

PRELIMINARY ECOLOGICAL APPRAISAL

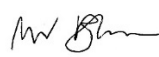
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Ormskirk Road
Knowsley
Liverpool
L34 9EY

U R B A N
G R E E N



QUALITY MANAGEMENT

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NON-TECHNICAL EXECUTIVE SUMMARY

Caddick Developments are proposing to develop land at Ormskirk Road, Knowsley (hereafter referred to as 'the site'). The proposals include the development of three industrial units, with their associated hard and soft landscaping, including two potential attenuation ponds.

Urban Green have been appointed to complete a Preliminary Ecological Appraisal of the site. The objectives of the assessment are to identify habitats on site and determine the suitability for any 'protected and/or notable' species may occur on site, with consideration of potential impacts on nearby designated sites. Further ecological surveys and mitigation are recommended to aim to minimise potential impacts on ecology, due to the proposed development.

Following the survey work, the key recommendations are summarised in the following table:

Current Site Use and Adjacent Site Use	The site is currently unused, though was previously used for arable purposes and will be made suitable for arable farming again in 2022. Commercial developments are located north and west, whilst further agricultural fields are located to the east and south.
Potential Impacts on Designated Sites	No potential impacts on designated sites nearby to the site are anticipated to occur due to the proposed development. The site is located at a sufficient distance from nearby designated sites, and the proposed development activities have been considered.
Habitats	The site comprised predominantly a disused arable field, with broadleaved deciduous woodland present to the north of the site. Running and standing water are present on site and the site is bound by hedgerows the south and west.
Ecological Constraints	The following potential ecological constraints were identified during the assessment: • The broadleaved woodland likely qualifies as a Habitat of Principal Importance. • Suitable habitat is present for common amphibians, breeding birds, foraging and commuting bats, hedgehogs, red squirrel, and badger.
Recommended Ecological Mitigation	The following mitigation measures are recommended to minimise potential impacts due to the proposed development: • Precautionary Working Methods during the construction phase for badgers. • A check should be made for the presence of hedgehog and red squirrel dreys before vegetation removal. • If any vegetation requires removal, it should be completed outside of the breeding bird season (March to September, inclusive). If this is not feasible, a Nesting Bird Check is to be completed by a qualified ecologist no more than 48 hours before removal is completed.
Recommended Further Surveys and Reports	The following ecological surveys and reports are recommended to further assess the sites suitability for protected/notable fauna and/or flora: • Bat activity surveys consisting of active transect and static surveys. • Breeding bird surveys
Recommended Ecological Enhancements	The National Planning Policy Framework (NPPF) (2019) highlights the requirement for planning policies and decisions to conserve and enhance the natural environment. The proposed development provides the opportunity to enhance the site and ecological enhancements have been recommended.

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1 Introduction

1.1 Background to the Scheme

Caddick Developments are proposing to develop land at Ormskirk Road, Knowsley (hereafter referred to as 'the site'). The proposals include the development of three industrial units, with their associated hard and soft landscaping, including two potential attenuation ponds. Urban Green have been appointed to undertake a Preliminary Ecological Appraisal (PEA) of the site.

The author of the report is Katie Bird, MEnvSci, ACIEEM, Senior Consultant Ecologist at Urban Green. Katie has experience providing ecological consulting services for a range of development schemes across the UK, including residential, commercial mineral extraction, and road infrastructure schemes. Katie holds both a bat Class 2 surveying licence and has been accredited on multiple European Protected Species Licences for bats.

1.2 Site Context

The site is located at National Grid Reference SJ 43756 96752 and comprises a total area of approximately 4ha (see Figure 1).



Figure 1 – Site Extent – Hatched area excluded from Red Line Boundary

The site is located upon the edge of an industrial estate approximately 450m north of Knowsley, and 10km to the north-east of Liverpool. The industrial estate is located within the urban rural fringe, with agricultural fields to the east and south, and industrial units to the west. Shared land use lies to the north, comprising both industrial and agricultural land. The A580 major road directly borders the site

to the north beyond which lies a small area of woodland, whilst Ormskirk Road and the B5202 road directly borders the site to the south and west.

1.3 Purpose of this Report

This report has been produced to set out the methods, results, and conclusions of a PEA. The purpose of the PEA report is to identify habitats on site and determine the site's potential value for protected and/or notable fauna and flora, with the addition of potential impacts on designated site. This will inform the need for any further ecological surveys and/or mitigation to minimise the potential impacts on ecology on site and within the local area.

Further information and details of UK legislation for those species which are formally protected is defined in Appendix 1, which are considered throughout the assessment.

The National Planning Policy Framework (NPPF) (2019) and other Local Planning Policies are considered with the PEA. Ecological enhancements are advised to be in line with relevant Planning Policies.

2 Previous Surveys

An Ecological Assessment (EA) was conducted by Urban Green in 2019 (Urban Green, 2019a). This was supplemented by a Preliminary Arboricultural Appraisal (PAA) also produced by Urban Green, to aid assessment.

The site comprised an arable field with scattered bare ground bound by a broadleaf woodland and scattered coniferous trees, bracken, and dense scrub to the north. The arable field was bound by semi-improved grassland with intact and defunct hedgerows located on the site boundaries.

The findings of the EA outlined the potential or confirmed use by:

- Nesting birds within the onsite woodland, scattered trees, scrub, hedgerow, and grassland habitats;
- No badger (*Meles meles*) setts were identified but potential snuffles holes were observed;
- “Low” potential for roosting bats within a several trees within the site, following a Bat Roost Assessment (BRA) based on information contained within the Bat Conservation Trust (BCT) guidelines, 3rd edition (Collins, 2016);
- “Low” potential for commuting and foraging bats utilising the trees, hedgerows, and grassland habitats;
- European hedgehogs (*Erinaceus europaeus*) utilising the sites scrub, hedgerows, and observed brash piles within the site; and
- European rabbits (*Oryctolagus cuniculus*) utilising the site, through the identification of several active warrens.

Further recommendations were also made for the production of a Construction Environmental Management Plan (CEMP) to avoid, minimise, or mitigate any potential negative effects caused by construction practices on the environment on and surrounding the site. And no further surveys were deemed necessary to inform the proposed planning application.

3 Methods

The PEA assessment and Report follows the good practice methodology as detailed within the *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2019).

3.1 Desk Study

3.1.1 Online Resources and Local Records Centre

Due to the size and low impact of the proposed development and being located on the edge of an industrial area of Knowsley, a 1km Local Data Search was conducted as it is deemed an appropriate distance for the Zone of Influence.

Sources of information used in the desk study are presented in Table 1.

Table 1 – Desk Study Sources of Information

Source	Date Consulted	Information Sought
MAGIC website (www.magic.gov.uk)	17/05/2021	Locations of statutory designated sites within 1km of the site boundary. Locations of the designated sites within the National Site Network (Ramsar, SAC and SPA) within 5km of the site boundary. Locations of European Protected Species Licences (EPSL) and Class Licences within 1km.
Natural England (https://designatedsites/.naturalengland.org.uk/)	17/05/2021	Relevant statutory designated site citations.
Joint Nature Conservation Committee (JNCC) (https://jncc.defra.gov.uk/)	17/05/2021	Information on European wildlife sites. Details of relevant Section 41 species and habitats.
Merseyside Biobank	19/05/2021	Locally designated wildlife sites within 1km of site boundary. Records of protected and notable species within 1km of the site boundary.
North Merseyside Biodiversity Action Plan	27/05/2021	Species and habitats which are given special conservation status at the local level.

MAGIC was also searched to assess whether the site fell within any Impact Risk Zones (IRZ) associated with a statutory designated site or a site forming part of the National Site Network. IRZ's have been identified by Natural England for use by Local Planning Authorities to assess planning applications for likely impacts on these sites and to determine when to consult Natural England for further advice.

3.2 Field Survey

3.2.1 Vegetation

The site was subject to a field survey on 18th May 2021, by Katie Bird, Senior Ecologist at Urban Green. The weather conditions were 16°C, partially cloudy (2/8 oktas) and no wind.

