Preliminary Ecological Appraisal – *Final report*

Land off Moat Lane, South Killingholme, North Lincolnshire

December 2023

Prepared by Ecologist Elizabeth Fenn BSc (Hons) on behalf of:

John Box Associates

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Report Overview	
Scheme reference	Land off Moat Lane, South Killingholme, Lincolnshire
Works extent	Existing land to be developed into four residential dwellings
Revision	Version 1 (Final)
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Prepared by	[redacted] Elizabeth Fenn BSc (Hons) – Ecologist
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Acknowledgements

Archer Ecology Ltd would like to thank Lincolnshire Environmental Records Centre (LERC) for the provision of historical ecological records and details of non-statutory designated sites to supplement the findings of this report.

EXECUTIVE SUMMARY

Archer Ecology Ltd was commissioned by John Box Associates to complete a Preliminary Ecological Appraisal (PEA) to inform proposals for a residential development comprising four dwellings. The application site is a parcel land to the rear of Moat Lane in the village of South Killingholme and lies approximately 13km south-east of the town of Barton-upon-Humber in North Lincolnshire.

As part of the commission, an Extended Phase 1 Habitat Survey of the application site was carried out by Ecologist Elizabeth Fenn BSc (Hons) of Archer Ecology Ltd on 14th November 2023. The walkover was supplemented by historical records of protected species, Priority Habitats and statutory/non-statutory designated nature conservation sites falling within 2km of the application site; These were obtained through consultation with the Lincolnshire Environmental Records Centre.

A summary of mitigation advice, pertaining to ecological receptors, is given in Table 1, below. This advice would require revising should details of the location, nature and/or extent of the works be altered from those stipulated in this report.

Table 1 – Overview of findings and recommendations

Biodiversity
In order to appraise the impacts of the proposed works on the existing biodiversity, it is recommended that a dedicated biodiversity assessment is undertaken to address the full extent of expected habitat loss. Using the latest Natural England Biodiversity Metrics calculator (version 4.0), the assessment would examine the changes in the pre-works and post-works biodiversity units scoring for each habitat established within the zone of influence and make realistic recommendations to achieve net gain by means of habitat creation, retention and/or succession, where practicable. It is further proposed that any introduced landscaping incorporates native, species-rich plants and shrubs of local provenance. Species of greatest value to pollinators, and other aerial invertebrate should be sought as this offers a greater potential food source for locally foraging bats, mammals, avifauna and herpetofauna.
Safeguarding hedgerows and trees
Where practicable, the proposed works should seek to retain all trees and hedgerows, and should be undertaken in a sensitive manner with consideration to the fragility of these vulnerable areas, including the placement of track matting across areas proposed for vehicle and plant movements. Where habitat loss is unavoidable, measures to appropriately reinstate the habitat should be considered and implemented long-term. For any works proposed immediately adjacent to trees and hedgerows, it is further recommended that measures are employed to appropriately safeguard these habitats. Following advice contained

within *British Standard (BS) 5837 – Trees in Relation to Construction*[1], protective barrier fencing could be installed immediately outside of the Root Protection Areas (RPA), which will remain in situ during the intervention works. RPAs chiefly represent the full canopy cover of individual trees and should be considered as Construction Exclusion Zones (CEZs). There must also be no raising or excavating of the ground within the CEZ.

Herpetofauna

As a precautionary measure to mitigate the potential to harm single and/or small populations of amphibians during the site preparatory works, it is advised that a bespoke Amphibian and Reptile Method Statement is followed (see Appendix IV).

It is advised that a compensatory amphibian/reptile brash pile is created to be positioned adjacent the boundary of the application site. This will be constructed from log/brash piles which provide potential refuge for amphibians and reptiles in addition to sheltering mammals and prey invertebrate. Following advice produced by Amphibian and Reptile Ground (ARG), the brash pile will be created using logs and tree branches to be piled in a heap. The brash pile should ideally measure 2-8m in length and 1-1.5m in height. The brash pile can be overlain with smaller deposits of organic material, such as wood chippings and grass cuttings.

Nesting birds

As a precautionary measure, any vegetation removal should be completed outside of the main nesting bird season (nesting season runs March-August, inclusive), where practicable. Should these works be scheduled during the main nesting bird season, all suitable habitats for nesting activity should be firstly checked by a suitably experienced ecologist in advance. If active nests are found, these must be fully safeguarded and left undisturbed until all chicks have fledged.

As an optional enhancement, it is proposed that one integrated swift brick/box and one small bird box is installed onto every new dwelling.

Roosting bats

In the first instance it is recommended that all trees on the site are retained. Should trees appraised as having PRF-I roosting potential be subjected to felling in future, it is advised that this is completed in a manner that is sensitive to roosting bats, whereby:

- The trees/limbs should be sawn in sections and any observable potential roosting features (such as lifted bark, knot holes, splits and crevices) should avoid being sawn through.

[1] BSI Standard Publications *BS 5837:2010 Trees in relation to design, demolition and construction. Recommendations*

• Each section should then be carefully lowered to the ground with any potential roosting features left on the upper most surface. • The sawn sections should then remain on the ground for a period of 24 hours to allow any bats to leave overnight before they are removed from the site.
Foraging bats
As a precautionary measure and in order to avoid impacts upon nocturnal bat activity, dark and unlit corridors should be maintained around and across the site, allowing bats to pass through unhindered by artificial light. All introduced lighting must be sensitive to nocturnal bat activity and be curtailed to avoid impacting light-sensitive bat species. Introduced lighting should be positioned at a minimum of 7m from tree lines, woodland and hedgerows. Mercury or metal halide lamps must also be avoided. The hours of illumination could be restricted to provide a minimum of 8 hours of darkness per night. Introduced lighting should further comprise a maximum of 1 lux which is comparable to moonlight conditions.
Badger
All excavations required as part of the works should be covered overnight to avoid the accidental trapping of badgers and other terrestrial mammals.
Oher animals
Porous hedgehog friendly fencing should be used within and around the site. Night lighting of the construction site should be minimised as far as possible.

Contents

1.0 INTRODUCTION

1.1 Background

1.1.1 Archer Ecology Ltd was commissioned by John Box Associates to complete a Preliminary Ecological Appraisal (PEA) to inform proposals for the development of four dwellings to the rear of existing residential dwellings. The application site is located to the rear of Moat Lane in the village of South Killingholme and lies approximately 13km south-east of the town of Barton-upon-Humber in North Lincolnshire.

1.1.2 The location of the application site – centred at Ordnance Survey Grid Reference (OSGR) TA 15017 16428 - is shown in Figure 1, below.

Figure 1 – Location of the site in context with the local landscape

1.2 Objectives

1.2.1 The purpose of this report is to identify any potential ecological receptors occurring within or adjacent to the proposed works area. These include protected species, habitats and designated nature conservation sites.

1.2.2 This report also details any potential ecological constraints to the works (e.g., invasive plants), the requirement for any further ecological survey and/or monitoring works and provides details of proportionate mitigation measures, where appropriate.

2.0 PLANNING POLICY AND LEGISLATION

2.1 Natural Environment and Rural Communities Act

2.1.1 There is a requirement under Section 40(1) and (2) for each Secretary of State to take steps '*to be reasonably practicable to further the conservation of the living organisms and types of habitat*' included in the list and there is a legal obligation on public bodies in England to have regard to these organisms and habitats whilst carrying out their functions.

2.1.2 Currently, there are 56 habitats and 943 species of principal importance included on the S41 list.

2.2 Biodiversity Compliance

2.2.1 The United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit, was held in Rio de Janeiro in 1992 and produced the 'Biodiversity: The UK Biodiversity Action Plan (BAP) (UK Biodiversity Partnership, 2007[2]) which lists priority species and habitats in the UK requiring conservation action.

