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Preliminary Ecological Appraisal

Pasteur, F & A

Cedar Lodge, Steeple Aston

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REVISION HISTORY

Rev	Description of change	Date	Initials
1	Original report	18.11.2022	EW
2	Minor updates to conform to final scope of swimming pool application.	07.02.2023	KR

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DISCLAIMER

It should be noted that the information above provides details of the Site's current ecological situation. In the event that the proposed development does not commence within 12 months of the date of this report, further advice should be sought from a suitably qualified ecologist as to whether the information provided requires updating in light of changing ecological conditions.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

1.1 Nicholsons was commissioned by Alex and Frances Pasteur to carry out a Preliminary Ecological Appraisal (PEA) Survey, including desk study, for Cedar Lodge, Steeple Aston (the "Site") to inform upcoming planning applications for redevelopment of a portion of the grounds.

1.2 The Site itself is not subject to any statutory or non-statutory designation. There are no statutory designations within 2km of the Site, and three non-statutory designations. The closest non-statutory designated site is the Upper Cherwell Valley Conservation Target Area (CTA) located approximately 1.1km to the east of the Site.

1.3 A range of protected species were identified within 2km of the Site by the desk study.

1.4 The Preliminary Ecological Appraisal (PEA) Survey was undertaken on 29th June 2022. The habitat within the Site consisted of amenity grassland, buildings, hardstanding, a hedgerow, introduced shrub, poor semi-improved grassland, scattered trees and waterbodies.

1.5 The report considers the ecological conditions within the Site in the context of the proposed installation of an outdoor swimming pool, renovation of former stables, the addition of an informal vegetable garden, and the conversion of an existing lean-to to a potting shed. Potential impacts on amphibians, bats and nesting birds have been identified in the absence of mitigation.

1.6 Recommendations, in this context, are as follows:

- Works should take place under a granted District Level Licence for Great Crested Newt *Triturus cristatus,* given the potential value of the garden for amphibians.
- B1, B2, and B3 will be subject to nocturnal dusk emergence and dawn re-entry surveys to confirm the species and roost types present. The results of these surveys are presented within the Nocturnal Bat Survey Report (22-1190).
- No further survey work at the lean-to structure (B5) is recommended. However, works should take place outside of the bat hibernation period (October-March) as a precaution.
- It is recommended that Himalayan balsam present on Site is removed by specialist invasive species contactors.
- Clearance and construction works should be scheduled outside of the main bird breeding season (March to August inclusive). If in the event works need to proceed within this period, then specialist advise from a suitably qualified ecologist should be sought.
- Any landscape planting should incorporate native species, including those species known to provide foraging opportunities for breeding birds and nectar sources for invertebrates.
- Enhancements in the form of bird and bat boxes are also recommended.

2. INTRODUCTION

Terms of Instruction

2.1 Nicholsons has been commissioned by Alex and Frances Pasteur to undertake an ecological assessment at Cedar Lodge, Steeple Aston (the "Site") in respect of proposed redevelopment of part of the grounds.

Aim of the study

2.2 The purpose of this report is to provide an assessment of ecological features present within the Site, to identify any ecological constraints and provide appropriate mitigation, compensation and avoidance measures to ensure no net loss in biodiversity as a result of the proposals.

Site Description

2.3 The Site is located at Central Grid Reference SP 47468 25957. The assessment covered the whole of the Site, which is approximately 1.93ha in area.

2.4 At the time of the assessment the Site was formed by the main house of Cedar Lodge, a series of disused stable buildings that have been converted to living quarters and storage areas, and the private garden area of Cedar Lodge comprising lawned grassland with mature shrubs, trees, hedgerow and ponds. A field of sheep pasture is present east of the garden.

2.5 The Site was bordered to the north by North Side (village road), and private residential gardens to the east, west and south. The wider landscape beyond Steeple Aston is dominated by arable farmland intersected by hedgerows which are connected to small pockets of woodland.

2.6 The Site location plan is provided below at **Figure 1** and a survey boundary plan is provided below at **Figure 2**.

Proposed Development Documents

2.7 The following documentation has been produced by Nicholsons to inform the redevelopment of the Site:

- Concept – Masterplan, Cedar Lodge, Steeple Aston, dwg no. Pasteur.NLGD.22.1.01, Rev G, 30/01/2023.
- Concept – Pool Area, Cedar Lodge, Steeple Aston, dwg no. Pasteur.NLGD.21.1.03, Rev F, 06/01/2023.
- Concept – West Garden, Cedar Lodge, Steeple Aston, dwg no. Pasteur.NLGD.22.1.02, Rev F, 09/01/2023.

Proposed Development

2.8 The initial redevelopment will include the addition of an outdoor swimming pool in the north-west of the garden which will replace an allotment area. Future applications will then include the renovation of the stables at the west of the Site to provide a pool building and further residential accommodation.

2.9 Further works planned to the garden outside of the planning system include further tree planting and the addition of an informal vegetable garden within a pasture field east of the Site, as well as the conversion of a timber storage lean-to to a potting shed.

2.10 Proposals are hereafter referred to in combination as the Proposed Development. No works are anticipated to the main property (Cedar Lodge) itself.

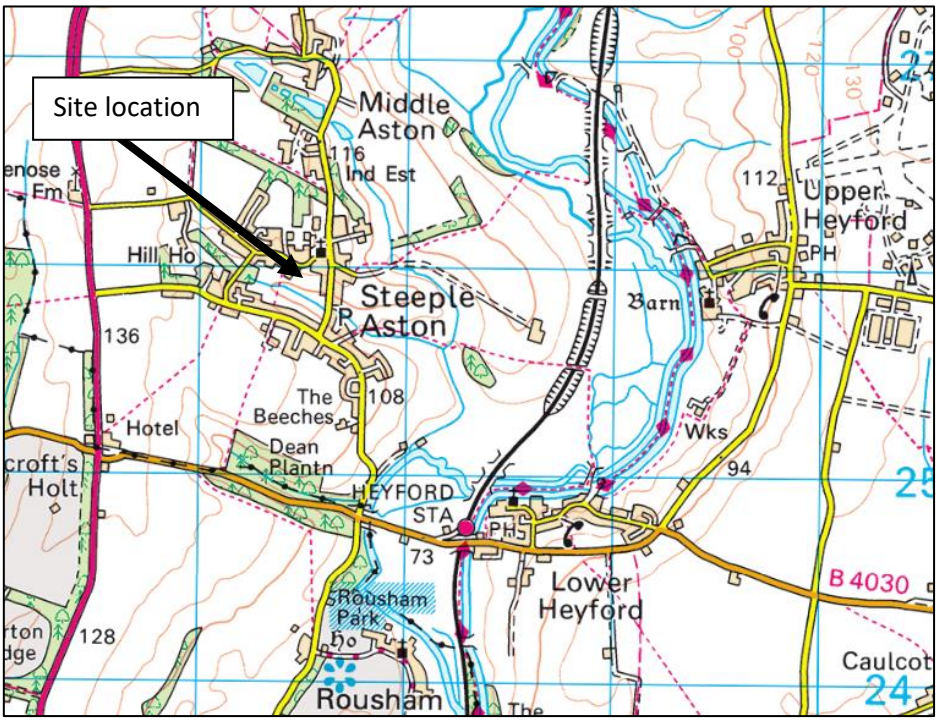

Figure 1: Site location plan

Figure 2: Survey boundary

3. METHODOLOGY

3.1 The methodology for the ecological assessment was split into three main areas: a desk study, habitat survey and faunal survey. These are discussed in more detail below.

Desk Study

3.2 Existing ecological information on the Site and surrounding area was requested from the Thames Valley Environmental Records Centre (TVERC). The purpose of the desk study was to collect baseline information to identify statutory and non-statutory designated sites, legally protected species and species of conservation concern within a 2km radius of the Site in line with CIEEM Guidelines for Preliminary Ecological Appraisal (2017).

3.3 A review of online resources, including the Multi Agency Geographic Information for the Countryside (MAGIC) database was also undertaken to establish the ecological context for the Site (19th October 2022). The MAGIC website was also reviewed to identify any designated sites of European Importance within 2km of the Site.

3.4 In addition, Ordnance Survey and aerial mapping was reviewed to identify any ponds within 500m of the Site.

Phase 1 Habitat Survey

3.5 A Phase 1 habitat survey was undertaken by Elliot Williams on 29th June 2022 to ascertain the general ecological value of the Site and to determine the need for further assessment.