The methods were based on the standard methodology as detailed by *JNCC Handbook for Phase 1 Habitat Survey* (JNCC, 2010). A Phase 1 Habitat Plan has been produced to demonstrate habitats within the proposed development and the surrounding area, which is shown in Appendix 2. The mapping techniques are based on *the Phase 1 Habitat Survey* (JNCC, 2010) guidance. Plant common and latin names were taken from the *Online Atlas of British and Irish Flora* (<https://www.brc.ac.uk/plantatlas/>), a continually updated directory of plant nomenclature developed in partnership by the Botanical Society of Britain and Ireland, the Biological Records Centre, the UK Centre for Ecology and Hydrology, and the JNCC.

Flora species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and/or uncommon habitats, were searched for during the survey.

Species abundance is described using the DAFOR scale as shown in Table 2. Percentages are an approximate indication rather than a quantitative measure.

Table 2 – Key to Species Abundance

		Description	Indicative Percentage Ranges
D	Dominant	Covers most of the area	90% or greater
A	Abundant	Very common throughout the area.	50 – 90%
F	Frequent	Common or with many individuals.	20 – 50%
O	Occasional	Occurs in several places but not throughout. Populations are not large.	5 – 20%
R	Rare	Occurs in low numbers in relation to size of area.	Less than 5%
“L” will be used to indicate abundance in a localised area, e.g., LA = Locally abundant			

Any invasive species, including those listed on the revised (April 2010) Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) were noted during the field survey when sighted.

3.2.2 Fauna

A site search for field signs of protected and notable fauna was undertaken, and incidental sightings are detailed. The searches completed were as follows:

- Suitability of any ponds to support notable and protected amphibians, and the suitability of the site’s terrestrial habitats to support amphibians.
- Suitability of the site to support reptiles by way of habitat structure and refuge piles, as well as links to the wider landscape.
- Search of any watercourses for signs or suitability for white clawed-crayfish (*Austropotamobius pallipes*), water vole (*Arvicola amphibius*) and otter (*Lutra lutra*) by way of burrows, resting places, holts and foraging signs.
- Suitability of the site to support notable bird species. Bird nests and droppings of notable and protected bird species.

- Suitability of the site to support notable invertebrates.
- Search of the site for any invasive species.
- Badger field signs such as setts, mammal, paths, snuffle holes and latrines.
- Suitability of the site to support notable terrestrial mammals including harvest mouse (*Micromys minutus*) and brown hare (*Lepus europaeus*).

3.3 Bat Assessment

3.3.1 Preliminary Roost Assessment

A Preliminary Roost Assessment (PRA) was carried out on the site trees using a high-powered torch and close-focussing binoculars.

The PRA methodology is based on information contained within the Bat Conservation Trust (BCT) guidelines, 3rd edition (Collins, 2016). The categorisation within this report is based on that set out in Table 3, which is used as a basis for determining the requirement for further surveys.

Table 3 – Suitability of Trees for Roosting Bats (adapted from Collins, 2016)

Category of Suitability	Typical Characteristics	Further Survey Requirements (Trees)
High Roost Suitability	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. Surveys can be undertaken between May and September, with at least two surveys between May and August.
Moderate Roost Suitability	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but are unlikely to support a roost of high conservation status.	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. Surveys can be undertaken between May and September with at least one survey between May and August.
Low Roost Suitability	A tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate condition and/or suitable surrounding habitat to be used on a regular basis by larger numbers of bats.	No further survey required but precautionary methods of felling recommended.
Negligible Suitability	Negligible habitat features on site likely to be used by roosting bats.	No further work required.

3.3.2 Commuting and Foraging Bats

The site was assessed for its suitability for use by commuting and foraging bats.

The commuting and foraging assessment methodology is based on information contained within the Bat Conservation Trust guidelines 3rd edition (Collins, 2016). The categorisation within this report is based on that set out in Table 4, which is used as a basis for determining the requirement for further surveys.

Table 4 – Suitability of Site for Foraging and Commuting Bats (adapted from Collins, 2016)

Category of Suitability	Typical Characteristics
High Suitability	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting or foraging bats such as; river valleys, streams, hedgerows, lines of trees or woodland edge. Site is close to or connected to known roosts.
Moderate Suitability	Continuous habitat connected to the wider landscape that could be used by commuting bats such as lines of trees, scrub or linked back gardens. Habitat connected to wider landscape that could be used for bats for foraging such as; trees, scrub, grassland or water.
Low Suitability	Habitat that could be used by small number of commuting bats such as; defunct hedgerow, isolated features not well connected to surrounding habitat or Isolated habitat that could be used by a small number of foraging bats such as a lone tree or patch of scrub.
Negligible Suitability	No features on site suitable for use by commuting and foraging bats.

3.4 Constraints to the Survey

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.

This PEA does not constitute a full botanical survey. The protected species assessment provides a view of the likelihood of protected species occurring on the site based on the known distribution of species in the local area and the suitability of the habitat. It should not, however, be taken as providing a full and definitive survey of any protected species group.

Sample grid references provided by the record centre (detailed in Section 4.1.3) in some circumstances returned a wide area in which the record was located (such as grid reference SJ43). With these records, an accurate distance of the species cannot be fully ascertained, and records have been labelled 'within 1km' where appropriate.

Pond 2 and P3 (located approximately 40m west and 120m north-west respectively of the site boundary) could not be accessed due to being positioned within an active business park. The constraint has been considered within the assessment.

Where a lack of records is found during the desk search for a defined geographical area, it does not necessarily mean that there is a lack of ecological interest; the area may be simply under-recorded.

The conclusions and recommendations detailed in this report are based upon the site redline boundary and the development proposals as outlined by the client at the time of writing. Should there be any changes to the site redline boundary or development proposals at a later stage, this assessment should be reviewed to determine whether any amendments or additional survey work is required.

The findings of this report represent the professional opinion of qualified ecologists and do not constitute professional legal advice. The client may wish to seek professional legal interpretation of the relevant wildlife legislation cited within this document.

3.5 Lifespan of Report

In accordance with CIEEM's Advice Note on the Lifespan of Ecological Reports and Surveys (CIEEM, 2019), the details of this report will remain valid for a period of **18 months** from the date of the survey (i.e. until 18th November 2022). After this date, this assessment should be reviewed to determine whether any updated surveys are required.

3.6 Definitions

For the purposes of this report, the term 'protected and notable species' relates to:

- Species included on Schedules 2 and 4 of *The Conservation of Habitats and Species Regulations 2017*;
- Species included on Schedules 1, 5 and 8 of the *Wildlife and Countryside Act 1981* (as amended), excluding species that are only protected in relation to their sale (see section 9[5] and 13[2]);
- Invasive non-native species included on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended);
- Species of principal importance for the conservation of/maintaining and enhancing biodiversity as required under: Section 41 of the *Natural Environment and Rural Communities Act 2006* (England), Section 7 of the *Environment (Wales) Act 2016*, Section 2[4] of the *Nature Conservation (Scotland) Act 2004*;
- Local species of importance as identified within various local biodiversity action plans; and,
- Badgers, which are protected under the *Protection of Badgers Act 1992*.

4 Baseline Ecological Conditions

4.1 Desk Study

4.1.1 Site Location

The site lies within the urban fringe of Knowsley, with predominately commercial areas on its western aspect and agricultural fields with associated woodland pocked to the east. The agricultural fields are anticipated to provide value for fauna associated with agricultural land such as farmland birds, bats, and badgers.

Knowsley Safari Park is located approximately 400m south of the site, and comprised a variation of habitats (see Table 6) for details, anticipated be of importance for a variation of fauna.

4.1.2 Designated Sites

No sites within the National Site Network were located within 5km of the site boundary. One statutory site and six non-statutory designated sites were located within 1km of the site and are detailed within Table 6.