2.2.2 The goal of the UK BAP is to '*Conserve and enhance biological diversity within the UK and contribute to the conservation of global biodiversity through all appropriate mechanisms*.' The UK BAP now includes 1,150 species and 65 habitats; these are allocated individual action plans for conservation known as Species Action Plans (SAPs) and Habitat Action Plans (HAPs).

2.2.3 As a signatory to the Convention on Biological Diversity (CBD) which was opened at the Earth Summit and entered into force in 1993, Local Biodiversity Action Plans (LBAPs) were developed by local authorities and counties to conserve fauna, flora and habitats at a local level.

2.3 National Planning Policy Framework

2.3.1 National Planning Policy Framework (NPPF) is the top tier of planning policy and sets out the government's planning policies for England and how these should be applied. NPPF also sets guidance to local authorities on planning policy within the planning system.

[2] UK BAP. UK Biodiversity Action Plan – Priority Species and Habitats [online]. Available at: https://webarchive.nationalarchives.gov.uk/20110303145245/http://www.ukbap.org.uk/newprioritylist.aspx [Accessed October 2023].

2.3.2 Section 15 relates to 'Conserving and enhancing the natural environment'. Relevant policies in relation to planning applications include:

Paragraph 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

Paragraph 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[61]; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation[62]; 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.

Paragraph 180. "When determining planning applications, local planning authorities should apply the following principles:

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;

a) *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;*

b) *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[63] and a suitable compensation strategy exists; and*

c) *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.*

Paragraph 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[64]; 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.*

Paragraph 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.

2.4 The North Lincolnshire Local Development Framework

2.4.1 The North Lincolnshire Local Development Framework is a suite of Development Plan Documents (DPDs) which set out the local planning policy for the area. Relevant policies in relation to this planning application include:

- CS17: BIODIVERSITY The council will promote effective stewardship of North Lincolnshire's wildlife through:
    1. Safeguarding national and international protected sites for nature conservation from inappropriate development.
    2. Appropriate consideration being given to European and nationally important habitats and species.
    3. Maintaining and promoting a North Lincolnshire network of local wildlife sites and corridors, links and stepping-stones between areas of natural green space.
    4. Ensuring development retains, protects and enhances features of biological and geological interest and provides for the appropriate management of these features.
    5. Ensuring development seeks to produce a net gain in biodiversity by designing in wildlife, and ensuring any unavoidable impacts are appropriately mitigated for.
    6. Supporting wildlife enhancements that contribute to the habitat restoration targets set out in the North Lincolnshire's Nature Map and in national, regional and local biodiversity action plans.
    7. Improving access to and education/interpretation of biodiversity sites for tourism and the local population, providing their ecological integrity is not harmed.

3.0 METHODOLOGY

NB: Detailed methodologies pertaining to individual protected species are included under Appendix I of this report.

3.1 Overview

3.1.1 A PEA was undertaken of the site following guidance produced by the Chartered Institute of Ecology and Environment Management (CIEEM)[3]. The assessment included:

- A desk-based search for historic records of protected, notable and invasive non-native species on the site and local vicinity. Data for locally and nationally designated nature conservation sites were obtained;
- An ecological walkover survey of the proposed works area (shown in Figure 1). The study area was extended beyond the works area, where appropriate, e.g., to undertake species-specific surveys;
- Identification of invasive non-native species; and
- Assessment of the potential impacts of the proposed works on habitat and floral/faunal receptors, as well as designated sites.

3.2 Desk study

3.2.1 To supplement the ecological walkover survey, a desktop study was undertaken in November 2023. This included a search of data, including protected species and statutory and non-statutory designated nature conservation sites, using the following resources:

- Lincolnshire Environmental Records Centre (LERC);
- Multi Agency Geographic Information for the Countryside (MAGIC)[4]; and
- Aerial imagery.

3.2.2 The following geographical extents of the search area for potential zones of influence for nature conservation sites were considered to be appropriate:

- 10km from the site for sites of International Importance (e.g., Special Area of Conservation (SAC));

[3] CIEEM (2017) *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

[4] www.magic.gov.uk accessed November 2023

- 2km from the site for sites of National or Regional Importance (e.g., Sites of Special Scientific Interest (SSSI)); and
- 2km from the site for protected/notable species (including biological records, post-2000) and non-statutory designated sites (e.g., Local Wildlife Sites (LWS)).

3.3 Field survey

3.3.1 An Extended Phase 1 Habitat Survey was completed on 14th November 2023 by Ecologist Elizabeth Fenn BSc (Hons) MCIEEM. Elizabeth is a qualifying member of CIEEM and has 4 years' combined experience undertaking ecological surveys.

3.3.2 The survey was completed in accordance with 'Extended Phase 1' methodology[5] and involved identifying notable/protected habitats and evidence of protected species on or adjacent to the site as well as determining the potential of the site for protected species inhabitancy, based on habitat quality and known historic presence. Photographs taken during the survey, referenced within Section 4.2 of this report, are shown under Appendix II. A detailed JNCC Phase 1 Habitat Survey Map is included under Appendix III; Ecological features of particular interest are denoted as Target Notes (TN).

3.4 Survey limitations

3.4.1 An absence of desk study records cannot be relied upon to infer the absence of a species/habitat as a lack of records may be a result of under-recording within a given search area. Phase 1 Habitat survey aims to characterise the habitat on site and is not intended to give a complete list of plant species present.

3.4.2 The walkover was completed in mid-November which falls outside of the main botanical growing season. It is, therefore, possible that some floral species, including invasive non-native species, were not visible at the time of the walkover. However, it is expected that the remnants of any prominent, dead stands may remain visible.

3.5 Scoped out

3.5.1 Given a lack of suitable habitat opportunities for white-clawed crayfish *Austropotamobius pallipes*, otter *Lutra lutra* and water vole *Arvicola amphibius*, these protected faunae have been scoped out of the assessment.

[5] Joint Nature Conservation Committee (2010) *Handbook for Phase 1 Habitat Survey. A Technique for Environmental Audit.*

4.0 RESULTS

4.1 Statutory Designated Nature Conservation Sites

European / International designated sites for nature conservation

4.1.1 The Humber Estuary Special Protection Area (SPA), Special Area of Conservation (SAC) and Ramsar site occurs within 10km of the application site. Details of the interest features forming this statutory multi-designated nature conservation site are summarised in Table 2, below.

Table 2 – Ramsar site/SPA/SAC occurring within 10km of the application site

SPA/ SAC/Ramsar	Interest features	Proximity to site
Humber Estuary Ramsar/SPA/SAC	The Humber Estuary separates the historic counties of Yorkshire and Lincolnshire. The Special Area of Conservation (SAC) extends about 70km from the mouth of the Humber, past the ports of Grimsby, Immingham, Hull and Goole and up to the limit of saline intrusion on the rivers Ouse and Trent. The Humber Estuary is a large estuary with a high tidal range (macro-tidal). The high suspended sediment loads in the estuary feed a dynamic and rapidly changing system of accreting and eroding intertidal and sub-tidal mudflats and sandflats as well as saltmarsh and reedbeds. Other notable habitats include a range of sand dune types in the outer estuary, together with sub-tidal sandbanks and coastal lagoons. A number of developing managed realignment sites on the estuary also contribute to the wide variety of estuarine and wetland habitats. The estuary supports a full range of saline conditions from the open coast to the limit of saline intrusion. As salinity declines upstream tidal reedbeds and brackish saltmarsh communities fringe the estuary. Significant fish species include river lamprey (Lampetra fluviatilis) and sea lamprey (Petromyzon marinus) which migrate through the estuary to breed in the rivers of the Humber catchment. Grey seals (Halichoerus grypus) come ashore in autumn to form large breeding colonies on the sandy shores of the south bank around Donna Nook.	3.5km west

SPA/ SAC/Ramsar	Interest features	Proximity to site
	In addition to hosting an impressive array of habitats and species, the Humber Estuary is also an important industrial area and busy commercial waterway, and is a major contributor to the local and national economy. The estuary houses the largest shipping complex in the UK, with the ports of the estuary accounting for 13-15% of the UK seaborne trade. Industries along the estuary include chemical works, oil refinery complexes and power stations, with most of this activity located on the south bank of the middle estuary and around Hull on the north bank[6].	