3.6 The Phase 1 habitat survey was undertaken in accordance with standard methodology (JNCC, 2010[1]). The Phase 1 methodology involves the classification of habitat types based on vegetation present. The Site was classified into areas of similar botanical community types, with a representative species list provided for each habitat type identified. In addition, invasive weeds were also searched for during the Phase 1 habitat survey, as listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

3.7 The information is presented in accordance with the standard Phase 1 habitat survey format with habitat descriptions and a habitat map, provided at **Appendix 1**. In addition, target notes providing supplementary information, for example relating to species, habitat composition, structure and management are also presented on the habitat map.

3.8 All of the species that occur within each habitat type would not necessarily be detectable during survey work carried out at any given time of year. The botanical work was undertaken within of the optimal survey period, and it is considered that a robust assessment was undertaken.

Faunal Surveys

3.9 General faunal activity was recorded during the PEA field survey, including mammals and birds observed or heard. Specific attention was also paid to the potential presence of any protected, rare or notable species, as described below.

Badger Appraisal

3.10 During the walkover survey any incidental signs of current badger *Meles meles* activity were recorded within the Site and within 30m of the Site where access could be obtained. The survey

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

method was based on a standard approach as in 'The history, distribution, status and habitat requirements of the Badger in Britain, (Cresswell, P. 1990)'.

3.11 The appraisal involved a systematic search of the survey area for all signs of badger activity including badger setts, worn pathways in vegetation and/or across field boundaries, footprints, hairs, dung pits/latrines, bedding and evidence of foraging activity including snuffle holes. Particular attention was paid to habitats of suitable topography or supporting suitable vegetation for sett-building as well as to those features particularly favoured by badgers.

Bats

Tree Assessment

3.12 A preliminary ground-based assessment of all suitable trees located on or immediately adjacent to the study area was undertaken to determine their potential to support roosting bats (for details on the location of trees with bat roost potential refer to highlighted trees on the habitat map in **Appendix 1**).

3.13 All suitable features such as cracks and splits in limbs, hollows and cavities, natural holes, woodpecker holes, loose bark and dense ivy were assessed using binoculars and high-powered torches where appropriate. Evidence of bat roost themselves, including droppings, feeding remains and urine staining were also searched for during the assessment.

Building Inspection

3.14 All buildings within the Site to be impacted by the Proposed Development were subject to external and internal inspection to search for evidence of bat activity where safe to do so. This was undertaken by Elliot Williams and a licenced bat worker (Kate Rooney, Natural England licence 2020-42865-CLS-CLS).

3.15 Internal voids within the structures were subject to an internal inspection, whereby the surveyor used ladders, high-powered torches and mirrors to search for evidence of current or historic use by bats. Particular attention was paid to gaps between rafters and beams. Specific searches were undertaken for bat droppings, which can indicate current or past use by bats and indicate the extent of use.

3.16 An exterior inspection was undertaken in order to search for any signs of use by bats, such as droppings or staining, and to identify any potential access points. Binoculars were used to inspect any inaccessible areas more closely.

3.17 Where no direct or indirect evidence of roosting bats were confirmed, trees and buildings were categorised as being of high, moderate, low or negligible suitability to support roosting bats based on the type and number of suitable bat features present, in accordance with best practice guidance, Bat Conservation Trust (2016) Bat Surveys: Good Practice Guidelines 3rd Edition.

- High suitability – one or more potential roosting features present within a structure, with enough suitable surrounding commuting and foraging habitat, which is large enough to be able to shelter a large number of bats on a regular basis. These include maternity and hibernation roosts.

- Moderate suitability – one or more potential roosting features present within a structure that is likely to shelter a number of bats, but unlikely to support a roost of conservation status.
- Low suitability – one or more potential roost features present within a structure yet is not surrounded by suitable commuting and foraging habitat and does not provide enough protection and space to shelter a large number of bats. This also includes trees with no visible potential roost features but is of adequate age and structure to offer limited roosting potential.
- Negligible suitability – whereby no evidence of bats was observed and no suitable features for bats are supported, such that their presence is considered negligible.

Great Crested Newt

3.18 Accessible ponds within 500m of the Site were assessed for their suitability to support great crested newt (GCN) *Triturus cristatus*. The assessment was undertaken in accordance with the methodology and criteria set out by Oldham *et al* (2000), which assesses the likely presence of GCN in ponds based on a number of parameters, such as pond size, location, shading, presence of fish and wildfowl and macrophyte cover.

3.19 Data from the field assessment are used to calculate a Habitat Suitability Index (HSI), represented by a number from zero to one, as demonstrated in **Table 1**:

Table 1: HSI Categories of Pond Suitability

HSI Score	Pond Suitability for GCN
<0.5	Poor
0.5-0.59	Below Average
0.6-0.69	Average
0.7-0.79	Good
>0.8	Excellent

Field Survey Limitations

3.20 All areas of the Site were accessible during the field survey, which was undertaken during the optimum botanical survey period. It is therefore considered that a robust assessment was made.

Principles of Ecological Evaluation

3.21 The evaluation of ecological features and an assessment of likely impacts should be based on available resources and the professional judgement of the ecologist concerned. Ecological value of features should be undertaken in accordance with the approach outlined in the Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018).

3.22 A five-point evaluation scale has been applied to assist with the identification of key features of ecological significance in relation to the proposed development. This is an arbitrary scale based upon characteristics of ecological importance as listed in CIEEM (2018), which experience has shown is effective at this level of assessment.

3.23 In evaluating ecological features and resources, geographic frame of reference is considered. The value of an ecological feature is determined within a defined geographical frame of reference as detailed in **Table 2**:

Table 2: Classification of the value of ecological features and resources

Value	Importance	Species	Habitat
Very High	International	A regularly occurring population of an internationally important species, which is threatened or rare in the UK, where the population is a critical part of a wider population or where a species is at a critical phase in its life cycle at this scale.	An internationally designated site including SAC, SPA, Ramsar, or one proposed for designation. Sites supporting areas of priority habitats which are scarce at an international level of where it is needed to maintain the viability of a larger area at that level.
High	National	A regularly occurring population / number of a nationally important species which is threatened, or rare, where the population is a critical part of wider population or where a species is at a critical phase in its life cycle at this scale. A regularly occurring population of a nationally important species on the edge of its natural range. A species assemblage of national significance.	A nationally designated site ie SSSI, or one that meets the published criteria. Sites supporting areas of priority habitats which are scarce at a national level or where it is needed to maintain the viability of a larger area at that level.
Medium	Regional / County	A regularly occurring locally significant population of a species listed as being nationally scarce or a county Red Data book or BAP on account of its rarity. A regularly occurring, locally significant number of a regionally / county important species or where the population is a critical part of a wider population or where a species is at a critical phase in its life cycle at this scale. A species assemblage of regional or county significance.	Sites supporting a viable area of a priority habitat which is scarce at a regionally or county level or where is needed to maintain the viability of a larger area. A County designated site or one that meets published criteria. Local Nature Reserves, Local Wildlife Sites / potential Local Wildlife Sites at that level.
Low	Local	A population of a species that is listed in a district BAP because of its rarity in the locality and a species assemblage of local or district significance. A regularly occurring, locally significant number of district importance or where the population is a critical phase in its life cycle at this scale.	Sites / features that are scarce within the local area or district. Areas of habitat considered enriching appreciably the habitat resource within the context of the locality or which buffer those of a more important nature.

Value	Importance	Species	Habitat
Site	Site Only	Species, which are not protected or rare in the local area and are not at a critical phase in its life cycle at this scale.	Habitats of very low importance and rarity but of ecological importance within the Site.

3.24 Ecological features may also be deemed to be of negligible value if they are deemed to be of very low ecological importance and / or rarity.

3.25 Ecological features may be defined as:

- Statutorily protected (Natura 2000, national Nature Reserves, Sites of Special Scientific Interest and Local Nature Reserves) or locally designated sites (local Wildlife Sites or Sites of Importance to Nature Conservation);
- Sites and features of biodiversity value not designated in this way such as ancient woodland; or
- Species of biodiversity value or other significance, including those protected and controlled by law.

4. LEGISLATION AND PLANNING POLICY OVERVIEW

4.1 A summary of the legislative and planning context which has been used to inform this ecological assessment is provided below.

Legislation

4.2 A number of tiers of legislation protect wildlife and habitats within England and Wales, the highest of which being European legislation. A summary of relevant legislation is provided below:

- The Wildlife and Countryside Act 1981 (as amended).
- The Natural Environment and Rural Communities Act 2006 (NERC).
- The Conservation of Habitats and Species Regulations 2017.

Policy

4.3 The planning policy framework that relates to nature conservation in Steeple Aston is provided at two levels; nationally through the National Planning Policy Framework (NPPF) and locally through policies in the Cherwell Local Plan 2011-2031.