Table 6 – Designated Sites within the Search Areas

Designated Site	Approx. Distance from Site	Details
Statutory Sites		
Acornfield Plantation Local Nature Reserve (LNR)	670m north	A site predominantly comprising mature broadleaf woodland. The woodland includes oak (<i>Quercus</i> sp.), birch (<i>Betula</i> sp.) and sycamore (<i>Acer pseudoplatanus</i>). The centre of the site includes a lowland basin mire dominated by sphagnum moss (sp.) and soft rush (<i>Juncus effusus</i>). Other habitats include a pond, stream, drainage channels, acidic and neutral grasslands, bracken (<i>Pteridium aquilinum</i>) and rhododendron (<i>Rhododendron</i> sp.) thickets.
Non-Statutory Sites		
Knowsley Park Knowsley Local Wildlife Site (KLWS)	400m south	A site with ancient parkland and estate on a mix of acid and neutral soils with sandstone exposures along brooks. Plants present indicative of ancient semi-natural woodland. Bats have been recorded at the site.
Acornfield Plantation KLWS	670m north	See LNR description above.
Knowsley and St Helens Mosslands Nature Improvement Area (NIA)	670m north & 800m east	Two of the 17 Focus Area profiles which, when combined, forms the Liverpool City Region (LCR) Ecological Network Nature Improvement Area. The NIA “provides an LCR-wide opportunity for the strategic delivery of biodiversity outcomes”.
River Alt and M57 Corridor NIA	800m south-west	

Designated Site	Approx. Distance from Site	Details
Knowsley Brook KLWS	900m west	An open watercourse providing good habitat for water vole (<i>Arvicola amphibious</i>).
Otis Meadow KLWS	1km west	A mix of damp and dry grassland with developing scrub.

The site does not fall within the Impact Risk Zone of any Statutory Sites, based on consultation with MAGIC.

4.1.3 Flora and Fauna

The following section summarises protected and/or notable species records that have been recorded within 1km of the site.

Invertebrates

Sixteen species listed on the North Merseyside BAP were returned within 1km of the site, comprising Azure Damselfly (*Coenagrion puella*), Black Darter (*Sympetrum danae*), black-tailed skimmer (*Orthetrum cancellatum*), blue-tailed damselfly (*Ischnura elegans*), broad-bodied chaser (*Libellula depressa*), brown hawk (*Aeshna grandis*), common blue damselfly (*Enallagma cyathigerum*), common darter (*Sympetrum striolatum*), common hawk (*Aeshna juncea*), emerald damselfly (*Lestes sponsa*), emperor dragonfly (*Anax imperator*), four spotted chaser (*Libellula quadrimaculata*), large red damselfly (*Pyrrosoma nymphula*), migrant hawk (*Aeshna mixta*), ruddy darter (*Sympetrum sanguineum*), and southern hawk (*Aeshna cyanea*).

Two species listed on Section 41 of the NERC Act (2006) were returned within 1km of the site, comprising small heath (*Coenonympha pamphilus*) and wall (*Lasiommata megera*).

The majority of records returned were associated with Acornfield Plantation KLWS, which is located approximately 670m north of the site, between 1981 – 2017.

Vascular Plant

The data search returned eight records of a notable vascular plant species attributed to native bluebell (*Hyacinthoides non-scripta*) and greater yellow-rattle (*Rhinanthus angustifolia*). The closest to the site was recorded approximately 800m north of the site from 2019. Bluebell and greater yellow-rattle are listed on Schedule 8 of the Wildlife and Countryside Act 1981 (as amended), with bluebell also listed on the North Merseyside BAP.

Amphibians

Twenty-one records of amphibians were recorded within 1km of the site boundary. Four of which related to great crested newt, all within Acornfield Plantation LNR, located approximately 670m north of the site, most recently in 2014. As well as being a European protected species, great crested newt is listed on the Merseyside BAP, and is also listed on Section 41 of the NERC Act 2006.

Other records obtained included common toad (*Bufo bufo*), common frog (*Rana temporaria*) and smooth newt (*Lissotriton vulgaris*). Common toad is listed on Section 41 of the NERC Act (2006).

A MAGIC search returned no granted EPSL relating to great crested newts present within 1km of the site.

Reptiles

Two records of slow worm (*Anguis fragilis*) were returned within 1km of the site. The closest record was located south of the site from 1959. Accurate location data was not provided for this record.

Birds

A total of 107 records of protected or notable birds were returned within 1km of the site as detailed in Table 6.

Table 6 – Protected or notable birds recorded within 1km

Scientific Name	Common Name	Protection	Closest Record to Site	
			Approx. Min. Distance (m)	Date
<i>Acanthis cabaret</i>	Lesser redpoll	BoCC4*, S41****	Within 1km	1999
<i>Accipiter gentilis</i>	Goshawk	Sch.1***,	Within 1km	1998
<i>Alauda arvensis</i>	Skylark	LBAP, S41****	Within 1km	1999
<i>Alcedo atthis</i>	Kingfisher	Sch.1***, BoCC**	Within 1km	1999
<i>Apus apus</i>	Swift	LBAP	Within 1km	1998
<i>Circus auruginosus</i>	Marsh Harrier	Sch.1***,	Within 1km	1999
<i>Coturnix coturnix</i>	Quail	Sch.1***,	Within 1km	1998
<i>Cuculus canorus</i>	Cuckoo	S41****	Within 1km	1999
<i>Delichon urbicum</i>	House Martin	LBAP	Within 1km	1998
<i>Dendrocopos minor</i>	Lesser spotted woodpecker	S41****,	Within 1km	1998
<i>Emberiza calandra</i>	Corn Bunting	LBAP, S41****	Within 1km	1999
<i>Emberiza citrinella</i>	Yellowhammer	BoCC4*, S41****	Within 1km	1999
<i>Emberiza schoeniclus</i>	Reed bunting	S41****	Within 1km	1999
<i>Falco subbuteo</i>	Hobby	Sch.1***,	Within 1km	1997
<i>Linaria cannabina</i>	Linnet	S41****	Within 1km	1998
<i>Locustella naevia</i>	Grasshopper Warbler	S41****,	Within 1km	1999
<i>Loxia curvirostra</i>	Common crossbill	Sch.1***,	Within 1km	1999
<i>Motacilla flava</i>	Yellow wagtail	S41****	Within 1km	1998
<i>Muscicapa striata</i>	Spotted flycatcher	S41****	Within 1km	1999
<i>Passer domesticus</i>	House sparrow	BoCC4*, S41****, LBAP	Within 1km	1999
<i>Passer montanus</i>	Tree sparrow	S41****	Within 1km	1999

Scientific Name	Common Name	Protection	Closest Record to Site	
			Approx. Min. Distance (m)	Date
<i>Perdix perdix</i>	Grey Partridge	LBAP, S41****,	Within 1km	1999
<i>Poecile montana</i>	Willow tit	S41****	Within 1km	1999
<i>Prunella modularis</i>	Dunnock	S41****,	Within 1km	1999
<i>Pyrrhula pyrrhula</i>	Bullfinch	BoCC4**, S41****	Within 1km	1999
<i>Streptopelia turtur</i>	Turtle dove	S41****	Within 1km	1999
<i>Sturnus vulgaris</i>	Starling	LBAP, S41****	Within 1km	1998
<i>Turdus philomelos</i>	Song thrush	LBAP, S41****	Within 1km	1999
<i>Tyto alba</i>	Barn owl	Sch.1***, BoCC4*, S41****	Within 1km	1999
<i>Vanellus vanellus</i>	Lapwing	LBAP, S41****,	Within 1km	1999

* Listed Red on the Bird of Conservation Concern 4 (2015)

** Listed Amber on the Bird of Conservation Concern 4 (2015)

*** Wildlife & Countryside Act (Sch 1, 5 & 8)

**** Listed on Section 41 (NERC Act, 2009).

Bats

Twenty bat records were returned, comprising common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's bat (*Myotis daubentonii*), noctule (*Nyctalus noctula*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*), unidentified pipistrelle (*Pipistrellus* sp.), and unidentified bat species. All species of bat returned are listed on Section 41 of the NERC Act (2006) and are listed on the North Merseyside BAP.

Two of the records related to a bat roost, both of which related to common pipistrelle. The closest of which was located approximately 250m north of the site boundary.

A search on MAGIC did not return any records of granted bat EPS licences within 2km of the site.

Water Vole

Thirteen water vole records were returned. The closest was made approximately 300m south east of the site, in 2007. Water vole are listed on Section 41 of the NERC Act (2009) and are a Priority Species on the Merseyside BAP.

Hedgehog

Thirteen records of hedgehog were returned with 1km of the site, the closest of which was located approximately 300m south east of the site, dated in 2016. Hedgehog are listed on Section 41 of the NERC Act (2006).

Brown Hare

Four brown hare (*Lepus europaeus*) records were returned. The closest was made approximately 250m north of the site, in 2007. Brown hare are listed on Section 41 of the NERC Act (2006) and are listed on the North Merseyside BAP.

