Score: Moderate		
Hedgerow 4		
A1 Height >1.5 m average along length	Pass	
A2 Width >1.5 m average along length	Pass	
B1 Gap between ground and base of canopy <0.5m for >90% of length (unless 'line of trees')	Fail	
B2 Gaps make up <10% of total length and no canopy gaps >5m	Fail	
C1 >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length is present on one side of the hedge (at least)	Fail	
C2 Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Fail	
D1 >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Pass	
D2 >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Pass	
Condition Score: Poor		
Hedgerow 5		
A1 Height >1.5 m average along length	Pass	
A2 Width >1.5 m average along length	Pass	

Criteria	Pass/Fail	Further Comments
B1 Gap between ground and base of canopy <0.5m for >90% of length (unless 'line of trees')	Pass	
B2 Gaps make up <10% of total length and no canopy gaps >5m	Fail	
C1 >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length is present on one side of the hedge (at least)	Fail	
C2 Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Fail	
D1 >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Pass	
D2 >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Pass	
Condition Score: Moderate		
Hedgerow 6		
A1 Height >1.5 m average along length	Pass	
A2 Width >1.5 m average along length	Fail	
B1 Gap between ground and base of canopy <0.5m for >90% of length (unless 'line of trees')	Fail	
B2 Gaps make up <10% of total length and no canopy gaps >5m	Fail	
C1 >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length is present on one side of the hedge (at least)	Fail	
C2 Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Fail	

Criteria	Pass/Fail	Further Comments
D1 >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Pass	
D2 >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Pass	
Condition Score: Poor		
Hedgerow 7		
A1 Height >1.5 m average along length	Pass	
A2 Width >1.5 m average along length	Pass	
B1 Gap between ground and base of canopy <0.5m for >90% of length (unless 'line of trees')	Pass	
B2 Gaps make up <10% of total length and no canopy gaps >5m	Pass	
C1 >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length is present on one side of the hedge (at least)	Fail	
C2 Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Fail	
D1 >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Pass	
D2 >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Pass	
Condition Score: Moderate		
Hedgerow 8		
A1 Height >1.5 m average along length	Pass	

Criteria	Pass/Fail	Further Comments
A2 Width >1.5 m average along length	Pass	
B1 Gap between ground and base of canopy <0.5m for >90% of length (unless 'line of trees')	Pass	
B2 Gaps make up <10% of total length and no canopy gaps >5m	Pass	
C1 >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length is present on one side of the hedge (at least)	Fail	
C2 Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Fail	
D1 >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Pass	
D2 >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Pass	
Condition Score: Moderate		
Hedgerow 9		
A1 Height >1.5 m average along length	Pass	
A2 Width >1.5 m average along length	Pass	
B1 Gap between ground and base of canopy <0.5m for >90% of length (unless 'line of trees')	Pass	
B2 Gaps make up <10% of total length and no canopy gaps >5m	Pass	
C1 >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length is present on one side of the hedge (at least)	Fail	

Criteria	Pass/Fail	Further Comments
C2 Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Fail	
D1 >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Pass	
D2 >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Pass	
Condition Score: Moderate		
Hedgerow 10		
A1 Height >1.5 m average along length	Pass	
A2 Width >1.5 m average along length	Pass	
B1 Gap between ground and base of canopy <0.5m for >90% of length (unless 'line of trees')	Pass	
B2 Gaps make up <10% of total length and no canopy gaps >5m	Pass	
C1 >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length is present on one side of the hedge (at least)	Fail	
C2 Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Fail	
D1 >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Pass	
D2 >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Pass	
Condition Score: Moderate		

Criteria	Pass/Fail	Further Comments
Hedgerow 11		
A1 Height >1.5 m average along length	Pass	
A2 Width >1.5 m average along length	Pass	
B1 Gap between ground and base of canopy <0.5m for >90% of length (unless 'line of trees')	Fail	
B2 Gaps make up <10% of total length and no canopy gaps >5m	Fail	
C1 >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length is present on one side of the hedge (at least)	Fail	
C2 Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Fail	
D1 >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Pass	
D2 >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Pass	

Condition Score: Poor