Local Policy – Cherwell Local Plan 2011-2031

4.4 The current Development Plan in relation to the Site is the Cherwell Local Plan 2011-2031. Specific nature conservation policies to consider are:

Policy ESD 10: Protection and Enhancement of Biodiversity and the Natural Environment

Protection and enhancement of biodiversity and the natural environment will be achieved by the following:

- *In considering proposals for development, a net gain in biodiversity will be sought by protecting, managing, enhancing and extending existing resources, and by creating new resources.*
- *The protection of trees will be encouraged, with an aim to increase the number of trees in the District.*
- *The reuse of soils will be sought.*
- *If significant harm 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 development will not be permitted.*
- *Development which would result in damage to or loss of a site of international value will be subject to the Habitats Regulations Assessment process and will not be permitted unless it can be demonstrated that there will be no likely significant effects on the international site or that effects can be mitigated.*
- *Development which would result in damage to or loss of a site of biodiversity or geological value of national importance will not be permitted unless the benefits of the development clearly outweigh the harm it would cause to the site and the wider national network of SSSIs, and the loss can be mitigated to achieve a net gain in biodiversity/geodiversity.*

- *Development proposals will be expected to incorporate features to encourage biodiversity, and retain and where possible enhance existing features of nature conservation value within the site. Existing ecological networks should be identified and maintained to avoid habitat fragmentation, and ecological corridors should form an essential component of green infrastructure provision in association with new development to ensure habitat connectivity.*
- *Relevant habitat and species surveys and associated reports will be required to accompany planning applications which may affect a site, habitat or species of known or potential ecological value.*
- *Air quality assessments will also be required for development proposals that would be likely to have a significantly adverse impact on biodiversity by generating an increase in air pollution.*
- *Planning conditions/obligations will be used to secure net gains in biodiversity by helping to deliver Biodiversity Action Plan targets and/or meeting the aims of Conservation Target Areas. Developments for which these are the principal aims will be viewed favourably.*
- *A monitoring and management plan will be required for biodiversity features on site to ensure their long-term suitable management.*

Policy ESD 11: Conservation Target Areas

Where development is proposed within or adjacent to a Conservation Target Area biodiversity surveys and a report will be required to identify constraints and opportunities for biodiversity enhancement. Development which would prevent the aims of a Conservation Target Area being achieved will not be permitted. Where there is potential for development, the design and layout of the development, planning conditions or obligations will be used to secure biodiversity enhancement to help achieve the aims of the Conservation Target Area.

Biodiversity Action Plan (BAP) and 2006 NERC Act Habitats and Species of Principal Importance

4.5 In 2007, the UK Biodiversity Action Plan (BAP) Partnership published an updated list of priority UK species and habitats covering terrestrial, freshwater and marine biodiversity to focus conservation action for species and habitats in the UK. The UK Post-2010 Biodiversity Framework succeeds the UK BAP. The Framework continues the conservation work initiated by the UK BAP following the establishment of the Convention on Biological Diversity in 1992.

4.6 The purpose of the Framework is to set a broad structure for conservation across the UK until 2020. In summary:

- To set out a shared vision and priorities for UK-wide activities, in a framework jointly owned by the four countries, and to which their own strategies will contribute;
- To identify priorities at a UK scale which will help deliver biodiversity targets and the EU Biodiversity Strategy;
- To facilitate the aggregation and collation of information on activity and outcomes across all countries of the UK; and
- To streamline governance arrangements for UK-wide activities.

4.7 The habitats and species are identified as Habitats and Species of Principal Importance for the conservation of biological diversity in England under Section 41 of the 2006 Natural Environment and Rural Communities (NERC) Act. The NERC Act and NPPF make these species had habitats a material consideration in the planning process.

5. DESK STUDY RESULTS

5.1 The full information collected during the desk study from TVERC is summarised below.

Sites of Nature Conservation Interest

5.2 The records search identified no statutory protected sites and three non-statutory protected sites within 2km of the Site, as summarised in **Table 3**:

Table 3: Summary of Ecology Designations

Designated Site Name	Designation	Proximity to Project	Description (TVERC)
Rush Spinney	LWS	1.9km east	*An area of marsh which is of S41 Habitat of Principal Importance (Lowland fen) locally dominated by greater pond-sedge and hard rush with greater tussock sedge. It is species-rich with many other wetland plants including brooklime, wild angelica, hemp agrimony, marsh marigold, ragged robin, common valerian, large bird's-foot trefoil, meadowsweet, common marsh bedstraw, fen bedstraw and water mint. This site is also home to European otters and protected bird species including the cuckoo and willow warbler.*
Upper Cherwell Valley	CTA	1.1km east	*Several BAP species use this site including curlew, lapwing, tree sparrow, reed bunting, skylark, grey partridge, yellow wagtail, yellowhammer and bullfinch. The river Cherwell also supports otters and water voles.*
Glyme and Dorn Valleys	CTA	1.25km southwest	*This conservation target area has an extensive area of non-woodland bluebells with early purple orchids. The Dorn also supports a population of native white-clawed crayfish.*
Key: **LWS: Local Wildlife Site** **CTA: Conservation Target Area**			

Coastal and Floodplain Grazing Marsh

5.3 Four areas of Floodplain and Grazing Marsh were identified within 2km of the Site. The closest location was approximately 1km south-east of the Site.

Good Quality Semi-improved Grassland

5.4 Three areas of Good Quality Semi-Improved Grassland were found within 2km of the Site. The closet location was 1.5km north-east of the Site.

Deciduous Woodland

5.5 Various areas of Deciduous Woodland were identified within 2km of the Site. One of these locations was present adjacent to the south of the Site.

Traditional Orchards

5.6 Various areas of Traditional Orchards were identified within 2km of the Site. The closest location was approximately 0.1km north of the Site.

Woodpasture and Parkland BAP Priority Habitat

5.7 Two areas of Woodpasture and Parkland habitat were identified within 2km of the Site. The closest location was 0.3km west of the Site.

Lowland Fens

5.8 One area of Lowland Fen was identified within 2km of the Site, approximately 1.9km to the south-east.

Protected Species

5.9 Below provides a summary of protected species which have been recorded within 2km of the Site. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area.

5.10 Records of amphibians, badger, bats, birds, invertebrates, otter, protected and invasive plants, reptiles, polecat *Mustela putorius* and hedgehog *Erinaceus europaeus* were recorded within 2km of the Site.

Amphibians

5.11 Two records of GCN were received for within 2km of the Site. The closest record, dated 2014, is located approximately 1.9km northwest of the Site. Common frog *Rana temporaria* was also recorded within 2km of the Site.

[redacted]

Bats

5.13 Five species of bat have been recorded within 2km of the Site, namely common pipistrelle *pipistrellus pipistrellus*, soprano pipistrelle *pipistrellus pygmaeus,* brown long-eared bat *Plecotus auratus,* noctule *Nyctalus noctula* and barbastelle *Babastella barbastellus.* The closest record, dated 2014, relates to brown long-ear bat droppings found within a building located approximately 0.6km from the Site.

Birds

5.14 Twenty-nine notable species of bird were received for within 2km of the Site.

5.15 **Table 4** summarises the species of birds recorded within 2km of the Site

Table 4: Bird Species Recorded within 2km of the Site

Species / Group	Legislation / Conservation Status
Brambling *Fringilla montifringilla*	CRoW, WCA 1i
Bunting, Corn *Emberiza calandra*	NERC S.41, BoCC_red
Cuckoo *Cuculus canorus*	NERC S.41, BoCC_red
Curlew *Numenius arquata*	NERC S.41, BoCC_red
Dove, Turtle *Streptopelia turtur*	NERC S.41, BoCC_red
Fieldfare *Turdus pilaris*	CRoW, WCA 1i, BoCC_red
Flycatcher, Spotted *Musciapa striata*	NERC S.41, BoCC_red
Gull, Herring *Larus argentatus*	NERC S.41, BoCC_red
Kingfisher *Alcedo atthis*	BDIR1, CRoW, WCA 1i
Kite, Red *Milvus milvus*	BDIR1, CRoW, WCA 1i
Lapwing *Vanellus vanellus*	NERC S.41, BoCC_redd
Linnet *Linaria cannabina*	NERC S.41, BoCC_red
Martin, House *Delichon urbicum*	WCA 1i , BoCC_red
Merlin *Falco columbarius*	BDIR1, CRoW, WCA 1i, BoCC_red
Pintail *Anas acuta*	CRoW, WCA 1i
Skylark *Alauda arvensis*	NERC S.41, BoCC_red
Sparrow, House *Passer domesticus*	NERC S.41, BoCC_red
Sparrow, Tree *Passer montanus*	NERC S.41, BoCC_red
Starling *Sturnus vulgaris*	NERC S.41, BoCC_red
Swift *Apus apus*	WCA 1i, BoCC_red
Thrush, Mistle *Turdus viscivorus*	BoCC_red
Tit, Bearded *Panurus biarmicus*	CRoW, WCA 1i
Tit, Marsh *Poecile palustris*	NERC S.41, BoCC_red
Tit, Willow *Poecile montanus*	NERC S.41, BoCC-red