Red Squirrel

Six records of red squirrel (*Sciurus vulgaris*) were returned. The closest to the site was located approximately 560m south of the site, dated 2017. Red squirrel are listed on Section 41 of the NERC Act (2006) and are listed on the North Merseyside BAP.

Invasive Non-native Species

Flora

Twenty-eight records of invasive non-native plant species were returned within 1km of the site, comprising water fern (*Azolla filiculoides*), Canadian waterweed (*Elodea canadensis*), Himalayan balsam (*Impatiens glandulifera*), Japanese knotweed (*Fallopia japonica*) and rhododendron (*Rhododendron ponticum*). The closest records to the site are of Himalayan balsam, Japanese knotweed, water fern and rhododendron that were located at Acornfield Plantation approximately 670m north of the site, between 2010 and 2016.

Fauna

Twenty-five records of species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Species recorded comprised grey squirrel (*Sciurus carolinensis*), barn owl, barnacle goose (*Branta leucopsis*), Canada goose (*Branta canadensis*), goshawk, ruddy duck (*Oxyura jamaicensis*). The closest species recorded related to grey squirrel recorded 80m east of the site in 2014.

No Records Returned

The data search returned no records for:

- Badger
- Hazel dormice (*Muscardinus avellanarius*)
- Otter
- White-clawed crayfish
- Harvest mouse

4.2 Field Survey

The site habitats and accompanying Target Notes are presented in the Phase 1 Habitat Map in Appendix 2.

4.2.1 Arable

Much of the site comprised a disused arable field, that had previously been intensively managed for arable farming. This management had paused for the 2020 growing season but resumed towards the end of 2021 so the site could be used for arable farming in 2022 again. This field had previously been assessed as an arable field in previous surveys conducted by Urban Green (Urban Green, 2019). The edges of the field were dominated by grassland species, though species present were identified across the field. The field had become colonised with a range of species typical of frequently disturbed ground that are likely to be common within the surrounding area.

Dominant species included Yorkshire fog (*Holcus lanatus*), perennial rye-grass (*Lolium perenne*), cock's-foot (*Dactylis glomerata*), and common dandelion (*taraxacum officinale* agg.). Abundant species

included ragwort (*Senecio jacobaea*), creeping buttercup (*Ranunculus repens*), broadleaf dock (*Rumex obtusifolius*), ribwort plantain (*Plantago lanceolata*) and fescue species (*Festuca* sp.).

Frequent species recorded included creeping thistle (*Cirsium arvense*), common sheep sorrel (*Rumex acetosella*), white clover (*Trifolium repens*), bramble (*Rubus fruticosus* agg.), cutleaf geranium (*Geranium dissectum*), common fleabane (*Pulicaria dysenteria*), bristly oxtongue (*Helminthotheca echinoides*), spear thistle (*Cirsium vulgare*), field pansy (*Viola arvensis*), common chickweed (*Cerastium fontanum*) and common vetch (*Vicia sativa*). With occasional forget-me-not (*Myosotis* sp.), common nettle (*Urticaria dioica*), horse tail (*Equisetum* sp.), common mugwort (*Artemisia vulgaris*), common daisy (*Bellis perennis*), greater plantain (*Plantago major*).

Silver birch saplings (*Betula pendula*) and gorse (*Ulex europaeus*) were scattered across the field.

	
Photograph 1 – Poor semi-improved grassland.	Photograph 2 – Site following intensive management restarting in July 2021.

4.2.2 Hedgerow

Two hedgerows were located on site, bounding the eastern and western aspects of the site.

A species-poor defunct-hedgerow bound the eastern aspect, standing approximately 1m high and wide (see Photograph 2). Dominant hedgerow species include hawthorn (*Crataegus monogyna*) with rare sycamore (*Acer pseudoplatanus*) and bramble (*Rubus fruticosus*). It becomes intact on its southern aspect, for a length of approximately 100m and was approximately 4m in height and 1-2m wide (see Photograph 3).

Ground flora included dominant scattered bramble, common nettle, perennial rye grass and Yorkshire fog. Frequent species included cow parsley (*Anthriscus sylvestris*), common cleavers (*Galium aparine*), white dead nettle (*Lamium album*), broadleaved dock with abundant herb-robert (*Geranium robertianum*) and bluebell.



Photograph 2 – Eastern hedgerow



Photograph 3 – Eastern hedgerow

A species-poor intact hedgerow bounds the western aspect, comprising of hawthorn with scattered sycamore. Its ground flora composition was similar to the eastern hedgerow. It was approximately 4m in height and 2m wide (see Photograph 4).



Photograph 4 – Western hedgerow

4.2.3 Dense Scrub

Dense scrub dominated by bramble with occasional bracken and common nettle, and scattered silver birch and oak saplings dominated the northern aspect of the site (see Photograph 5). Additional areas of dense scrub were located on the edges of the field and the western aspect of the broadleaved woodland (see Photograph 6).



Photograph 5 – Northern dense scrub

Photograph 6 – Dense scrub to the south of the woodland

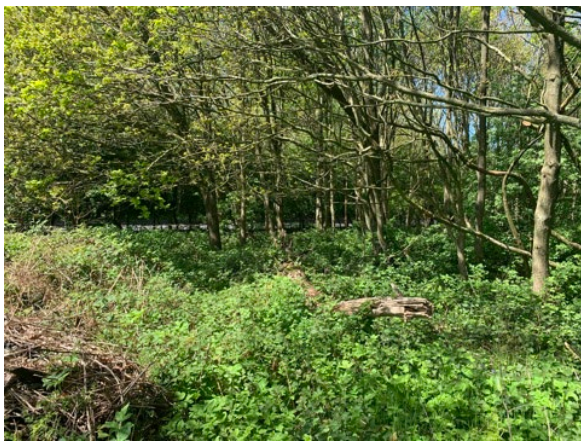
4.2.4 Mixed Broadleaved Woodland

A mixed broadleaved woodland is present towards the north of the site (see Photograph 7), which consisted of predominantly sycamore trees interspersed with the occasional oak (*Quercus* sp.), hawthorn (*Crataegus monogyna*), crab apple (*Malus sylvestris*), birch (*Betula* spp.), cherry (*Prunus* sp.) and lime (*Tilia* spp.) tree species (see Photograph). The ground flora was dominated by common nettle (*Urtica dioica*), cleavers (*Galium aparine*) and red campion (*Silene dioica*).



Photograph 7 – Mixed broadleaved woodland

The majority of the ground flora was sparse, though becomes quite dense on its western aspect (see Photograph 8 and 9). Species recorded across the woodland included dominate common nettle, common cleavers, bramble and red campion. The western aspect included herb-robert, ground elder (*Aegopodium podagaria*), dove's-foot cranesbill (*Geranium molle*) and wood avens (*Geum urbanum*). Dead wood was identified across the woodland.



Photograph 8 – Northern dense scrub



Photograph 9 – Dense scrub to the south of the woodland

4.2.5 Running Water

Two streams were located within the western aspect of the broadleaved woodland (see Photograph 10). They were sourced via two culverts to the south and flow in a northerly direction. The banks were

shallow and were dominated by scrub or bare earth. No aquatic vegetation was identified, and the bed comprised silt substrate.



Photograph 10 – Running water

4.2.6 Bracken

Bracken and scattered scrub were also present upon the south side of the woodland to the north of the site (see Photograph 11).



Photograph 11 – Scattered bracken and Leyland cypress present within the centre of the site.

4.2.7 Scattered Coniferous Trees

Scattered Leyland cypress (*Cupressus x leylandii*) were located within the centre of site, separating the site with adjacent residential plots (see Photograph 11).

4.3 Site Suitability for Protected and Notable Species

4.3.1 Species Discounted from Assessment

Hazel Dormouse mainly occur in southern counties, especially in Devon, Somerset, Sussex and Kent. There are few recorded localities north of the Midlands, though they are present in parts of the Lake District and in scattered localities (Matthews *et al.*, 2018). The species are not generally known to be present within the Knowsley area (Wembridge *et al.*, 2016). The habitats on site are of limited value due to limited areas of extensive woodland and scrub. As such, the species are reasonably discounted from site.

4.3.2 Vascular Plants

No notable flora was noted during the field survey, with only common and widespread species observed. In addition, the notable flora species returned during the desk study are not anticipated to be present on the site due to the intensive management and use of the site.