4.1.2 Considering the localised nature of the proposed development and given the wide level of separation between the application site and the Humber Estuary SPA, SAC and Ramsar site, the works are not predicted to directly impact upon the habitat interest features forming this European/internationally designated nature conservation site. Furthermore, the application site is not expected to retain a significant level of hydrological connectivity to the SPA and Ramsar site, nor does it have the capacity to alter the conditions of its inherent habitat features.

4.1.3 Therefore, the Humber Estuary SPA, SAC and Ramsar site are not considered further within this report.

Nationally designated sites for nature conservation

4.1.4 No nationally designated nature conservation sites were identified within 2km of the application site, however the site sits within the impact risk zones for Humber Estuary SSSI and North Killingholme Haven Pits SSSI occurring >3.5km and >3.3km (respectively) of the application site. The interest features forming the Humber Estuary SSSI include those forming the associated Ramsar site, SPA and SAC designations (refer to Table 2 and aforementioned report Sections 4.1.1-4.1.2).

4.1.5 Details of the interest features forming North Killingholme Haven Pits SSSI are summarised in Table 3, overleaf.

[6] Natural England – *Humber Estuary SPA Citation (Online)* Available at: Designated Sites View (naturalengland.org.uk) (Accessed November 2023).

Table 3 – SSSI's occurring within the impact risk zone

SSSI	Interest features	Proximity to site
North Killingholme Haven Pits SSSI	*North Killingholme Haven Pits are situated adjacent to the Humber Estuary near Immingham on the south bank. The main reasons for notification of these pits are their importance as large saline lagoons with an exceptionally rich fauna, and their significance as roosting and feeding grounds for waterfowl, which occur in internationally important numbers in the Humber Estuary in winter. The site comprises three pits of differing size and salinity, both factors, which contribute to its national and local importance. Nine species of specialist lagoonal species recorded from the pits include the polychaete worm Alkmaria romijni, which is known from just four sites in Great Britain. Other species of note include the prawn Palaemonetes varians, the molluscs Hydrobia ventrosa and Hydrobia neglecta and the bryzoan Conopium seurati. The number of specialist lagoonal species is exceptionally high in North Killingholme Haven Pits and particularly so for their latitude. Water levels within the lagoons vary and provide expanses of open mud for visiting waterfowl, especially waders. Amongst these are nationally important numbers of black-tailed godwits (Limosa limosa), which have visited the site in increasing numbers since the late 1980's. There are also occasional visits by large flocks of roosting redshank (Tringa totanus). These visitors indicate that North Killingholme Haven Pits form an integral part of the estuarine feeding and roosting opportunities for the internationally important populations of winter waterfowl for which the Humber Estuary is noted. The lagoons are fringed with common reed Phragmites australis and sea club-rush Scirpus maritimus and this fringe provide valuable feeding and breeding grounds for a range of summer migrants such as reed (Acrocephalus scirpaceus) and sedge warblers (Acrocephalus schoenobaenus). The seed heads of the reeds are also a food supply for bearded tit (Panurus biarmicus), which*	>3.3km north-east

SSSI	Interest features	Proximity to site
	occur along the Humber Estuary in nationally important numbers. Bittern (Botaurus stellaris) are also regular winter visitors. The site id fringed in places with thick hawthorn (Cratageus monogyna) scrub which also provides important bird habitat, including a roost of up to five long-eared owls which also breed here and are of particular local importance[7]*.*	

4.1.6 Natural England (NE) consider that the following types of works may impact the interest features of the SSSIs:

- Infrastructure - Pipelines and underground cables, pylons, and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads, and other aviation proposals.
- Wind and solar energy – Solar schemes with a footprint of over 0.5ha, and all wind turbines.
- Minerlals, oil and gas - Planning applications for quarries, including new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.
- Rural non-residential - Large non-residential developments outside existing settlements/urban areas where footprint exceeds 1ha.
- Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas.
- Air pollution - Any industrial/agricultural development that could cause air pollution including: industrial processes, livestock and poultry units with floorspace of over 500m², slurry lagoons and digestate stores of over 750m² and manure stores of over 3500t.
- Combustion and waste - General combustion processes with over 50MW of energy input. Including energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.

[7] Natural England – *North Killingholme SSSI (Online)* Available at: File Ref: (naturalengland.org.uk) (Accessed November 2023).

- Waste – Landfill, including inert landfill, non-hazardous landfill and hazardous landfill.
- Discharges - Any discharge of water or liquid waste of more than 5m³/day to ground (ie to seep away) or to surface water, such as a beck or stream.

4.1.7 As the proposals do not meet the criteria of the these activities, and in view of the localised nature of the proposed works and wide level of separation between the application site and this statutory designated site, the works are not expected to adversely impact upon the integrity of interest features which form this designation. Subsequently, statutory designated sites are not considered to be potential receptors with regards to the proposed works

Non-statutory designated sites for nature conservation

4.1.8 The LERC identified three Local Wildlife Sites (LWSs) within a 2km radius of the application site. Details on the interest features forming these non-statutory designated sites, and proximity to the application site, are summarised in Table 4, below

Table 4 – Non-statutory sites occurring within 2km of the application site

LWS	Interest features	Proximity to site
Eastfield Road Railway Embankment LWS	Main habitat: Neutral and calcareous grassland, woodland Additional habitat: Scattered and dense scrub Additional features: Abundant nectar sources, varied sward height, anthills, south facing slopes, earthworks/hummocky ground	>635m north
Mayflower Wood Meadow LWS	Main habitat: Unimproved neutral grassland and Coarse grassland Additional habitat: Semi-natural woodland Additional features: Abundant nectar sources, Structural diversity, Ridge and furrow	>1km south-west
Birkenshaw's covert LWS	Main habitat: Woodland Additional habitat: Scattered scrub, marsh/fen, ruderal, standing water Additional features: Seasonally wet/damp areas	>1.9km north-east

4.1.9 In view of the localised nature of the proposed works, and wide level of separation between the application site and these non-statutory designated sites occurring within a 2km radius of the site, the works are not expected to adversely impact upon the integrity of interest features which form these designations. Subsequently, non-statutory designated sites are not considered to be potential receptors with regards to the proposed works.

Priority Habitats

4.1.10 A search using MAGIC identified that no UKBAP Priority Habitats occur on or within significant proximity to the application site. Subsequently, priority habitats are not considered to be potential receptors with regards to the proposed works.

4.1 Extended Phase 1 Habitat Survey

4.1.1 The application site is situated on the outskirts of a principally residential setting and lies in the village of South Killingholme in the North Lincolnshire district of Lincolnshire. Land surrounding the site supports residential properties to the south and a small, wooded area to the north, beyond which are playing fields and tree lines. All habitats recorded within the application site boundary are described under the following sub-headings.

A3.1 – Parkland/scattered trees – Broadleaved

4.1.2 Scattered trees occur along and beyond the northern and eastern site boundaries, some of which encroach onto the application site (see Photographs 1 and 2, Appendix II). These are chiefly composed of mature and semi-mature specimens of hawthorn *Crataegus monogyna* and silver birch *Betula pendula*. These scattered trees appeared to receive no or low management interventions, with many trees covered with dense common ivy *Hedera helix*. The understories are typically dominated by ivy.

4.1.3 In view of the maturity of the trees and limited diversity of tree species, this habitat is assessed as having potentially moderate nature conservation value on a local scale. This habitat was also considered to be of sufficient density to support potential herpetofaunal and avifaunal inhabitancy, with trees also exhibiting potential bat roosting features.