Species / Group	Legislation / Conservation Status
Wagtail, Yellow *Motacilla flava*	NERC S.41, BoCC_red
Whinchat *Saxicola rubetra*	BoCC_red
Woodcock *Scolopax rusticola*	CRoW, WCA 1ii, BoCC_red
Woodpecker, Lesser Spotted *Dendrocopos minor*	BoCC_red
Yellowhammer *Emberiza citrinella*	NERC S.41, BoCC_red
Key: **NERC S.41:** Natural Environment and Rural communities Act 2006, Section 41; habitats and species of principle importance in England. **BoCC Red:** Birds of Conservation Concern Red. **BDIR1:** Birds Directive, 2009. **Crow:** Countryside Rights of Way Act, 2000: Protection of certain birds and animals **WCA 1i:** Wildlife and Countryside Act (1981) (as amended); Birds protected by special penalties at all times, species specific.	

Invertebrates

5.16 Three species of invertebrates listed as species of principle importance of conservation under Section 41 of Natural England and Rural Communities (NERC) were received for within 2km of the Site. These comprised stag beetle *Lucanus cervus,* grizzled skipper *Pyrgus malvae* and small heath *Coenonympha pamphilus*.

Otter

5.17 Sixty records of otter *Lutra lutra* were received for within 2km of the Site. The closest record, dated 2019, pertains to a single otter recorded approximately 0.8km northeast of the Site along Aston Brook, Middle Aston.

Plants

5.18 Twelve records of protected or notable plants were received for within 2km of the Site. None of these recorded pertained to the Site. However, bluebell *Hyacinthoides non-scripta* was identified 0.2km east of the Site – this species is protected under Schedule 8 of the Wildlife and Countryside Act (1981) (as amended) against commercial exploitation only.

5.19 In addition to the above, a record of Japanese Knotweed has been recorded approximately 1.9km southeast of the Site. Himalayan Balsam was also recorded approximately 1km south of the Site. Japanese knotweed and Himalayan balsam are invasive non-native species included on Schedule 9 of the Wildlife Countryside Act (1981), as amended. It is an offence to release, plant or cause to grow in the wild any plant included on this schedule of the Act.

Reptiles

5.20 A grass snake *Natrix helvetica* has been recorded within 2km of the Site. The record, dated 2012, is located approximately 0.6km southeast of the Site within the village of Rousham.

Other Species

5.21 One record of polecat was returned for within 2km of the Site. The record, dated 2015, is located approximately 1.6km northwest of the Site.

5.22 Four records of hedgehog were returned for within 2km of the Site. The closest record, dated 2017, is located approximately 900m southwest of the Site.

6. PHASE 1 HABITAT SURVEY RESULTS

6.1 The Phase 1 habitat survey was conducted on 29th June 2022 in suitable weather conditions (20°C, 25% cloud cover, Beaufort Scale 1).

Habitat Descriptions

6.2 The full Phase 1 habitat survey map detailing the location of the above habitats and other features of ecological interest with Target Notes (TN) is presented at **Appendix 1**. The habitat descriptions below should be read in conjunction with this plan and any associated Target Notes.

6.3 Habitats identified during the Phase 1 habitat survey are detailed below in alphabetical order (not in order of ecological importance):

- Amenity Grassland
- Buildings
- Hardstanding
- Hedgerow
- Introduced Shrub
- Poor Semi-improved Grassland
- Scattered Trees
- Waterbodies

Amenity Grassland

6.4 Amenity grassland covered much of the Site's central, south and west areas. The amenity grassland was managed as a short lawn (<5cm sward height).

6.5 Grass species present included perennial rye grass *Lolium perenne,* fescue *Festuca sp.,* creeping bent *Agrostis stolonifera* and Yorkshire fog *Holcus lanatus.* Forb species present included common daisy *Bellis perennis,* dove's-foot cranes-bill *Geranium mole,* creeping buttercup *Ranunculus repens,* creeping thistle *Cirsium arvense,* dandelion *Taraxacum sp.* silverweed cinquefoil *Potentilla anserina,* white clover *Trifolium repens,* yarrow *Achillea millefolium,* ribwort plantain *Plantago lanceolata* and stinging nettle *Urtica dioica.*

6.6 This habitat was of no more than "Site" ecological value.

Figure 3: Amenity grassland sward at the west of the Site

Buildings

6.7 Four buildings present at the west of the Site were subject to external and internal inspection.

6.8 The Cedar Lodge main house at the centre of the Site is not part of the Proposed Development and was therefore not subject to inspection.

Table 5: Descriptions of Buildings surveyed within the Site

Building No.	Description	Suitability for Roosting Bats
B1	**External:** Two storey residential annex (currently vacant) with storage room on ground floor and living quarters on first floor. B1's walls were of stonework which was in good condition. A double garage door constructed from timber was present at the west of B1 and was well sealed throughout. The roof comprised slate tiles, stone ridge tiles and two Velux windows. Numerous gaps were present between slate tiles and ridge tiles. A timber soffit was present at B1's east facing elevation. Several gaps were recorded between the soffit and adjoining stonework. A Fig tree *Ficus carica* 5m in height was present growing against the east facing elevation of B1. Potential access features for roosting bats included the following: • Gaps between lifted slate tiles. • Gaps between warped ridge tiles. • Gaps between slate tiles and stone ridge tiles.	**High**

Building No.	Description	Suitability for Roosting Bats
	• Gaps between soffit at stone wall.  **Figure 4: East facing elevation of B1** **Internal:** The ground floor of B1 comprised rendered stone walls which were in good condition throughout. The ceiling of the ground floor featured timber ceiling joists and a single timber hanging beam supporting exposed floorboards. The hanging beam formed a crevice within the stone wall at the north of B1. The 1st floor of B1 has been converted to living quarters which were well lit by Velux windows and a window within the south facing wall. No crevices were present within the stone walls and the ceiling was comprised of smooth MDF boards. Two timber purlins were adjoined to the ceiling of B1 as well as three pairs of timber rafters.  **Figure 5: Ceiling and north wall of B1**	

Building No.	Description	Suitability for Roosting Bats
	 **Figure 6: 1st floor of B1, looking south** **Evidence of bats:** Numerous droppings were found on the first floor of the building which were indicative of either brown long-eared bat; this was later confirmed by DNA analysis of the droppings. Two pairs of butterfly and moth wings (likely feeding remains) were found within B1's ground floor and three pairs were found within the 1st floor.  **Figure 7: Brown long-eared bat dropping** **Evidence of birds:** None.	
B2	**External:** Single-storey former stable now used for domestic storage. B2's walls comprised stonework with two timber stable doors and a single timber vent. The pitched roof of B2 was comprised of clay tiles in good condition. Potential access features for roosting bats included the following:	**Moderate**

Building No.	Description	Suitability for Roosting Bats
	• Gaps between stable doors. • Cracks at top of external stonewall. • Gaps within timber vent. • Gaps within timber eaves. • Gaps between roof tiles and stonewall.  **Figure 8: Gap between stable doors at east facing elevation**  **Figure 9: Southwest elevation of B2** **Internal:** The ground level of B2 featured two rooms used for domestic storage. The internal wall separating the two rooms was comprised of timber boards whilst the remaining walls were comprised of rendered stonework. The internal stonework was in good condition, however a substantial gap at the top of the wall was present within the southern room. A shallow loft space with a floor to ridge height of approximately 1.5m in height was accessed via a hatch at the north of B2. The structure of the void was formed by two vertical timber beams, a timber ridge beam, two timber purlins and numerous timber rafters. The roof of B2 was unlined and several gaps between clay tiles were made visible by daylight entering the void. Numerous gaps were also recorded at the north apex of the void where B2 adjoined B1's stone wall. Despite gaps between tiles and at the north apex of the void, B2's void was dark and no draughts were felt.	