As such, notable vascular plants are considered likely absent from the site and are not discussed further within this report.

4.3.3 Invertebrates

Deadwood and running water were noted within the patch of woodland present on site which can provide an important resource for invertebrates during their lifecycle. These were however small in extent and of poor quality.

Cinnabar moth (*Tyria jacobaeae*) was observed on site during the survey.

Overall, notable invertebrates species may be present on site, however habitat of higher quality is present off site that is likely to be used preferentially over the site.

4.3.4 Amphibians

One pond was located on site (P1) and based on OS mapping two ponds are located within 250m of the site boundary (see Figure 2 for locations).

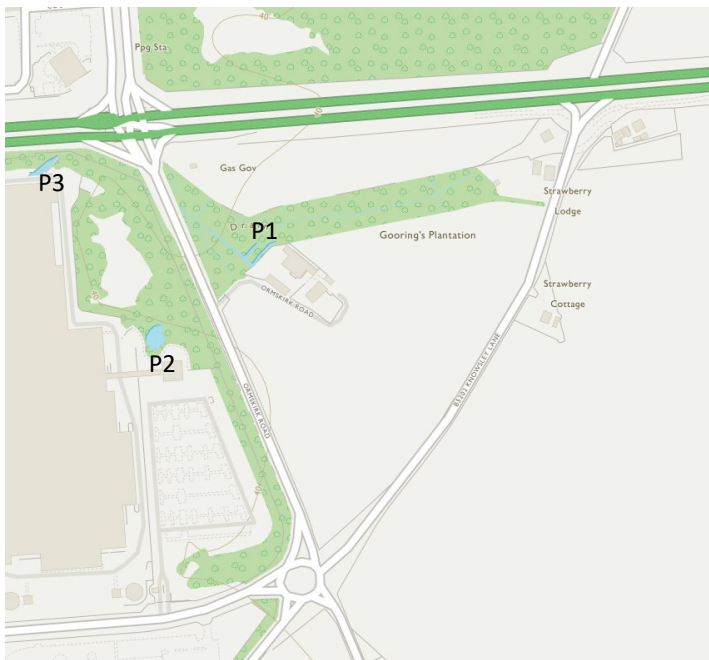


Figure 2 – Waterbody locations

P1 was located at one end of the running water on site. It was assessed for its habitat suitability for great crested newt. Table 7 shows the results of the HSI undertaken, which has classified this habitat as 'poor' suitability. It is deemed unlikely that great crested newts will be present within the pond based multiple of factors, such as its poor water quality, size, and likelihood of drying annually.

Table 7 – HSI on standing water onsite.

HSI Score	P1	
Photo		
Description	A small area of standing water within the drainage system to the north of the site within the broadleaved woodland. This standing water contained no aquatic vegetation and had a floor of dense leaf litter. It was shaded on all aspects.	
	Field Score	HSI Score
Sl1 - Location	A	1
Sl2 – Pond area	25m ²	0.05
Sl3 - Pond drying	Dries annually	0.1
Sl4 – Water quality	Bad	0.01
Sl5 - Shade	100%	0.2
Sl6 – Water Fowl	Absent	1
Sl7 - Fish	Absent	1
Sl8 - Ponds	3	0.65
Sl9 - Terrestrial	Moderate	0.67
Sl10 - Macrophytes	0%	0.3
Overall HSI score	0.26 - Poor	

An off-site ornamental pond (P2) was present within the industrial site, approximately 40m to the west of the site, with the addition of a pond (P3) within woodland approximately 120m north west of the site. These ponds could not be accessed due to being located within an active industrial estate. It is not anticipated that great crested newts are present within these offsite ponds due to the lack of other ponds within 500m and poor connectivity to terrestrial habitats.

The site comprised a mosaic of unmanaged habitats which may provide suitable foraging resources and cover for common amphibians such as common toads. The offsite waterbodies may provide suitable conditions for breeding common amphibians.

The presence of great crested newts within the site is reasonably discounted, though common amphibians may occur on site.

4.3.5 Reptiles

The site does not comprise a mosaic of habitats suitable for supporting reptiles and is surrounded by poor quality reptile habitat (mostly residential and industrial), lacking the extent of mixed vegetation needed for shelter; lacking open unshaded areas for basking and having poor wider habitat connectivity to allow for initial site colonisation.

The likelihood of reptiles occurring on site is therefore considered to be negligible, and they are not discussed further within this report.

4.3.6 Birds

Ground Nesting

The data search returned records of ground nesting birds in the local area, such as lapwing and grey partridge. The arable field is anticipated to provide limited value for ground nesting birds as it is located immediately adjacent to the several roads and a railway line and is likely to leave ground nesting birds exposed to predation. Whilst the surrounding trees and hedgerow will provide suitable perches for bird of prey.

The hedgerows may provide suitable conditions for ground nesting birds that nest within hedgerow bases, such as yellowhammer and grey partridge. Red legged partridge (*Alectoris rufa*) was observed on site and are anticipated to breed on site. Therefore, ground nesting birds cannot be ruled out from using the site, although are likely restricted to the hedgerow and field edge habitats.

Passerine

The woodland, scrub and hedgerows are anticipated to provide nesting opportunities, for a variety of bird species. Standing deadwood was also observed within the woodland, which could provide suitable nesting habitat for willow tit, with records of this species returned during the desk study.

Wintering

It is noted that pink footed geese (*Anser brachyrhynchus*) are known to be present in the nearby St Helens borough, where active measures are being implemented for their conservation. Pink-footed geese therefore may occasionally traverse this habitat as part of their wider territory, however it is not anticipated that the site presents significant habitat for these birds who prefer a mosaic of extensive farmland, wetland and grassland habitat.

Barn Owl/Birds of Prey

Four birds of prey species were returned in the data search, comprising goshawk, marsh marrier, hobby, and barn owl. The grassland habitat may provide suitable foraging resources, though it is anticipated the wider agricultural fields will be of higher value. No trees were noted with hollows suitable for nesting owls and no owl pellets were observed throughout the site.

4.3.7 Bats

Preliminary Roost Assessment

A PRA was completed on all trees located on site. The majority of trees contained no PRFs or suitable holes/crevices deep enough for roosting opportunities and were assessed as having negligible bat roosting potential. A number of trees were found to have ivy coverage, however following inspection, they were deemed unsuitable in supporting roosting bats.

A single oak tree within the strip of woodland to the north of the site (located at UK Grid Reference: SJ 43656 96765) had a large bark cavity fissure within a branch upon the western facing aspect. This represents a potential roosting feature and therefore is classified as having low bat roost potential.

Commuting and Foraging Bats

The site hedgerows provide a linear habitat within the landscape for commuting bats, whilst the woodland, scrub and grassland habitats provide a suitable habitat for foraging bats.

The hedgerows on site provide connectivity to the wider agricultural fields to the south and east and may act as an important commuting feature across the site. Whilst the woodland edges may be utilised for commuting purposes also.

The site was assessed as having moderate value for commuting and foraging bats.

4.3.8 Hedgehog

The broadleaved woodland, hedgerow bases and scrub habitats will provide suitable cover and foraging habitats for the species. Hedgehog are deemed likely present on site.

4.3.9 Red Squirrel

Red squirrels have been identified within the local area, mostly associated within trees located 630m south of the site. No squirrel dreys were observed anywhere within the trees on site. The trees on site are all broadleaved, consisting mainly sycamore, oak, and beech varieties with larger seeds that are preferred by grey squirrels, so in isolation, are considered unsuitable for red squirrels, which prefer coniferous trees or those broadleaved that produce smaller seeds such as birch, rowan, willow, alder and ash.

Therefore, the likelihood of red squirrels occurring on site is considered to be negligible, however they are a highly mobile species and known to exist in the area and therefore may use the site rarely.

4.3.10 Water Vole

A network of drains lay within the northern woodland on site, comprising a number of dried out tributaries. Two tributaries contained low levels of water, however this does not comprise optimum habitat for water voles, having shallow, unclean water and poor bank vegetation, whilst lying immediately adjacent to a road.

The likelihood of water voles occurring on site is considered to be negligible and they are not discussed further within this report.

4.3.11 Otter

No suitable waterbodies lie on site, or within 30m of the site boundary, with Knowsley Brook representing the closest waterbody to the site, approximately 140m to the north. It is considered that the A580 will act as a significant dispersal barrier.