J1.1 – Cultivated/ Disturbed Land – Amenity Grassland

4.1.4 A margin of amenity grassland is present within the southern periphery of the application site (see Photograph 3, Appendix II). This comprised of a varying short and moderate sward height

and is composed of abundant perennial rye-grass *Lolium perenne* together with frequent daisy *Bellis perennis,* common nettle *Urtica dioica,* cow parsley *Anthriscus sylvestris,* occasional broad-leaved dock *Rumex obtusifolius*, meadow buttercup *Ranunculus acris* and cleavers *Galium aparine*.

4.1.5 In view of the low diversity of species, amenity grassland is appraised to be of low nature conservation value on a site scale.

J1.1 – Cultivated/ Disturbed Land – Ephemeral/ Short Perennial

4.1.6 The majority of the site is dominated by short ephemeral/short perennial vegetation (see Photograph 4, Appendix II) comprising of common ivy, nettle *Urtica dioica* and cow parsley *Anthriscus sylvestris* at a short sward height. Cleavers, bramble *Rubus fruticosus agg.,* and moss occur frequently, whilst there is occasional spear thistle *Cirsium vulgare* and dandelion *Taraxacum officinale agg.*.

4.1.7 Considering the limited species diversity, this habitat is appraised as having low nature conservation value on a site scale only.

J1.1 – Cultivated/ Disturbed Land – Introduced shrub

4.1.8 An area of introduced shrub was identified within the western aspect of the site (see Photograph 5, Appendix II). Considering the non-native status of introduced shrub, this habitat is appraised as having low nature conservation value on a site scale.

J2.1.2 – Hedges – Intact – Species poor

4.1.9 An intact, species-poor hedgerow is established at the south-eastern boundary of the application site (see Photograph 6, Appendix II). This hedgerow is typically maintained to a height of 1.5m-2m and is composed entirely of privet *Ligustrum vulgare* with an understorey of ivy and amenity grassland.

4.1.10 This habitat is assessed as having potentially moderate nature conservation value on a site scale. This habitat was also considered to be of sufficient density to support potential avifaunal inhabitancy.

J2.4 – Fence

4.1.11 Full height wooden panel fences denote the southern site boundaries. Fences do not support any significant assemblages of vegetation and, subsequently, do not offer any significant value to nature conservation.

J4 – Bare Ground

4.1.12 Within the central aspect of the site is an area of concrete hardstanding (see Photograph 7, Appendix II). This area does not support any significant assemblages of vegetation or standing waterbodies and, subsequently, does not offer any significant value to nature conservation.

J5 – Other Habitat – TN

4.1.13 Within the central aspect of the application site is an area of artificial grass (see Photograph 8, Appendix II). This area does not support any significant assemblages of vegetation or standing waterbodies and, subsequently, does not offer any significant value to nature conservation.

4.2 Species

Amphibians

4.3.1 Recent records of commonly occurring amphibians were returned by the LERC from within a 2km radius of the application site, including common frog *Rana temporaria,* common toad *Bufo bufo* and smooth newt *Lissotriton vulgaris.* Numerous records for great crested newt *Triturus cristatus* were also identified; The closest record to the site is located 528m south, dated 2013.

4.3.2 The application site contains a limited number of terrestrial habitats of suitable density and continuity for amphibian inhabitancy. The understories of scattered trees at site boundaries offer suitable habitat conditions for amphibians, including great crested newts, to forage and disperse. Log, brash and rubble piles deposited on the site also offer suitable habitat for amphibians to forage, shelter and hibernate (see Photographs 9 and 10, Appendix II/ TN1, TN2 and TN3 Appendix III).

4.3.3 A search using satellite imagery has indicated that a pond occurs within a 500m radius of the application site. This is located 450m south-east (centred at OSGR TA 15457 16218), however, due to access restrictions, it was not possible to visit this waterbody for the purpose of undertaking a HSI assessment. Under a precautionary approach, it is assumed that this waterbody presently sustains populations of breeding great crested newt.

4.3.4 The Natural England rapid risk assessment tool is a simplified calculator which helps to inform the decision as to whether development activities may require a great crested newt derogation licence in advance. The tool appraises the extent and proximity of terrestrial habitat removal (required to facilitate development activities) relative to the location of a confirmed great crested newt breeding pond.

4.3.5 The proposed development is expected to result in the potential, incidental loss/damage of terrestrial habitat occurring >250m of the pond. The rapid risk assessment tool has determined

that the works would result in an 'green' risk of an offence being committed meaning an offence is highly unlikely. Nonetheless, the possibility of encountering single or small numbers of commonly occurring amphibians during the site preparatory works should not be discounted.

Reptiles

4.3.6 No recent records of reptiles were returned by the LERC from within a 2km radius of the application site.

4.3.7 The application site contains a limited number of terrestrial habitats of suitable density and continuity for reptile inhabitancy. The understories of scattered trees on the site boundary offer suitable habitat conditions for reptiles to forage and disperse. Log, brash and rubble piles deposited on site offer suitable habitat for reptiles to forage, shelter and hibernate (see Photographs 9 and 10, Appendix II/ TN1, TN2 and TN3, Appendix III).

4.3.8 Considering the wide availability of other suitable habitats for reptiles off site, including playing fields, arable land and tree lines, notable/sizable populations of reptiles are not expected to be encountered during the works. Nonetheless, the possibility of encountering single or small numbers of reptiles during the site preparatory works should not be discounted.

Birds

4.3.9 The LERC identified numerous records of bird species listed under Schedule 1 of the Wildlife and Countryside Act (1981, as amended) within 2km of the application site, including Avocet *Recurvirostra avosetta*, barn owl *Tyto alba*, fieldfare *Turdus pilaris* and ruff *Calidris pugnax* amongst a few.

4.3.10 General bird activity was observed on the site during the walkover, and included sightings of blackbird *Turdus merula* and wren *Troglodytes troglodytes.* Evidence of historic nesting activity, in the form of a redundant passerine nest, was observed during the walkover within a tree at the site boundary (see Photograph 11, Appendix II/ TN4, Appendix III).

4.3.11 A limited number of habitat opportunities for nesting birds were noted on the site during the walkover. Scattered trees and a hedgerow along the site boundaries were considered to be of suitable structure to accommodate nesting passerines. In absence of mitigation, nesting birds could be inadvertently impacted by any proposed vegetation removal required to facilitate the proposed development.

Bats

4.3.12 Multiple records of bats were returned by the LERC from within a 2km radius of the application site including common pipistrelle *Pipistrellus pipistrellus*, soprano Pipistrelle *Pipistrellus pygmaeus*, pipistrelle species *Pipistrelle sp*., brown long-eared bat *Plecotus auritus*, and noctule *Nyctalus noctula*. Records of pipistrelle roosts were returned from within South Killingholme, dated 2012, although no details provided of the exact locations of the roosts.

Roosting bats - Trees

4.3.13 The site boundary supports a number of mature and sub-mature tree specimens which have the potential to sustain roosting bats, with numerous trees exhibiting potential bat roosting features (as described in Table 5, below). All other trees occurring within the application boundary were appraised as having 'negligible' potential to support bat roosts in line with roosting categories contained within current Bat Conservation Trust (BCT) guidelines.

4.3.14 Any arboricultural activities associated with the proposed works, which could result in removal of, or disturbance to trees identified in Table 5 as having potential roosting features, could incur significant and adverse impacts to roosting bats in absence of mitigation.