Building No.	Description	Suitability for Roosting Bats
	 **Figure 10: Gap within west wall of B2**  **Figure 11: Void of B2, looking south** **Evidence of bats:** Two pairs of butterfly wings within the ground floor of B2 at the south of the building. **Evidence of birds:** None.	
B3	**External:** B3 was a single storey storage building adjoined to the southern stonewall of B2. B3's east facing elevation was open, whereas its south and west walls were comprised of stone. The slanted roof of B3 comprised corrugated metal sheeting. Numerous small gaps between stonework at west wall were suitable for individual roosting bats. No other features suitable for roosting bats were present. **Internal:** B3 was open to light and draughts due to it being open at its east facing elevation. As with the external stone wall, there were numerous small gaps within the internal west stonework suitable for roosting bats.	**Low**

Building No.	Description	Suitability for Roosting Bats
	 **Figure 12: West facing elevation of B3** **Evidence of bats:** None. **Evidence of birds:** None.	
B4	**External:** Single storey former bathhouse. B4's north, east and west walls were of stone construction. The stone walls were in good condition and no gaps suitable for roosting bats were recorded. The south wall of B4 was comprised of glass panels between timber frames. The roof of B4 was also comprised of glass panels between timber frames and featured no gaps. **Internal:** The stone walls inside B4 were in good condition and no gaps were recorded. The glass roof allowed for substantial light spill within all areas of B4.  **Figure 13: East section of B4** **Evidence of bats:** None. **Evidence of birds:** None.	**Negligible**
B5	**External:**	**Moderate**

Building No.	Description	Suitability for Roosting Bats
	Timber storage lean-to approximately 2m in height. Comprised of corrugated metal walls at the east and south, adjoined to stone walls which formed B5's west and north elevations. The roof of B5 was flat and of corrugated metal construction. No external features suitable for roosting bats were identified.  **Figure 14: Southeast elevation of B5** **Internal:** B5 was used for timber storage and was subject to substantial light spill via gaps between corrugated metal sheeting. Five gaps approximately 5cm wide between stonework at the west wall of B5 were present. The gaps were approximately 10cm in depth and were suitable for hibernating bats.  **Figure 15: Gaps between B5's stone wall** **Evidence of bats:** None. **Evidence of birds:** None.	

6.9 All buildings on Site were suitable for nesting birds species associated with human built structures, such as house sparrow. The stables may also be suitable for swallows and house martins.

Hardstanding

6.10 Two areas of hardstanding were present on Site in the form of a gravel driveway at the north and a tarmac tennis court at the centre of the Site.

6.11 No floral species were supported by areas of hardstanding on Site.

6.12 This habitat was of negligible ecological value.

Hedgerow

6.13 A single ornamental hedgerow (H1) was present at the west of the Site.

6.14 The hedgerow was comprised entirely of beech *Fagus sylvatica* and measured approximately 2m in height and 1.5m in width.

6.15 The ground flora associated with H1 was formed of amenity grassland.

Figure 16: West facing elevation of H1

Introduced Shrub

6.16 An area of introduced shrub was present at the west of Site adjacent to B3.

6.17 Species present included bamboo *Bambusa* sp., comfrey *Symphytum* sp. rose Rosa sp., lavender *Lavendula* sp. and *Cotoneaster* sp. Occasional tall ruderal species were also recorded growing within these areas of introduced shrub, such as stinging nettle and willowherb.

6.18 This habitat was of 'Site' ecological value.

Figure 17: Area of introduced shrub at west of Site

Poor Semi-improved Grassland

6.19 The east of the Site comprised a poor semi-improved grassland field. At the time of assessment, the field contained a herd of sheep.

6.20 The sward height was between 5-15cm. Species present included rough meadow-grass *Poa trivialis,* creeping bent *Agrostis stolonifera,* Yorkshire fog *Holcus lanatus,* bristly oxtongue *Helminthotheca echioides,* chickweed *Stellaria media,* groundsel *Senecio vulgaris,* yarrow *Achillea millefolium,* creeping buttercup *Ranunculus repens,* dove's-foot crane's-bill *Geranium mole* and greater plantain *Plantago major.* Rare pockets of singing nettle *Urtica dioica*, comfrey and spear thistle *Cirsium vulgare* were present at the north of the field, reaching up to 2m in height.

6.21 This habitat was of 'Low' ecological value.

Figure 18: Poor semi-improved grassland field, looking south

Scattered Trees

6.22 Numerous scattered trees were present throughout the Site.

6.23 Species present included horse chestnut Aesculus hippocastanum, hazel Corylus avellana, hawthorn Crataegus monogyna, common lime Tilia x europaea, maple Acer sp., apple Malus domestica, beech Fagus sylvatica, crack willow Salix x fragilis, ash Fraxinus excelsior, atlas cedar Cedrus atlantica and holly Ilex aquifolium.

6.24 A single pine *Pinus* tree (T1) was identified as being of Low suitability for roosting bats. A rot hole was present at the south facing elevation of T1 approximately 2.5m above ground level.

6.25 This habitat was of 'Low 'ecological value.

Figure 19: Rot hole at T1's south facing elevation

Waterbodies

6.26 A total of five ornamental ponds were present on Site within the private garden, although outside of any development areas. A single waterbody (P6) was inside B4, which is assumed to have been a former bath house.

6.27 Two ponds at the south of the Site, namely P4 and P5, supported Himalayan Balsam *Impatiens glandulifera* which is an invasive non-native species. There is no legal obligation to eradicate this species. However, if this species spreads to the wild or to a neighbour's property then landowners/ managers could be liable. Himalayan Balsam is also covered by the Environmental Protection Act (Duty of Care) Regulations 1991.

6.28 A spring is also present in the west of the garden, connecting to P2. This is shallow (approximately 10cm) and narrow, and flows from north to south.

6.29 A HSI Index for each waterbody has been provided in **Table 6**:

Table 6: Descriptions of waterbodies surveyed within the Site Pond No.	Description	HSI Score
P1	Small circular pond lined with butyl containing ornamental aquatic species such as water lily *Nymphaeacea.* P1's water was approximately 30cm in depth at its deepest point.  **Figure 20: P1, looking east**	0.66 Average
P2	Narrow, rectangular pond dominated by duckweed *Lemnoideae sp.* The south bank of P2 was dominated by pendulous sedge *Carex pendula.* P2 was connected to a small spring fed stream.  **Figure 21: P2, looking southeast**	0.66 Average

Table 6: Descriptions of waterbodies surveyed within the Site Pond No.	Description	HSI Score
P3	Ornamental linear pond which was unlined and mostly dry at the time of assessment with a depth of approximately 10cm at its east extent. Most of the pond was choked with encroaching introduced shrub species.  **Figure 22: East extent of P3, looking north**	0.53 Below Average
P4	Medium sized rectangular pond bound by a lined of mature scattered trees to the south and west and marginal aquatic species to the north. Himalayan balsam *Impatiens glandulifera* was abundant at the north bank of the pond. Himalayan Balsam is an invasive species in the UK and it is illegal to facilitate its spread into adjacent land under the Wildlife and Countryside Act 1981. P4' water was approximately 50cm in depth at its deepest point.  **Figure 23: P4, looking west**	0.75 Good

Table 6: Descriptions of waterbodies surveyed within the Site Pond No.	Description	HSI Score
P5	Large pond bound by mature crack willow trees and marginal aquatic species to the north. Himalayan balsam was also abundant along the north bank of P5. Mature scattered trees lined the south of the pond whilst reedmace *Typha sp.* dominated its east extent. Depth was approximately 80cm at its deepest point.  **Figure 24: P5, looking west**	0.83 Excellent
P6	Small pool within B4 which may previously have been a bathhouse feature. P6 was approximately 65cm x 120cm in size and had a water depth of up to 10cm. The vertical stone sides of P6 made it unsuitable for access and escape by amphibians.  **Figure 25: P6**	0.31 Poor

6.30 P4 and P5 were of "Medium" ecological value due to their size and abundance of native vegetation supported. P1, P2 and P3 were of "Low" ecological value whereas P6 was of "Site" ecological value.

Other Habitats

Vegetable Patch

6.31 A vegetable patch was present at the west of the Site; this forms the majority of the proposed swimming pool area.

6.32 Species present included leeks *Allium porrum*, peas *Pisum sativum*, runner beans *Phaseolus coccineus* and maize *Zea mays.*

6.33 This habitat was of "Site" ecological value.

Figure 26: Vegetable patch, looking north

Evidence of Protected Species and Other Faunal Interest

6.34 Numerous bird species were recorded during the survey, namely dunnock *Prunella modularis*, blackbird *Turdus merula*, wren *Troglodytes troglodytes*, goldcrest *Regulus regulus*, robin *Erithacus rubecula*, jackdaw *Corvus monedula*, greenfinch *Chloris chloris*, blue tit C*yanistes caeruleus*, jay *Garrulus glandarius*, grey heron *Ardea cinerea*, chiffchaff *Phylloscopus collybita*, woodpigeon *Columba palumbus* and green woodpecker *Picus viridis*.