Otter are considered to be absent from the site and are not discussed further within this report.

4.3.12 Badger

No badger setts were noted on the site or within 30m where access was possible. Additionally, no evidence of badger activity was noted throughout the site, including snuffle holes, signs of digging, or latrines.

The hedgerow habitats may provide suitable sett-building habitat and badgers are widespread and capable of creating setts at any time of the year. Therefore, whilst badger is considered to only use the site for foraging purposes, they may become established on the site prior to development commencing.

Overall, badgers are anticipated to be in within the local area and utilise the site for foraging and commuting value.

4.4 Invasive Species

No invasive, non-native species were present on the site at the time of the field survey. However, it should be noted that some invasive non-native plants are very fast spreading and therefore the potential for these species to be introduced to the site at a later date cannot be ruled out.

5 Ecological Constraints and Recommended Mitigation

5.1 Proposed Development

The proposals include the development of three industrial units, with their associated hard and soft landscaping, including two potential attenuation ponds.

5.2 Designated Sites

A series of designated are located within proximity of the site, the closest of which is located approximately 400m from the site boundary. It is anticipated that the designated sites are a sufficient distance away and are separated by anthropogenic barriers such as the residential areas and major roads, such that no impacts as a result of development are anticipated.

5.3 Habitats

The site comprised habitats that were found to be widespread within the local area; however, they did contain value for wildlife such as bats, birds and terrestrial mammals. The broadleaved woodland and scattered broadleaved trees are of highest value, though the buildings may provide suitable roosting opportunities for bats.

5.3.1 Broadleaved Woodland and Trees

Urban trees and urban grassland habitats are listed upon the local North Merseyside Biodiversity Action Plan (LBAP).

The broadleaved woodland to the north of the site is classified as priority habitat deciduous woodland and therefore it is recommended that where possible, it should be retained and protected, via the use of tree root protection zones and fencing, and a 5m soft-landscaping buffer, within the final site design.

A Construction Environmental Management Plan (CEMP) should be implemented to protect the retained habitats, and should be adhered to within development, with a particular reference to the protection of woodland to the north of the site. In addition, habitats on site can be enhanced by the inclusion of a locally appropriate and native planting.

5.4 Fauna

5.4.1 Invertebrates

A range of habitats are present on site that could support invertebrates at all stages of their life cycle, with multiple records of notable invertebrate species returned within 1km of the site. This habitat contained ragwort which is the larval food plant of the cinnabar moth which was observed on site during the survey. If it is not possible to retain habitat within the final site layout, then native plant species such as ragwort should be planted on site as part of the landscape design.

5.4.2 Amphibians

Great crested newts were deemed unlikely to be present on site and no further consideration for the species is required. However, there is a possibility that common amphibians such as common toad may be present on site.

It is recommended that Reasonable Avoidance Measures are to be followed during site clearance. All site contractors are to be inducted to the potential presence of the species. Any debris is to be cleared

by hand, and any common amphibians located moved carefully, by hand, to outside of the development area.

5.4.3 Birds

Due to the majority of woodland requiring removal, and its potential value to support notable birds, it is recommended that further breeding bird surveys are completed to assess the sites value for birds (see Section 6). The survey results will inform the required mitigation due to the loss of breeding habitat.

Any vegetation removal (including grassland) should be undertaken outside of the breeding bird season (March to September, inclusive). If this is not possible, a suitably experienced ecologist should check the habitat for breeding bird activity no more than 48 hours before clearance. If nesting activity is found, nests must be left in situ until the young have fledged.

5.4.4 Bats

Roosting Bats

As stated in Section 4.3.7, a single oak tree within the strip of woodland to the north (T1) was assessed as having bat roosting potential. No further bat surveys are recommended to confirm presence or absence of roosting bats.

The tree (T1) should undergo reasonable avoidance measures. This would involve being inspected by a licensed bat worker with an endoscope before felling or utilising a soft felling technique (which involves practises like removing limbs separately and lowering them to the ground and then leaving for 24 hours before clearing).

Foraging and Commuting Bats

The habitats of highest potential value for commuting and foraging bats include the scrub, woodland and hedgerows. Due to the necessary loss of these habitats, it is recommended that further bat surveys are completed to determine the sites value for foraging and commuting bats (see Section 6). The survey results will inform proposed site layout and compensatory measures (if necessary).

Slow-flying species such as brown long-eared and Myotis species, which are known to be in the local area, are sensitive to lighting and may be impacted by the proposed development, should no mitigation for lighting be considered.

Lighting mitigation should follow the guidance outlined in the Institute for Lighting Engineers document “Guidance for the Reduction of Obtrusive Lighting” (2005) and BCT’s “Bats and Artificial Lighting in the UK” (2018).

Construction lighting should not be directed towards retained and surrounding habitats including the broadleaved woodland and grassland. The construction lighting may impact bats which are sensitive to light. Directional lighting will be achieved by angle and orientation of beam, use of a cowl, louvre or other light shield, or a combination of these.

An External Lighting Scheme had not been produced on the writing of this report. As such, the following recommendations are to be considered within the scheme during its condition, to minimise impacts of lighting. The recommendations are as follows:

- Keep site lighting to minimum levels.

- Luminaries should lack UV elements and preferably LED lighting with a warm white light should be used over cool white light (ideally <2700Kelvin).
- Lighting should feature peak wavelengths greater than 550nm.
- Internal lighting should be positioned away from windows to minimise light spill.
- Light placement should be downward facing to prevent excess horizontal or vertical light spill.
- The use of integrated fittings such as cowls, shields, louvres and hoods, that effectively contain light spill from unintended areas.
- The use of hard landscaping features to block light and create dark corridors.
- Avoid illuminating any retained and proposed habitats.
- Use of timed security lights should be set on motion-sensors and using short, 1-minute timers, to minimise light use.
- Column heights of lighting can be considered to minimise light spill.

5.4.5 Hedgehog

Hedgehog may be present on site, as such checks for hedgehogs should be carried out prior to vegetation removal. Should any hedgehogs be identified, they should be removed from the construction zone and covered.

5.4.6 Badgers

No badger setts or field signs were observed during the survey. The species may utilise the site for foraging purposes.

If a badger sett is discovered on, or within 30m of the site during the construction phase, it may be necessary to seek a licence from Natural England to permit sett disturbance or closure. Licences can be applied for at any time of the year, however, licenced works to allow either disturbance or sett closure are only permitted between July and November inclusive.

The following Precautionary Working Methods should be adhered to during construction phase to ensure that no badgers are impacted by the proposed development:

- All site operatives will be inducted to the potential presence of the species and the species legal protection.
- All site operatives will be inducted as to identifying potential badger setts and should be vigilant if they suspect they locate a new sett during works and inform the site manager immediately. A minimum 20m buffer will be maintained from the potential sett until an ecologist has been to site.
- All excavations will be battened at a 45-degree angle or ramps to be positioned to allow escape should animals become trapped.
- All site machinery and materials will be appropriately stored to avoid harm to the species, notably between July and November each year when extra care is needed to avoid potential impacts on pregnant females.

5.4.7 Red Squirrel

Although no evidence was found of red squirrels using the site during the field survey, they are likely present within the wider area. It may be possible that red squirrel may use the on-site scattered trees for foraging, although limited due to anthropogenic disturbances. As a precautionary measure, an inspection for red squirrel dreys should be completed no more than 48 hours prior to the felling of scattered trees to confirm continued absence of this species.

Furthermore, trees that are to be removed should be felled outside the red squirrel breeding season (February to September, inclusive which also considers nesting bird season) to minimise the impact to red squirrel (SNH, 2020).

6 Further Surveys

6.1 Bats

The site was assessed as having moderate suitability for foraging and commuting bats, and as such the sites require a series of night-time transect and static surveys prior to determination of the application. These activity surveys are required on site to determine how bats are using the site and to inform any mitigation proposals.

6.1.1 Transect Surveys

This will involve surveyors walking a pre-determined transect route recording any signs of bat activity they encounter, using the appropriate monitoring equipment. In accordance with the Bat Conservation Trust survey guidelines 3rd Edition (Collins, 2016). We have allowed five separate activity surveys to be undertaken, one per month.

Monthly transect surveys are required on warm, dry nights between April and October inclusive, and will be carried out in full accordance with the latest Bat Conservation Trust guidelines.