Table 5 – Tree references, bat roost potential (BRP) and Potential Roosting Features (PRFs)

	Description	BRP	Photograph
TN5	7x hawthorn trees with dense ivy cover from western corner of the site	**7x BRP-I**	
TN6	7x hawthorn trees with dense ivy	**7x BRP-I**	

	Description	BRP	Photograph
TN7	6x hawthorn and silver birch trees with dense ivy	**6x PRF-I**	
TN8	1x silver birch tree with knothole	**1x PRF-I**	

Foraging/commuting bats

4.3.15 Scattered trees and a hedgerow offer good quality foraging and navigational features for bats locally. The site also retains a good level of connectivity to other habitats of increased value for nocturnal bat activity, including woodland, hedgerows and tree lines, within the wider landscape.

4.3.16 The site is, therefore, expected to be utilised by locally foraging bats on a regular basis and is, thus, assessed as having potentially 'moderate' nature conservation value for nocturnal bat activity in line with categories contained within BCT guidelines. The loss of on-site habitats of potential value to foraging/commuting bats, and the introduction of artificial lighting onto the site could inadvertently disrupt local foraging/commuting bat activity in absence of mitigation.

Badger

4.3.17 Multiple records of badger *Meles meles* were returned by the LERC from within a 2km radius of the application site, with the most recent record dated 2021. The site offers suitable foraging habitat for badgers; however, no evidence of badger was identified during the survey. The possibility that local badger clans may forage and/or commute onto the site at night should not be discounted.

Other mammals

4.3.18 A small access point under a fence was observed during the walkover which may be used by hedgehogs. Furthermore, scattered trees on the site boundary offer suitable habitat conditions for hedgehogs to forage and disperse whilst log, brash and rubble piles deposited on the site also provide suitable habitat for sheltering and hibernating hedgehogs (see Photographs 9 and 10, Appendix II/ TN1, TN2 and TN3, Appendix III). No evidence of this species was recorded during the walkover although the potential for this species to inhabit the site in future should not be discounted.

Invasive non-native species

4.3.19 Notwithstanding survey limitations, no evidence of Invasive non-native species (INNS) was identified during the walkover. Currently, no interactions with such species are expected during the proposed works.

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Habitats and biodiversity

5.1.3 The application site does not support any habitats of nature conservation value on a county or national scale. All habitats recorded are generally widespread locally, with the majority of habitats appraised to be of nature conservation value on a site scale.

5.1.4 An overview of recommendations pertaining to habitats, species and biodiversity is given within the following sub-headings.

Biodiversity

5.1.5 **In order to appraise the impacts of the proposed works on the existing biodiversity, it is recommended that a dedicated biodiversity assessment is undertaken to address the full extent of expected habitat loss.**

5.1.6 **Using the latest Natural England Biodiversity Metrics calculator (version 4.0), the assessment would examine the changes in the pre-works and post-works biodiversity units scoring for each habitat established within the zone of influence and make realistic recommendations to achieve net gain by means of habitat creation, retention and/or succession, where practicable.**

5.1.7 **It is further proposed that any introduced landscaping incorporates native, species-rich plants and shrubs of local provenance. Species of greatest value to pollinators, and other aerial invertebrate should be sought as this offers a greater potential food source for locally foraging bats, mammals, avifauna and herpetofauna**.

Safeguarding hedgerows and trees

5.1.8 **Where practicable, the proposed works should seek to retain all trees and hedgerows, and should be undertaken in a sensitive manner with consideration to the fragility of these vulnerable areas, including the placement of track matting across areas proposed for vehicle and plant movements. Where habitat loss is unavoidable, measures to appropriately reinstate the habitat should be considered and implemented long-term.**

5.1.9 **For any works proposed immediately adjacent to trees and hedgerows, it is further recommended that measures are employed to appropriately safeguard these habitats. Following advice contained within *British Standard (BS) 5837 – Trees in Relation to Construction*[8], protective barrier fencing could be installed immediately outside of the**

[8] BSI Standard Publications BS 5837:2010 Trees in relation to design, demolition and construction. Recommendations

Root Protection Areas (RPA), which will remain in situ during the intervention works. RPAs chiefly represent the full canopy cover of individual trees and should be considered as Construction Exclusion Zones (CEZs). There must also be no raising or excavating of the ground within the CEZ.

5.1.10 **Where access routes along the RPA cannot be avoided during the site preparation works (e.g., to allow access for vehicles carrying aggregate/materials), a product such as CellWeb Tree Root Protection System can be placed and overlain with connecting ground protection boards to provide adequate protection.**

5.2 Species

Amphibians

5.2.1 Amphibians are protected under the Wildlife and Countryside Act 1981 (as amended) against being killed and injured and included as Priority Species under the NERC Act (2006). Great crested newts are further protected by British and European law which also makes it an offence to capture or disturb them and to damage or destroy their habitat.

5.2.2 **As a precautionary measure to mitigate the potential to harm single and/or small populations of amphibians during the site preparatory works, it is advised that a bespoke Amphibian and Reptile Method Statement is followed (see Appendix IV).**

5.2.3 **It is advised that a compensatory amphibian/reptile brash pile is created to be positioned adjacent the boundary of the application site. This will be constructed from log/brash piles which provide potential refuge for amphibians and reptiles in addition to sheltering mammals and prey invertebrate. Following advice produced by Amphibian and Reptile Ground (ARG), the brash pile will be created using logs and tree branches to be piled in a heap. The brash pile should ideally measure 2-8m in length and 1-1.5m in height. The brash pile can be overlain with smaller deposits of organic material, such as wood chippings and grass cuttings.**

Reptiles

5.2.4 All four of the common species of native reptiles, that is common lizard *Zootoca vivipara*, grass snake, slow worm *Anguis fragilis* and adder *Vipera berus*, are given partial protection under the Wildlife and Countryside Act 1981 (as amended) which prohibits the intentional killing, injury or taking of these species.

5.2.5 Permitted development or a development which has received planning permission is clearly a lawful activity but the law does require that a reasonable effort is made to avoid killing or injury of these animals during the implementation of this permission.

5.2.6 **As a precautionary measure to mitigate the potential to harm single and/or small populations of reptiles during the site preparatory works, it is advised that a bespoke Amphibian and Reptile Method Statement is followed (see Appendix IV).**

5.2.7 **It is advised that a compensatory amphibian/reptile brash pile is created to be positioned adjacent the boundary of the application site. This will be constructed from log/brash piles which provide potential refuge for amphibians and reptiles in addition to sheltering mammals and prey invertebrate. Following advice produced by Amphibian and Reptile Ground (ARG), the brash pile will be created using logs and tree branches to be piled in a heap. The brash pile should ideally measure 2-8m in length and 1-1.5m in height. The brash pile can be overlain with smaller deposits of organic material, such as wood chippings and grass cuttings.**

Birds

5.2.8 All nesting birds and active nests are protected under the Wildlife and Countryside Act (1981, as amended) which makes it an offence to take, damage or destroy the nest of any wild bird while it is in use or being built, and to take or destroy the egg of any wild bird. Certain birds, listed under Schedule 1 of the Act, are also protected against disturbance whilst building a nest, or when on or near a nest containing eggs/unfledged young.

5.2.9 Evidence of historic nesting activity was observed during the walkover and the site offers habitat opportunities for birds to establish nests in the form of scattered trees and a hedgerow. Therefore, the possibility of encountering nesting birds during the enabling phase of the proposals should be considered.

5.2.10 **As a precautionary measure, any vegetation removal should be completed outside of the main nesting bird season (nesting season runs March-August, inclusive), where practicable. Should these works be scheduled during the main nesting bird season, all suitable habitats for nesting activity should be firstly checked by a suitably experienced ecologist in advance. If active nests are found, these must be fully safeguarded and left undisturbed until all chicks have fledged.**

5.2.11 **As an optional enhancement, it is proposed that one integrated swift brick/box and one small bird box is installed on every new dwelling.**

Bats

5.2.12 Bats receive protection under the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended). It is an offence to take, kill or injure a bat, damage or destroy a resting place of a bat, or disturb a bat whilst it is occupying a place of shelter.