7. EVALUATION OF ECOLOGICAL CONTEXT

The Site

7.1 The Site itself is located within the Village of Steeple Aston, Oxfordshire. The Site is surrounded by Steeple Aston to the north, south, east and west.

7.2 Ecological connectivity to the Site within Steeple Aston is present in the form of scattered trees, vegetated gardens and a stream to the south. The wider landscape beyond Steeple Aston is dominated by arable farmland intersected by hedgerows which are connected to small pockets of woodland.

Statutory Sites

7.3 The Site itself is not subject to any statutory nature conservation designation.

7.4 No designated statutory nature conservation sites were identified within 2km of the Site.

7.5 Impact Risk Zones (IRZs) are a tool developed by Natural England to provide an initial assessment of the potential risks to Sites of Special Scientific Importance (SSSI). The Site falls within one IRZ for Middle Barton Fen SSSI, however the IRZ does not apply to residential developments and as such further advice is not required.

Non-statutory Sites

7.6 The Site itself is not subject to any non-statutory nature conservation designation.

7.7 One non-statutory nature conservation designation was identified within 2km of the Site, namely Rush Spinney LWS. The LWS is designated for its marsh and wetland habitat supporting a variety of notable and protected fauna and flora.

7.8 Taking into account the distance between the Site and Rush Spinney LWS, it is considered that there will be no adverse impact on any non-statutory sites resulting from the Proposed Development.

8. HABITAT EVALUATION

8.1 The Site is formed by amenity grassland, buildings, a hedgerow, introduced shrub, scattered trees, semi-improved grassland, and waterbodies

8.2 There were no habitats within the Site considered to be of regional or national ecological importance.

8.3 Habitats of "Site", "Low" and "Medium" ecological value are discussed further below. Areas of hardstanding were of negligible ecological value and are therefore not mentioned below.

Amenity Grassland

8.4 This habitat dominated the private garden at the south and centre of the Site and was assessed as "Site" value ecologically. The amenity grassland passed two of three criteria for species-poor improved grassland and did not pass any criteria for species-rich grassland within the Farm Environment Plan (FEP) guidelines (FEP, 2010).

8.5 Frequent management resulting in a uniformly low sward height limits this habitat's value to amphibians and reptiles.

8.6 No areas of this habitat are to be lost as part of the Proposed Development.

Buildings

8.7 The buildings on the Site were not of elevated botanical value, however their suitability for protected species is summarised below and in the following sections.

8.8 Four buildings on Site (B1, B2, B3 and B5) were suitable for roosting bats. The features of B1 were assessed as being of High suitability for roosting bats. Brown long-eared bat droppings were found in B1's 1st storey, therefore this species is known to use B1 as a roost.

8.9 B2 was assessed as being of Moderate suitability for roosting bats due to the structure and undisturbed nature of the building's void and observable gaps within the roof and external walls. B5 was also assessed as being of Moderate suitability as it is suitable for hibernating bats due to the depth of the gaps within its stonework being approximately 10cm.

8.10 B3 was of Low suitability for roosting bats due to gaps within its stonework walls.

8.11 No evidence of nesting birds was recorded within any of the Site's buildings.

8.12 The Proposed Development will result in significant structural works to B1, B2 and B3. B5 is to be replaced with a potting shed lean-to but its stone wall will be retained.

Hedgerow

8.13 A single hedgerow (H1) was present on Site. H1 does not fulfil sufficient criteria to be considered ecologically "important" under the Hedgerow Regulations 1997, however does qualify as Habitat of Principal Importance for biodiversity (HPI) under Section 41 of the NERC Act 2006.

8.14 H1 is to be retained by the Proposed Development, however the proposed works may impact H1 via root compaction if works encroach to within 2m.

Introduced Shrub

8.15 A patch of introduced shrub was present on Site which was of "Site" ecological value. This habitat was not of particular biodiversity value, being dominated by non-native species and does not constitute a HPI.

8.16 All introduced shrub to the west of B2 and B3 will be lost as part of the Proposed Development.

Poor Semi-improved Grassland

8.17 The poor semi-improved grassland passed one of three criteria for semi-improved grassland of moderate species richness within the FEP guidelines (FEP, 2010) and did not pass any criteria for species-rich grassland.

8.18 This habitat was of "Low" ecological value and provided foraging opportunities for amphibians and reptiles.

8.19 Small amounts of this habitat will be replaced informal vegetable patch and 22 scattered trees will also be planted within the poor semi-improved grassland.

Scattered Trees

8.20 Numerous scattered trees were present within the Site's amenity garden and were assessed of "Low" ecological value.

8.21 T1 was assessed as being of Low suitability for roosting bats. Current plans for the Site show that all scattered trees are to be retained as part of the Proposed Development.

Waterbodies

8.22 Six waterbodies were present within the Site, with P4 and P5 being of "Medium" ecological value and P1, P2, P3 being of "Low" ecological value. P6 was of "Site" ecological value

8.23 As HPI ponds are described by Maddock (2011) as those which support protected or notable species (such as GCN or notable invertebrate assemblages), further survey would be required to confirm each pond's HPI status.

8.24 No waterbodies will be lost under the Proposed Development, however in the absence of mitigation there remains potential for indirect impacts, for example pollution events or silt ingress.

9. FAUNAL EVALUATION

9.1 The desk study located a variety of protected species records for the local area.

9.2 The Site has been assessed on the suitability of the habitats to support such protected species and the likelihood of those species being present. **Table 8** provides a summary account of protected species within the Site and local area.

9.3 In the absence of mitigation and further assessment the impacts on each species have been assessed using the following scale:

Table 7: Impact Levels and Criteria

Classification	Criteria
Negative (Significant)	Likely to create a significant effect, including loss, or long-term irreversible damage on the integrity / status of a valued ecological feature
Negative (non-significant)	Likely to create a negative effect without causing long-term or irreversible damage on the integrity / status of a valued ecological feature
Neutral	Effects are either absent or such that no overall net change to the ecological feature occurs.
Positive (non-significant)	Likely to create a beneficial effect on an ecological feature, or providing a new (lower value) ecological feature, without improving its conservation status markedly
Positive (significant)	Activity is likely to create a significant beneficial effect, including long-term enhancement and favourable condition of an existing valued ecological feature, or creation of a new valued ecological feature.

Table 8: Summary of Protected Species Associated with the Site

Species	Recorded in Desk Study	Evidence on Site	Potential on Site to Support Presence	Description of likely Impact on Species	Likely Impact
Amphibians	Yes – records of GCN and common frog within 2km of the Site.	None.	Yes – Ponds 1–5 could potentially support breeding amphibians. Amphibians may forage and shelter within areas of introduced shrub, poor semi-improved grassland and H1, and possibly near building foundations.	No waterbodies are to be lost under the proposals, however in the absence of mitigation indirect impacts such as pollution events could reduce their suitability for breeding amphibians. The removal of introduced shrub, the vegetable patch and any external repair works to the buildings risks killing/injury of amphibians, and reduce sheltering opportunities.	**Negative** (significant).
[redacted]					
Bats	Yes – several species including soprano pipistrelle, common pipistrelle, brown-long eared bat, noctule and barbastelle.	Yes –brown long-eared bat droppings and butterfly wings found within B1. Butterfly wings which are possible bat feeding reman were also found within B2.	Yes – B1, B2, B3, B5 and T1, all contain features suitable for roosting bats. The grassland, scattered trees and ponds also provide foraging opportunities.	B1, B2 and B3 will be subject to renovation works which has potential to cause harm to roosting bats, and reduce their roosting suitability. B5 is to be replaced but its stone wall, which contains bat roosting features, is to be retained.	**Negative** (significant).