6.1.2 Static Surveys

Each transect survey will also include the deployment of two static detectors which will be left on site for five consecutive nights, in optimal weather conditions. The data collected on the static detector will be later analysed to provide further evidence of the site's use by foraging and commuting bats. The static is to be positioned on site once per month over the surveying season.

6.2 Breeding Birds

The survey will be based on the methodology for the Common Bird Census (CBC) Survey methodology and will consist of two surveys to be completed in June with at least ten days between each visit (due to seasonal constraints).

Survey visits will be undertaken on dry days with no more than moderate wind. Survey during dawn mist is acceptable but survey during dense fog will be avoided. Site visits would commence no later than one hour after sunrise. In order to avoid confusion and reduce survey bias in areas with high densities of birds the survey would be commenced towards the end of this window. In addition, the starting position would be varied between visits in order to reduce survey bias. In all cases survey would ideally be completed by 11am (12 noon at the latest).

All areas will be approached within 50m unless this is not practicable. In large expanses of open grassland or arable fields the boundaries will be walked and all birds within the field recorded. In other habitat where access and views allow, efforts will be made to record all bird activity within 50m of the survey route. Where no access is available, Public Rights of Way (PRoW) and local roads (where it is deemed safe to do so) will be utilised.

In all cases all birds seen or heard will be identified and recorded on a suitable scale map of the site to allow the information to be clearly recorded using standard British Trust for Ornithology (BTO) species and activity codes.

7 Opportunities for Enhancement

The National Planning Policy Framework (NPPF) (2019) highlights the requirement for planning policies and decisions to conserve and enhance the natural environment.

Paragraph 170 states that this should be achieved by (in terms of this assessment only):

- 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) *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*

Specific enhancement recommendations for the site include the following:

- Bat and bird boxes could be placed on the proposed industrial units and planted trees. A plan to show the locations of these boxes and the specifications should be produced by a suitably qualified ecologist once the layout is finalised.
- Planting of linear features such as hedgerows and trees between garden plots where possible, to add commuting features withing the site.
- The inclusion of ‘hedgehog highways’ to facilitate movement across the site. This includes holes of 13 x 13cm at the bases of fence panels, leaving a sufficient gap beneath gates and/or leaving brick spaces at the bases of brick walls.
- An ecologically sensitive planting scheme could be incorporated on the site to promote invertebrate use of the site, which could benefit local bat and bird species.
- Brash piles could be included within retained habitats to provide refugia and hibernacula for small mammals, common amphibians, and invertebrates.

8 Conclusion

The PEA has met the objectives of the report, by demonstrating the following:

- The major habitats identified on site included an arable field bound by hedgerows on the majority of aspects. Dense scrub and woodland comprise the northern aspect of the site.
- Potential ecological constraints identified included birds, bats, hedgehogs, red squirrel, invertebrates, badgers and common amphibians and are detailed in Section 5.
- Mitigation recommendations to be completed prior and during the construction phase for birds, bats, hedgehogs, red squirrel, invertebrates, badgers and common amphibians have been detailed in Section 5.
- Breeding bird and Bat Activity surveys are recommended to assess the sites value for these species, and determine mitigation measures.
- General ecological enhancements are listed within Section 7.

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Appendix 1 – Relevant Legislation

Legislation relating to European Protected Species (e.g. bats, otter, great crested newt)

European Protected Species and their resting places (e.g. bat roosts) are protected under the Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights of Way (CROW) Act 2000, and the Conservation of Habitats and Species Regulations 2017.

The Conservation of Habitats and Species Regulations 2017 transpose the European Union's 'Habitats Directive' (Council Directive 92/43/EEC) on the Conservation of Natural Habitats and of Wild Fauna and Flora (EC Habitats Directive) into UK law. The Regulations provide for the designation and protection of 'European Sites', the protection of 'European Protected Species' (EPS), and the adaptation of planning and other controls for the protection of European Sites. EPS are listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2017.

Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to:

- Intentionally kill, injure or take certain animals listed in Schedule 5;
- Intentionally or recklessly damage or destroy any structure or place which any wild animal specified in Schedule 5 uses for shelter or protection;
- Intentionally or recklessly disturb any such animal while it is occupying a structure or place which it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any structure or place which any such animal uses for shelter or protection.

In addition, under this legislation there are offences relating to sale, possession and control of wild animals listed in Schedule 5.

- Under the Conservation of Habitats and Species Regulations 2017 it is an offence to:
- Deliberately capture, injure or kill any wild animal listed as a European Protected Species;
- Deliberately disturb wild animals of any such species in such a way as to be likely:
- to impair their ability:
 - to survive, to breed or reproduce, or to rear or nurture their young, or;
 - in the case of animals of a hibernating or migratory species, to hibernate or migrate, or;
- to affect significantly the local distribution or abundance of the species to which they belong.
- Deliberately take or destroy the eggs of such an animal, or;
- Damage or destroy a breeding site or resting place of such an animal.

In addition, under this legislation there are offences relating to possession, control sale and exchange of an EPS.

Great crested newt, otter and several species of bat are listed as a Species of Principle Importance (SoPI) under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

Legislation for white-clawed crayfish

White-clawed crayfish are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this act it is an offence to:

- Intentionally take white-clawed crayfish from the wild; and,
- Sell or attempt to sell, any part of a white-clawed crayfish, alive or dead, or advertise that one buys or sells, or intends to buy or sell any part of a white-clawed crayfish.

The white-clawed crayfish is listed under Annex II and V of the EC Habitats Directive. The Conservation of Habitats and Species Regulations 2010 implements the European Union's 'Habitats Directive' (Council Directive 92/43/EEC (a) on the Conservation of Natural Habitats and of Wild Fauna and Flora) in Great Britain. Annex II requires that Special Areas of Conservation (SAC) are established specifically to conserve this and other listed species. In a SAC designated for white-clawed crayfish a precautionary principle must be applied when considering the potential impacts of any operations that may affect white-clawed crayfish and their habitat.

White clawed crayfish are listed as a SoPI under Section 41 of NERC Act 2006.

Legislation for amphibians (other than great crested newt)

Under the Wildlife and Countryside Act 1981 (as amended) the four widespread amphibian species, smooth newt (*Triturus vulgaris*), palmate newt (*Triturus helveticus*), common toad (*Bufo bufo*) and common frog (*Rana temporaria*) receive limited protection through section 9(5) only which makes selling, offering for sale, possessing or transporting for the purpose of sale (live or dead animal, part or derivative) an offence.

Common toad is listed as a SoPI under Section 41 of the NERC Act 2006.

Legislation relating to reptiles

All native reptile species have some degree of protection in the UK, through section 9(1) and (5) (specified in Schedule 5) of the Wildlife and Countryside Act 1981 (as amended). There are two different levels of protection afforded to reptiles through this legislation according to species and this is described in more detail below.

Full Protection

Sand lizard (*Lacerta agilis*) and smooth snake (*Coronella austriaca*) are afforded protection under The Conservation of Habitats and Species Regulations 2010 (are species of European importance) and are fully protected under the Wildlife and Countryside Act 1981 (as amended) and the CRow Act (2000). The Conservation of Habitats and Species Regulations 2010 implements the European Union's 'Habitats Directive' (Council Directive 92/43/EEC (a) on the Conservation of Natural Habitats and of Wild Fauna and Flora) in Great Britain. The relevant sections of this legislation make it an offence to:

- Intentionally kill, injure or capture or take a reptile;
- Possess or control (live or dead animal, part or derivative);
- Deliberately (intentionally) or recklessly damage, destroy or obstruct access to a breeding site or any structure or place used for shelter or protection by a reptile;
- Disturb whilst the reptile is occupying such a structure or place; and

- Sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative).

Sand lizard and smooth snake are listed as a SoPI under Section 41 of the NERC Act 2006.

Protection against killing, injuring and trade

This level of protection under section 9 (parts 1 and 5) applies to the four widespread species of reptile, namely the common lizard (*Zootoca vivipara*), slow-worm (*Anguis fragilis*), grass snake (*Natrix natrix*) and adder (*Viper berus*). Only part of sub-section 9(1) applies, which make it an offence to:

- Intentionally kill or injure, and
- Sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative).

Grass snake, slow-worm and adder are all listed as SoPI under Section 41 of the NERC Act 2006.