Roosting bats

5.2.13 **In the first instance it is recommended that all trees on the site are retained. Should trees appraised as having PRF-I roosting potential be subjected to felling in future, it is advised that this is completed in a manner that is sensitive to roosting bats, whereby:**

- **The trees/limbs should be sawn in sections and any observable potential roosting features (such as lifted bark, knot holes, splits and crevices) should avoid being sawn through.**
- **Each section should then be carefully lowered to the ground with any potential roosting features left on the upper most surface.**
- **The sawn sections should then remain on the ground for a period of 24 hours to allow any bats to leave overnight before they are removed from the site.**

Foraging bats

5.2.14 **As a precautionary measure and in order to avoid impacts upon nocturnal bat activity, dark and unlit corridors should be maintained around and across the site, allowing bats to pass through unhindered by artificial light.**

5.2.15 **All introduced lighting must be sensitive to nocturnal bat activity and be curtailed to avoid impacting light-sensitive bat species.**

5.2.16 **Introduced lighting should be positioned at a minimum of 7m from tree lines and hedgerows. Mercury or metal halide lamps must also be avoided. The hours of illumination could be restricted to provide a minimum of 8 hours of darkness per night. Introduced lighting should further comprise a maximum of 1 lux which is comparable to moonlight conditions.**

Badger

5.2.17 Badgers are protected and so are the setts (burrows) they live in under the Protection of Badgers Act 1992 making it is an offence to; wilfully kill, injure or take a badger (or attempt to do so), cruelly ill-treat a badger, dig for a badger, intentionally or recklessly damage or destroy

a badger sett, or obstruct access to it, cause a dog to enter a badger sett or disturb a badger when it is occupying a sett. Badgers are highly mobile and could commute onto and through the site during night.

5.2.18 **Excavations required as part of the works should be covered overnight to avoid the accidental trapping of badgers and other terrestrial mammals**.

Other mammals

5.2.19 **Porous hedgehog friendly fencing should be used within and around the site. Night lighting of the construction site should be minimised as far as possible.**

APPENDIX I – SPECIES METHODOLOGIES

The fauna included within this assessment is based on the habitats present, data from the desk-based searches, and the following legislation[9]:

- Wildlife and Countryside Act 1981 (as amended);
- The Protection of Badgers Act 1992;
- The Conservation of Habitats and Species Regulations 2017, and
- The NERC Act 2006 – S41 Species of Principal Importance (SPI) for the conservation of biodiversity.

Amphibians

Where accessible, waterbodies within 500m of the site boundary were identified using online Ordnance Survey maps and aerial imagery[10] and were assessed for their suitability to support great-crested newts using a Habitat Suitability Index (HSI). The HSI is a numerical index, between 0 and 1. Values close to 0 indicate unsuitable habitat, 1 represents optimal habitat (Oldham et al., 2000) [11].

Reptiles

An assessment of the suitability of the habitats present to support common reptile species was undertaken[12]. In accordance with current guidance this assessment involved a review of habitats and habitat structure for suitable shelter for reptiles such as areas of scrub and woodpiles, grassland with well-developed and varied structure, areas suitable for basking and large tussocks etc.

Birds

Based upon vegetation maturity, structure and density, an assessment of habitats was undertaken to determine the likely value to breeding and foraging birds.

Bats

Tree assessments were undertaken from ground level with the aid of a torch and binoculars, where required. During the survey Potential Roosting Features (PRF) for bats following current best

9 See www.legislation.gov.uk

10 www.bing.com/maps accessed November 2023

11 Oldham et al., (2000). *Evaluating the suitability of habitat for the Great Crested Newt* (*Triturus cristatus*). Herpetological Journal 10, 143-155

12 Froglife (1999). *Froglife Advice Sheet 10: reptile survey*. Froglife, London.

practice[13],[14],[15] were recorded. The potential for the site and immediate surrounds to support foraging and commuting bats was also assessed, with particular regard given to the presence of continuous tree lines, watercourses and hedgerows providing good connectivity in the landscape, and the presence of varied habitat such as scrub, woodland, grassland and hedgerows in the vicinity.

Badger

Areas of suitable habitat were surveyed for evidence of badger activity, such as mammal paths, setts, snuffle holes or latrines[16].

Legally controlled species

Evidence of species listed on Schedule 9 of the Wildlife and Countryside Act (1981) as amended was recorded as seen.

[13] Collins (2023). *Bat Surveys for Professional Ecologists, Good Practice Guidelines, 4th Edition.* BCT

[14] Mitchell-Jones, A.J, & McLeish, A.P. Ed. (2004). Bat *Workers' Manual 3rd Edition*

[15] BCT (2015) *Surveying for Bats in Trees and Woodland – Guide. BCT*

[16] Natural England (2015) *Badgers: surveys and mitigation for development projects*. Natural England

APPENDIX II – PHOTOGRAPHS

Photograph 1: Scattered trees along/beyond site peripheries

Photograph 2: Scattered trees along/beyond site peripheries

Photograph 3: Narrow parcel of amenity grassland

Photograph 4: Ephemeral/ short perennial

Photograph 5: Introduced shrub

Photograph 6: Species-poor hedgerow

Photograph 7: Bare ground

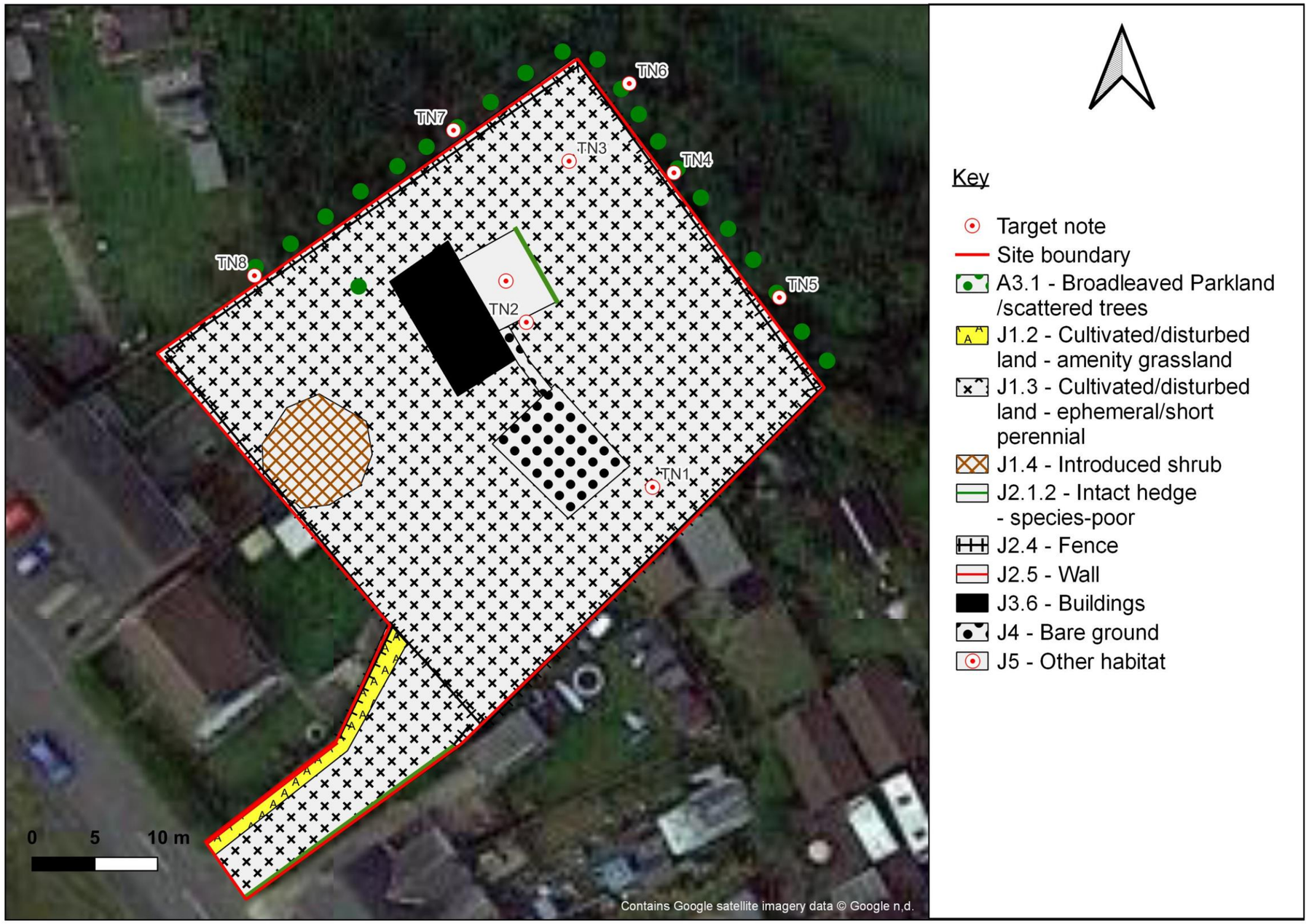
Photograph 8: Other habitat – Artificial grass