Species	Recorded in Desk Study	Evidence on Site	Potential on Site to Support Presence	Description of likely Impact on Species	Likely Impact
Birds	Yes – a large number of farmland and garden birds.	Yes – an assemblage of common bird species.	Yes – H1, scattered trees, P4 and P5 for foraging and nesting.	All nesting habitat is to be retained as part of the Proposed Development.	**Neutral.**
Invertebrates	Yes – three species of invertebrates listed as species of principle importance of conservation under Section 41 of NERC.	None.	Yes – all areas of grassland, ponds, introduced shrub, scattered trees and the vegetable patch are suitable for invertebrates, including SPI.	Small areas of suitable habitat will be lost, such as introduced shrub.	**Negative** (non-significant).
Reptiles	Yes – one record of grass snake within 2km of the Site.	None.	Yes – the ponds and their surrounding vegetation provide foraging opportunities for grass snake. Areas of poor semi-improved grassland may also be used for foraging by reptiles.	A minor loss of (sub-optimal) habitat may result from the works, with a risk of harming low numbers/individual reptiles during site clearance.	**Negative** (non-significant).
Otter	Yes- sixty records within 2km of the Site.	None.	No – there is no running water on Site.	**N/A**	**Neutral** as there is no potential on Site.
Water vole	No.	None.	No – there is no running water on Site.	**N/A**	**Neutral** as there is no potential on Site
Other faunal interest (e.g. fox, hare)	Yes – records of polecat and hedgehog within 2km of the Site.	None.	Yes – there is potential for hedgehog to forage within areas of amenity grassland, poor semi improved grassland, H1 and beside the ponds.	A small amount of poor semi-improved grassland, introduced shrub and the vegetable patch will be lost, causing a minor loss in foraging habitat.	**Negative** (non-significant).

10. RECOMMENDATIONS, FURTHER SURVEYS AND ENHANCEMENTS

Overview

10.1 Recommendations have been provided within this report that will safeguard the existing ecological interest features within the Site. Wherever possible, measures to enhance ecological and biodiversity value have also been set out.

10.2 Based on the survey undertaken to date and the recommendations for further surveys, the presence and potential presence of protected species has been given due regard. Implementation of the measures provided within this report will enable the proposals to accord with national and local planning policy for nature conservation.

Designated Sites

10.3 Due to the distance between the Site and designated nature conservation sites in the local area it is considered highly unlikely that there will be any significant adverse effects on these sites as a result of the works. Therefore, no recommendations in relation to designated sites are made.

Habitats

10.4 The Site is formed by amenity grassland, buildings, a hedgerow, introduced shrub, scattered trees, semi-improved grassland, and waterbodies.

10.5 The Proposed Development will result in significant structural works to B1, B2 B3, B4 and B5, the removal of introduced shrub to the west of B3 for the swimming pool proposals, and the loss of a small area of semi-improved grassland for the vegetable patch. No waterbodies will be affected.

10.6 To increase the biodiversity value of the Site as part of the Proposed Development, it is recommended that any landscape planting should incorporate native species of local provenance, including those species known to provide foraging opportunities for breeding birds and nectar sources for invertebrates.

10.7 It is also recommended that either all edges of the pool are left shallow (less than 12^{o}) or a ramp is included at one end to allow mammal species such as hedgehog to escape. Alternatively the pool area could be walled to prevent access by mammals.

Pollution Prevention

10.8 During construction, safeguards should be put in place in accordance with the Environment Agency's Pollution Prevention Guidelines (2013). Whilst these guidelines are no longer active they provide good practice guidelines to follow. Following these safeguards will reduce potential pollution events to nil, minimising harm to wildlife associated with the existing ponds. Safeguards will include:

- Storage areas of chemicals, fuels, etc. will be located well away from the waterbodies;
- Water washing of vehicles, for example those carrying concrete, should be carried out in a contained area so as to avoid contaminated water entering the waterbodies; and
- Refuelling of plant will take place in a designated area, preferably on an impermeable surface.

10.9 It is understood that the new pool will be designed with chemical-free technology, however should this not be the case then similar measures must be incorporated to ensure pollution events into the waterbodies are avoided.

Species

Amphibians

10.10 Habitat Suitability Index assessment of all ponds has found them to be of potential value to GCN (excluding P6) and suitable terrestrial habitat is present. Due to the proximity of P1-P5 to areas of suitable terrestrial habitat proposed to be cleared under the Proposed Development, it has been recommended that the works take place under the District Level Licencing (DLL) scheme as administered by NatureSpace.

10.11 The DLL would not need to be informed by further survey work. As part of the DLL NatureSpace would analyse the Proposed Development's likely impact on GCN and grant a certificate that can be submitted with the planning application at an agreed cost. The payment made as part of the DLL would be used to fund targeted off-site habitat enhancement and creation for GCN.

10.12 Even should a DLL be obtained for the proposals, due to the minor loss of suitable habitat in proximity to these waterbodies it is recommended that mitigation measures for amphibians are incorporated into proposals. This could include the following:

- Creation of hibernacula, ideally adjacent to waterbodies
- Incorporation of rock features (such as rock gardens, large material gabions, or dry stone walling) into new landscaping.
- Leaving long grass/shrub borders at margins of the garden.

10.13 In accordance with NatureSpace best practice, it is also recommended that the amphibian method statement given below is implemented to safeguard any amphibians which may use the Site on occasion. This is likely to be a condition of the DLL.

- Suitable refugia present within the proposed works area including rubble, log piles and the raised vegetable beds are to be searched and removed by hand.
- Any amphibians (or reptiles) captured as part of this will be relocated to an area of suitable habitat away from the construction area.
- Any areas of longer vegetation including the introduced shrub to be lost will be strimmed initially to a height of 150mm.
- After a 5-day period this area is then to be strimmed to a height of 50mm before being soil stripped.

Badger

10.14 No evidence of badger activity was found within or immediately adjacent to the Site. Badgers readily establish new setts, therefore should any evidence of badger activity be found prior to construction, a member of the Nicholsons ecology team should be contacted for advice.

10.15 General construction safeguards should also be implemented as a precaution, which will also act to safeguard other mammals, such as hedgehog:

- All contractors and Site personnel will be briefed on the potential presence of mammals such as badgers within the Site.
- Any trenches or deep pits within the Site are to be left open overnight will be provided with a means of escape should an animal enter. This could simply be in the form of a roughened plank of wood placed in the trench as a ramp to the surface. This is particularly important if the trench fills with water.
- Any trenches will be inspected each morning to ensure no animals have become trapped overnight.
- Food and litter should not be left within the working area overnight.
- Should badgers be encountered during the works or a new sett found, an ecologist should be contacted for advice.

Bats

10.16 Four buildings on Site (B1, B2, B3 and B5) to be impacted by the Proposed Development were suitable for roosting bats.

10.17 DNA analysis results of droppings confirmed that B1 is a known roost for brown long-eared bat, however the exact roost type could not be ascertained from the building inspection.

10.18 B1, B2, and B3 were subsequently subject to nocturnal dusk emergence and dawn re-entry surveys in July and August 2022. The results of these surveys are presented within a separate Nocturnal Bat Survey Report (22-1190). Hibernation surveys of these buildings are ongoing as of February 2023, to be reported separately.

10.19 B5's stone wall is of Moderate suitability to roosting bats. However, works to B5 will not directly impact any potential roosting features. Although no further survey work at B5 is recommended, works should take place outside of the bat hibernation period (October-March) as a precaution.

10.20 The following measures below should be employed to minimise disturbance to bats:

- Night working should be avoided where possible, lighting used during the construction phase must be directed away from the trees around the boundaries of the Site.
- Construction practices should follow best practice in terms of dust and noise and control.
- Any exterior lighting installed on the new building should be directed away from the retained trees and into the existing car parking area to the south and east.

Invasive Species

10.21 Himalayan balsam was recorded at the south of the Site beside P4 and P5. This species typically outcompetes native plants and spreads at a fast rate. The spread of this species to adjacent land not in the ownership of the client would breach legislation within Wildlife and Countryside Act 1981.

10.22 It is therefore recommended that a specialist contractor for invasive species removal is commissioned to remove existing Himalayan balsam at the Site.

Nesting Birds

10.23 As the introduced shrub and buildings offer breeding opportunities for birds, works affecting these habitats should take place outside the bird breeding season (March to August inclusive). In the event works need to proceed within this period, then specialist advice from a suitably qualified ecologist should be sought.

Reptiles

10.24 Reptiles may occasionally forage within the Site's ponds and semi-improved grassland.

10.25 Recommendations provided in respect of amphibians will also act to safeguard any reptiles which may use the Site on occasion.

Enhancements

10.26 Development proposals should seek to provide enhancement opportunities for species using the Site. This could include the following measures:

- Enhancement of aquatic habitats through new wetland habitat creation and marginal and further aquatic planting of native species within existing ponds;
- Enhancement of grassland areas through planting of wildflower areas and appropriate mowing regimes, and/or establishment of tussocky grassland margins;
- Removal of non-native invasive species and replacement with suitable native species;
- Planting of nectar, fruit and nut producing species;
- Provision of bird boxes, including swift boxes, swallow cups and a sparrow terrace;
- Provision of bat boxes (to be informed by the Nocturnal Bat Survey Repot (22-1190));
- Creation of log piles and hibernaculum suitable for reptiles and amphibians.