Legislation relating to breeding birds

All birds, their nests and eggs are protected by the Wildlife and Countryside Act 1981 (as amended) and it is an offence, with certain exceptions, to:

- Intentionally kill, injure or take any wild bird;
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built;
- Intentionally take or destroy the egg of any wild bird; and
- Intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building or is in, on or near a nest with eggs or young; or disturb the dependent young of such a bird.

Schedule 1 of the Wildlife and Countryside Act 1981 provides further protection for selected species (including peregrine falcon (*Falco peregrinus*), barn owl (*Tyto alba*), little ringed plover (*Charadrius dubius*) and black redstart (*Phoenicurus ochruros*) during the breeding season. If any person intentionally or recklessly disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or disturb dependent young of such a bird. That person shall be guilty of an offence.

A number of bird species are listed as SoPI under Section 41 of the NERC Act 2006.

Conservation status - Birds of Conservation Concern (Eaton et al., 2015)

The UK's leading bird conservation organisations have worked together on the third quantitative review of the status of the birds that occur regularly in the UK, updating the last review in 2011. The status of birds within the UK have been regularly monitored through a series of surveys, including the national Breeding Bird Survey, Common Bird Census, sea bird monitoring programs and wetland monitoring programs. The result of this review and continued monitoring is The Population Status of Birds in the UK, Birds of Conservation Concern 4: 2015.

Birds are assessed against criteria to place each species on one of three alert lists, red, amber or green. Red list species are considered to be of high conservation concern, being either globally threatened, having historical UK population declines, having a rapid population decline or breeding range contraction of 50% or more in the last 25 years.

Amber list species are considered to be of medium conservation concern as they meet one or more of the following criteria (but none of the red list criteria): Red listed for historical decline in a previous review but with substantial recent recovery (more than doubled in the last 25 years), a UK breeding range contraction of between 25% and 49%, a reduction of breeding or non-breeding population of 25-49% in the last 25 years, a 5-year mean of 1-300 breeding pairs in the UK, an unfavourable European conservation status, at least 50% of the UK breeding population found in 10 or fewer sites, or where the breeding population in the UK represents 20% or more of the European breeding populations.

Green list species are considered to be of low conservation concern. They include all regularly occurring species that do not qualify under any of the red or amber criteria are green listed. The green list also includes those species listed as recovering from Historical Decline in the last review that have continued to recover and do not qualify under any of the other criteria.

Legislation relating to badger

Badgers are protected under the Protection of Badgers Act 1992 (as amended) which makes it an offence to:

- wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so;
- intentionally or recklessly damage, destroy or obstruct access to a badger sett; and
- disturb a badger when it is occupying a sett.

These provisions have implications for construction or preparation works undertaken in the vicinity of an active sett and may be confounded by distance from the sett entrance. Any works resulting in ground penetration, vibration or noise near an identified badger sett entrance/s have the potential to disturb badgers and advice should be sought from a suitably experienced ecologist under such circumstances. If disturbance to an active sett is probable, then a licence may need to be obtained from Natural England before any works commence.

Legislation relating to water vole

The water vole is fully protected under Section 9 of the Wildlife & Countryside Act 1981 (as amended) through its inclusion in Schedule 5. The legal protection makes it an offence to:

- Intentionally kill, injure or capture or take a water vole;
- Possess or control (live or dead animal, part or derivative);
- Deliberately (intentionally) or recklessly damage, destroy or obstruct access to a breeding site or any structure or place used for shelter or protection by a water vole;
- Deliberately (intentionally) or recklessly disturb a water vole whilst occupying such as structure or place, and
- Sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative).

Water vole is listed as a SoPI under Section 41 of the NERC Act 2006.

Legislation relating to invasive plant species

Several non-native invasive plant species including (but not limited to) Himalayan balsam (*Impatiens glandulifera*), giant hogweed (*Heracleum mantegazzianum*), Japanese rose (*Rosa rugosa*), variegated

yellow archangel (*Lamiastrum galeobdolon*), rhododendron (*Rhododendron ponticum*) and Japanese knotweed (*Fallopia japonica*) are listed under Schedule 9 of the Wildlife and Countryside Act, 1981 (as amended), which makes it an offence to ‘...plant or otherwise cause the species to grow in the wild’. This includes spreading or transferring contaminated soil from one area to another.

Estate Managers and landowners have a duty to pro-actively treat knotweed outbreaks. Under the Natural Environment and Rural Communities Act 2006 (NERC), subsection 14ZA (1), makes it is an offence to sell, offer or expose for sale, or to have in one’s possession or transport for the purpose of sale, any Schedule 9 animal or plant or anything from which such an animal or plant can be propagated, including rhizomes of Japanese knotweed. Under subsection 14ZA (2) it is also an offence to publish or cause to be published any advertisement for the purchase or sale of these animals and plants.

The Environmental Protection Act 1990 (EPA 1990) contains a number of legal provisions concerning controlled waste. Any Japanese knotweed contaminated soil or plant material that is intended for discard is likely to be classified as controlled waste.

The Environmental Protection (Duty of Care) regulations 1991 also imposes a ‘duty of care’ on persons concerned with controlled waste, which includes any materials incorporating Japanese knotweed including soil, grass cuttings, general wastes and ash arising from the burning of knotweed. The duty applies to any person, who produces, imports, carries, keeps, treats or disposes of controlled waste. Failure to appropriately dispose of any material containing Japanese knotweed may lead to prosecution under Section 33 and 34 of the EPA 1990 and Section 14 (2) of the Wildlife & Countryside Act 1981 (as amended).

If knotweed stands are to be treated with herbicides, The Control of Pesticides Regulations (1986) applies. These regulations require any person who uses a pesticide to take all reasonable precautions to protect the health of human beings, creatures and plants, safeguard the environment and in particular avoid the pollution of water. If pesticides are to be used in or near to a watercourse, the Environment Agency should be contacted, and approval must be sought (application to use herbicides in or near water).

Waste leaving the site must be handled responsibly and in accordance with the law at all stages between its production and final recovery or disposal. Waste must be transferred to an authorised person, who is either a registered waste carrier or exempted from registration by the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991.

Additional legislation regarding the transport of Japanese knotweed contaminated materials is covered by the Hazardous Waste Regulations 2005 (HWR, 2005). This contains provisions about the handling and movement of hazardous waste. Consignment notes must be completed when any hazardous waste is transferred, which includes details about the hazardous waste properties and any handling requirements. Untreated Japanese knotweed is not classed as hazardous waste, but material containing knotweed which has been treated with certain herbicides, may be classified as hazardous waste.

If any waste soil or knotweed is sent for landfill either before or after treatment, it must go to a landfill that is authorised to receive it.

The Hedgerows Regulations 1997

The Hedgerows Regulations 1997 were introduced to protect hedgerows of importance from destruction. However, the legislation does not apply to any hedgerow (even if it is within the list above) which is within or marking the boundary of the curtilage of a dwelling house.

For the Regulations to be applicable, the hedgerow must be at least 20 metres in length or, if less than 20 metres, it must meet another hedgerow at each end. A hedgerow is deemed to be important if it is more than thirty years old and meets at least one of the criteria listed in Part II of Schedule 1 of the Regulations.

If a hedgerow which qualifies under the Regulations is to be removed, the landowner must contact the Local Planning Authority (LPA) in writing by submitting a hedgerow removal notice. The LPA then has a period of 42 days to decide whether or not the hedgerow meets the importance criteria of the regulations.

Bluebells

Bluebells are protected by the *Wildlife & Countryside Act 1981* (as amended). It prohibits anyone from digging up bulbs in the countryside and landowners from removing bluebells from their land for sale. The species was also listed on Schedule 8 of the Act in 1998 which makes trade in wild bluebell bulbs or seeds an offence.

Appendix 2 – Habitat Map and Target Notes

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- Red Line Boundary
- Defunct species-poor hedgerow
- Intact species-poor hedgerow
- Coniferous trees
- Running water
- Bracken
- Arable
- Bare Ground
- Semi-natural broadleaved woodland
- Dense Scrub



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Phase 1 Habitat Map

Issue:

Planning

Drawn:	Checked:	Approved:
CL	MB	MB

Project:	Scale @ A3:	Date:
UG45	1:1500	07/04/2022

Dwg No:	Revision:
UG_45_ECO_HM_01	03

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