Photograph 9: Brash pile

Photograph 10: Log pile

Photograph 11: Passerine nest/ TN5

APPENDIX III – JNCC PHASE 1 HABITAT MAP



APPENDIX IV – AMPHIBIAN AND REPTILE METHOD STATEMENT

Amphibians

Legal Protection

Common amphibian species are protected under the Wildlife and Countryside Act 1981 (as amended) against being killed and injured and included as Priority Species under the NERC Act (2006).

In England great crested newts *Triturus cristatus* are fully protected under the Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way (CRoW) Act 2000. They are also protected by European legislation; the EC Habitats Directive is transposed into UK law by The Conservation of Habitats and Species Regulations 2017. This has recently been amended by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019, which continue the same provision for European protected species, licensing requirements, and protected areas after Brexit. Taken together, this legislation makes it illegal to:

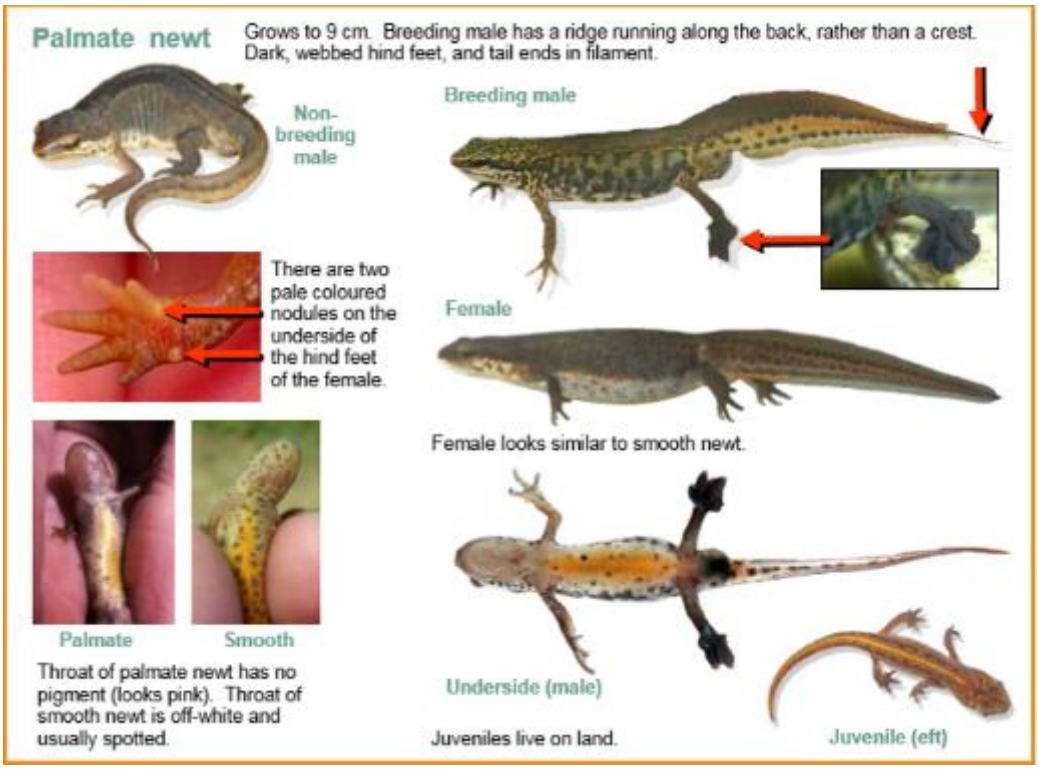
- Intentionally or recklessly kill, injure or capture a great crested newt
- Damage or destroy habitat which a great crested newt uses for shelter or protection
- Deliberately disturb a great crested newt when it is occupying a place it uses for shelter and protection