General

10.27 In the unlikely event any protected species (e.g. amphibians, badgers, bats, reptiles, or nesting birds) are encountered as part of the works, then all works must stop, with advice sought immediately from Nicholsons (01536 408840).

11. REFERENCES AND BIBLIOGRAPHY

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English Nature (2001) Great Crested Newt Mitigation Guidelines.

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JNCC (2010). Handbook for Phase 1 Habitat Survey: A technique for environmental audit.

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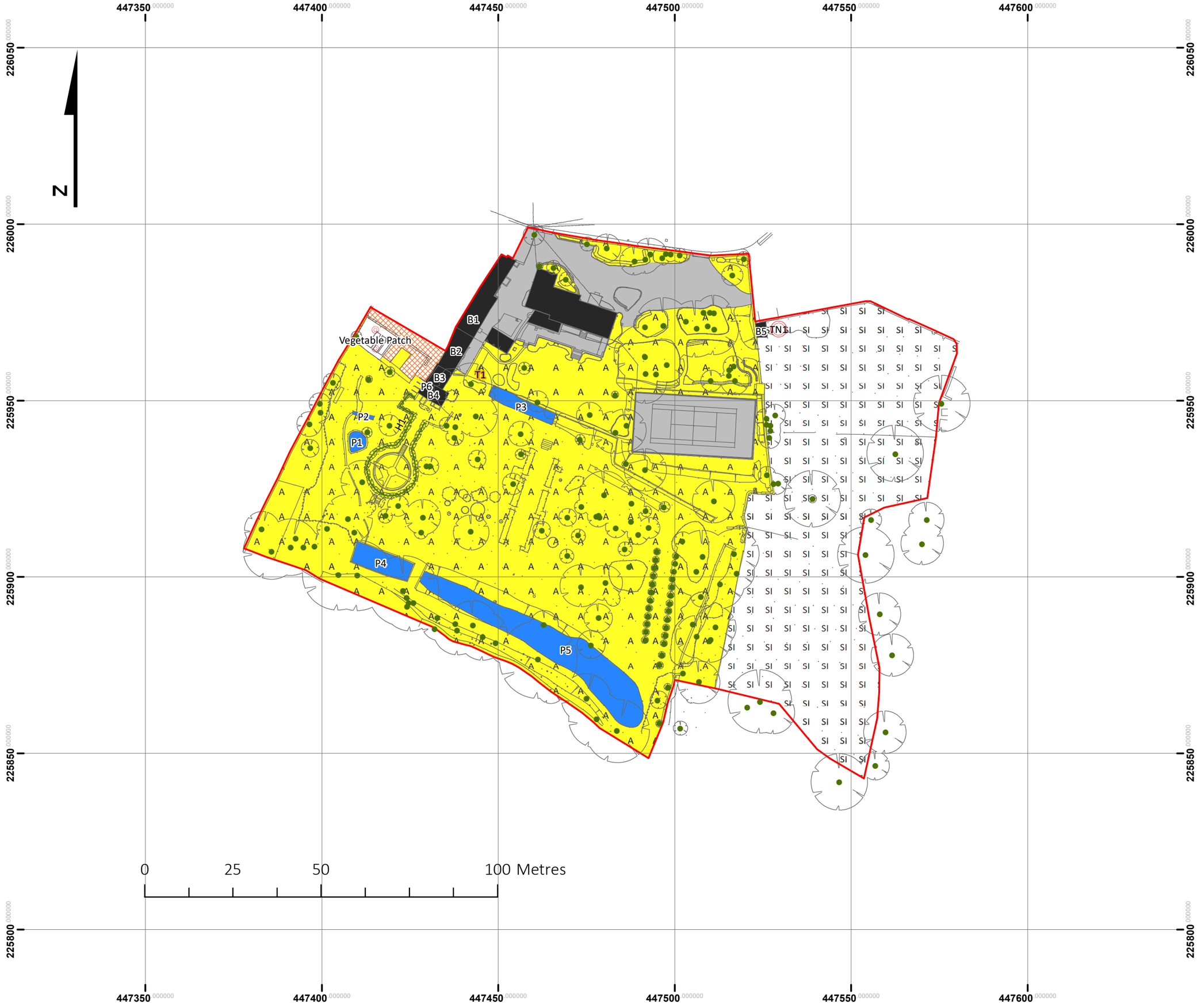
12. APPENDICES

Appendix 1: PEA Phase 1 Habitat Map

Ref: 22-0761



LEGEND:

- Site Boundary
- Scattered Tree
- Amenity Grassland
- Semi-improved Grassland
- Building
- Hardstanding
- Introduced Shrub
- Other Habitat (Vegetable Garden)
- Pond
- Hedgerow

Target Note:

TN1 - Log pile

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Leading solutions for the natural environment

TITLE: Preliminary Ecological Appraisal

PROJECT/SITE: Cedar Lodge, Steeple Aston

CLIENT: Pasteur, F & A

MAP REF: 4914/01/22-0761

VERSION: v2

DATE: 16/11/22

SCALE: 1:1,000@A3

APPROVED BY: EW

PRODUCED BY: SM

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North Aston
Oxfordshire
OX25 6HL
01869 340342

7 - 8 Melbourne House
Corbygate Business Park
Weldon, Corby
Northamptonshire NN17 5JG
01536 408840

www.nicolsonsgb.com

Appendix 2: Bat Dropping DNA Analysis

Ref: 22-1322

Swift Ecology

kate.rooney@lgluk.com

Contact Name	**Kate Rooney**	**Email**	**kate.rooney@lgluk.com**
Phone	**07539120296**	**Company**	**04820053**
Address	**The Park, North Aston, Oxfordshire OX25 6HL, United Kingdom**		

VAT RECEIPT

Date: 25/10/2022 16:03

Method: MasterCard x-5515

Sample1

Mixed Species additional charge

VAT @ 20%

[redacted]

Ex VAT: [redacted]

Total Cost :

Company No. 6233860. Registered in England and Wales.
VAT Reg No. 901 5587 33

kate.rooney@lgluk.com

Samples submitted

Sample Code	Multi-species?	Sample Type	Date Sample Found	Species Group	Site postcode/ post town /grid ref	Site description / comments (Optional)	Suspected identity of species
SEL-1670-1	Yes	Faecal	29/06/2022	Bats	SP4744425969		brown long-eared or small Myotis (whiskered bat)

Analysis Results

Sample Code	DNA Extraction Code	Species Identified	ID Method	Ct value	% match
SEL-1670-1	EG-2022-1484	Plecotus auritus (Brown long-eared bat) All UK bat species tested for - only a single species detected in this sample	qPCR	23	

What do my results mean?

DNA extraction code - this identifies the DNA extraction sample within our laboratory so that it can be revisited if necessary. We keep these extractions for a minimum of 3 months.

ID method: *qPCR* - These results are obtained using species specific qPCR tests. A positive result indicates the presence of DNA from the species reported.

ID method*: DNA sequencing* - where qPCR fails or is not possible, standard DNA sequencing will be performed. Sequences are then matched against a database.

Ct value - This is a relative measurement of the amount of species DNA in the sample, derived from the qPCR data. The lower the value the more DNA present in the reaction. This helps to predict the abundance of one species relative to another **in the sample**. Note: this relative abundance is not directly transferable to the site the samples were collected from.

% match - this value is the percentage match of sequences derived from DNA sequencing compared to the database. Due to differences in DNA sequence between individuals within a species this match may not always be exactly 100%.

kate.rooney@lgluk.com

TERMS AND CONDITIONS

By using the service, you agree to our terms and conditions as below.

1. Costs and procedures will be regularly reviewed and may be revised at any time.
2. We take great care to ensure the reliability of the DNA analysis but there is an element of uncertainty in any biological analysis. Undue weight should not be given to single analyses and if the data are to be the basis of important decisions then replicate samples should be tested. No responsibility can be taken by either SEL of EG for the subsequent use or misuse of data.
3. The cost charged represents the labour and materials required to undertake an analysis, and is incurred whether or not that analysis produces a result. No refunds are given for failed tests where the failure was due to circumstances outside the lab's control.
4. In the case of a failed initial test, further tests will be carried out as detailed in Section 3 of the Guidance. Any additional tests over and above this will be chargeable, but this will be agreed before proceeding.
5. Payment is required in advance. Sample numbers will not be provided until payment has been received.
6. We accept no responsibility for delays caused by equipment breakdown, industrial action, postal disruption or any other factors outside our control. In the unlikely event of such delays, we will inform the client as soon as possible and will make every effort to process samples at the first opportunity.
7. We accept no responsibility for any action arising from failure to abide by instructions in relation to packaging/postage.
8. Loss in transit is not insured. You may wish to take out your own insurance.

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