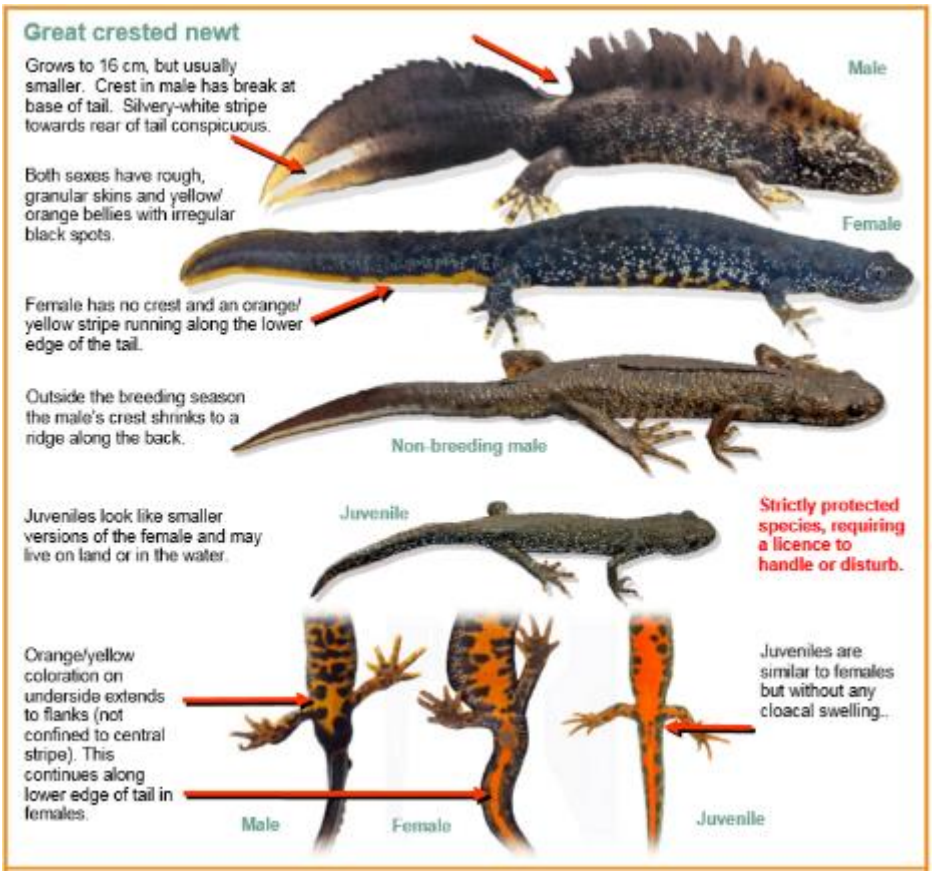
Identification

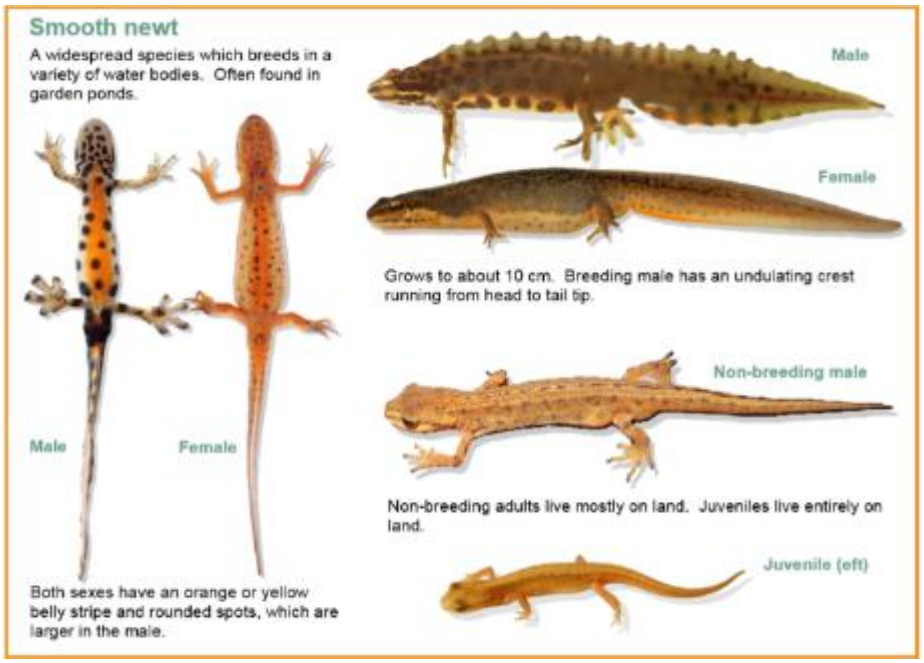
There are seven species of native amphibian within the UK. Of these seven, there is potential for the following species to be encountered during the works:

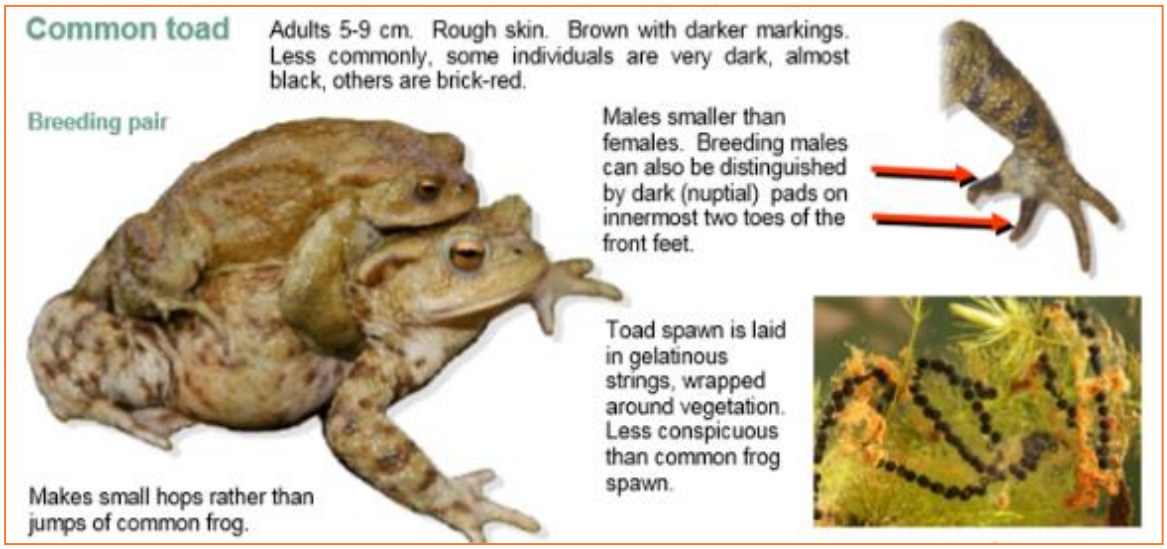
- great crested newt
- common frog *Rana temporaria*
- common toad *Bufo*
- smooth newt *Lissotriton vulgaris*
- palmate newt *Lissotriton helveticus*


Common frog
Adults 6-7 cm. Smooth skin, which appears moist.
Coloration variable, includes brown, yellow and orange. Some females have red markings on lower body.
Usually has a dark 'mask' marking behind the eye.
Breeding male
Grey/pale blue throat.
Thick front legs.
Dark (nuptial) pad on inner toes of the front feet.
Spawn is laid in gelatinous clumps.
Markings also variable, including varying amounts of black spots and stripes.
Young froglets look like smaller versions of the adults.


Palmate newt
Grows to 9 cm. Breeding male has a ridge running along the back, rather than a crest. Dark, webbed hind feet, and tail ends in filament.
Non-breeding male
There are two pale coloured nodules on the underside of the hind feet of the female.
Palmate
Smooth
Throat of palmate newt has no pigment (looks pink). Throat of smooth newt is off-white and usually spotted.
Breeding male
Female
Female looks similar to smooth newt.
Underside (male)
Juveniles live on land.
Juvenile (eft)


Great crested newt
Grows to 16 cm, but usually smaller. Crest in male has break at base of tail. Silvery-white stripe towards rear of tail conspicuous.
Male
Both sexes have rough, granular skins and yellow/ orange bellies with irregular black spots.
Female
Female has no crest and an orange/ yellow stripe running along the lower edge of the tail.
Outside the breeding season the male's crest shrinks to a ridge along the back.
Non-breeding male
Juveniles look like smaller versions of the female and may live on land or in the water.
Juvenile
Strictly protected species, requiring a licence to handle or disturb.
Orange/yellow coloration on underside extends to flanks (not confined to central stripe). This continues along lower edge of tail in females.
Juveniles are similar to females but without any cloacal swelling..
Male
Female
Juvenile


Smooth newt
A widespread species which breeds in a variety of water bodies. Often found in garden ponds.
Male
Female
Grows to about 10 cm. Breeding male has an undulating crest running from head to tail tip.
Male
Female
Non-breeding male
Non-breeding adults live mostly on land. Juveniles live entirely on land.
Juvenile (eft)
Both sexes have an orange or yellow belly stripe and rounded spots, which are larger in the male.



Reptiles

Legal Protection

All native reptiles are protected under Wildlife and Countryside Act (1981, as amended) from:

- Killing or injuring and
- Trading/selling

Identification

There are six species of native reptile within the UK. Of these six, there is potential for the following species to be encountered during the works:

- common European adder *Vipera berus*
- grass snake *Natrix natrix*
- common lizard *Lacerta vivipara* and
- slow worm *Anguis fragilis*

Common European Adder:

Grass Snake:

Common Lizard:

Slow Worm:

- Site preparatory works, including disturbances to habitats of value to reptiles, and disturbances to any potential refugia, including brash piles, should avoid the period in which reptiles and amphibians are hibernating (between November and March, inclusive).

- For the initial stages of the development, the clearance of the above habitats/features should be undertaken in a phased manner and preferably under the supervision of an experienced ecologist. Ground vegetation clearance should follow a detailed search around all potential refugia, in a careful and controlled manner, with constant vigilance for any sheltering newts and reptiles.

- Any building materials should be stored on pallets to deter amphibians taking shelter underneath them.

- All site operatives will stay vigilant for the presence of reptiles and amphibians, particularly great crested newts, during the works.

- If great crested newts are found at any point, the works should stop immediately, and an ecologist be appointed to advise the way forward.

- Any amphibians or reptiles if found, will be carefully gathered up by hand by a suitable licensed ecologist and placed in a suitable holding receptacle for safe transportation away from the area of site clearance operations and released. This rescue method will also be extended to any other amphibian species or reptiles found.

- The ecology contact for this activity is **Helen Archer (Principal Ecologist) 07583 802069.**