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Ecological Impact Assessment

Lincolns
Boyatt Lane
Eastleigh
SO50 4LJ

August 2026

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QUALITY CONTROL		
The information which we have prepared and provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct.		
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Approved by	Senior Ecologist Amanda Honour BSc MSc MSc	August 2026
This report remains valid for 2 years from date of issue. Survey data are valid for 12-18 months from the date the survey was undertaken.		

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Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living creatures are capable of migration and whilst protected species may not have been located during the survey duration, their presence may be found on site at a later date.

The views and opinions contained within the document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to works.

1. EXECUTIVE SUMMARY

- 1.1. Darwin Ecology Ltd was commissioned by Mr Richard Charles to undertake an Ecological Impact Assessment (EcIA) of proposals for the buildings and habitats at Lincolns, Boyatt Lane, Eastleigh, SO50 4LJ. The assessment was required to support a planning application for the construction of an orangery extension on the southern elevation of the property, alongside the renovation of the cellar. The assessment was informed by a desk study, habitat walkover survey, internal and external building inspection, and emergence surveys for bats.
- 1.2. During the habitat walkover survey, it was identified that the site comprised a mosaic of developed land; sealed surface, building footprint, modified grassland, and ornamental planting. It was assessed that the habitats on site were significantly unlikely to support individuals or populations of protected and notable species, and as such, no further surveys have been recommended. Mobile species known to inhabit the wider landscape, such as terrestrial mammals, foraging and nesting birds, and foraging bats, may pass through and utilise the site on occasion. Therefore, general mitigation measures have been recommended.
- 1.3. During the building inspection, it was assessed that the residential building on site held **moderate potential** to support roosting bats due to the presence of numerous external and internal roosting opportunities with suitability to support individual bats, alongside several suitable access points into the void. A low number of droppings (approximately 20-40), which were morphologically consistent with long-eared droppings, were scattered within the loft void. Due to the presence of bat droppings within the void, B1 was assessed to be a **confirmed roost**.
- 1.4. It was assessed that the cellar within B1 held **negligible potential to support hibernating bats** due to its tendency to flood to ceiling level throughout the hibernation period.
- 1.5. B2 and B3 will not be impacted by the proposals, and as such, were not subject to a full building inspection. No external roosting features or access points into the buildings were identified during the external inspection. No internal access was possible during the surveys.
- 1.6. The impacts of the proposals are restricted to the ground floor and cellar on the southern elevation of the property, and it is not anticipated that the loft void, roof, or second storey hanging tiles will be impacted by the works. In line with the Bat Conservation Trust (BCT) Best Practice Guidance (2023), a total of three dusk emergence surveys were undertaken during the 2026 ecological season.
- 1.7. During the emergence surveys, a peak count of one common pipistrelle *Pipistrellus pipistrellus* was recorded to emerge from underneath hanging tiles near the western and central windows on the second-storey of the southern elevation. A low level of bat activity was recorded across the site during the surveys. Activity predominantly comprised foraging

passes by common pipistrelle, with individual passes by soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctula*, and brown long-eared bat *Plecotus auritus* recorded.

- 1.8. The proposed plans show that the works will not directly impact any of the confirmed roosts within B1, and it is considered unlikely that the proposed works result in the damage or destruction of a bat roost and/or the injury or death of individual bats. No further surveys or licensing are required to permit the works.
- 1.9. Whilst the works to construct the orangery on the southern elevation of the property will not directly impact roosting points A1 and A2, the works will be within proximity of these roosting locations. As such, no scaffolding is permitted to abut this area of hanging tiles, and should the works extend to impact this area of hanging tiles, an appropriate licence will be required to permit the works.
- 1.10. In the absence of mitigation, light spill during the works and from the new orangery may result in the modification of the nearby roosting locations, and may impact bat flight paths and activity.
- 1.11. Whilst no licensing is recommended, a precautionary method must be followed throughout the works process to protect the identified roosts present on site, with measures to include;
 - It is recommended that works are carried out during the bat active season between March - October inclusive, to avoid the disturbance of any hibernating bats;
 - A full internal and external building inspection prior to works commencing, including torching of potential roosting features to be removed;
 - Education of contractors on the protection afforded to bats through a Tool Box Talk;
 - Ecological supervision and soft strip of features suitable for use by bats by hand and using hand tools prior to the rest of the building works;
 - Installation of a tree-mounted crevice-style bat box on a mature tree on site;
 - A sensitive lighting scheme must be followed throughout the works period; and
 - A bat-sensitive lighting plan will be developed for the proposed development, including measures such as downward facing baffles and fixtures, warm-tone light fixtures, and areas of selective glazing where required.
- 1.12. **In the unlikely event that a bat is discovered during the works, all works must cease and a bat-licensed ecologist contacted for advice.**
- 1.13. **If a bat is discovered during the works, a licence will need to be obtained to permit the continuation of works impacting potential roosting features.**
- 1.14. Outline mitigation and enhancement recommendations have been made in order to ensure that opportunities are available for protected species following the completion of the development, and that the ecological value of the site is enhanced in the long-term.

2. INTRODUCTION AND BACKGROUND

- 2.1. Darwin Ecology Ltd was commissioned by Mr Richard Charles to undertake an EcIA of proposals for the buildings and habitats at Lincolns, Boyatt Lane, Eastleigh, SO50 4LJ (hereafter referred to as 'the site')¹. The assessment was required to support a planning application for the construction of a single-storey orangery extension, alongside the renovation of the cellar. The assessment was informed by a desk study, a habitat walkover survey, an internal and external building inspection, and emergence surveys for bats.
- 2.2. The proposed drawings on which this assessment is based are provided in the **Appendices**.
- 2.3. The internal and external building inspection and emergence surveys follow the Bat Conservation Trust (BCT) Good Practice Guidelines (2023). The habitat walkover survey followed the Chartered Institute for Ecological and Environmental Management (CIEEM) Guidelines for Preliminary Ecological Appraisal (2017).
- 2.4. The subsequent EcIA follows the roost assessment methodology set out by Wray *et al.* (2010) and the CIEEM Guidelines for EcIA in the UK and Ireland (2018).

Site Overview

- 2.5. The site is located on the northeastern outskirts of Chandler's Ford town, situated 2.00km northeast of the town centre. The site is located 9.75km northeast of Southampton city centre, and 8.00km southwest of Winchester city centre.
- 2.6. The site comprises a two-storey residential building, with two associated detached outbuildings (comprising a shed and a garage) set within areas of hardstanding and amenity garden. The site is bounded in all cardinal directions by pastoral fields. The M3, running north to south, is located 70m west of the site (see **Figure 1**).
- 2.7. The wider landscape to the west and south of the site comprises the dense urban environment of Chandler's Ford town, consisting of a mosaic of residential and commercial properties, public amenities, and areas of recreational green space. A collection of waterbodies are located within a parcel of woodland 185m southeast of the site, and Broom Hill Allotments are located 180m southwest of the site. The landscape to the north and east of the site comprises a rural mosaic of arable and pastoral fields interspersed by large parcels of woodland and small urban developments. The River Itchen, running north to south, lies 1.15km east of the site. A railway line, which runs north to south, directly bounds the river to the west (see **Figure 2**).

¹ Ordnance Survey (OS) grid reference SU 45135 21644.



Figure 1: Site location within the local landscape. Copyright Google Earth Pro (August 2026)



Figure 2: Site location within the wider landscape Copyright Google Earth Pro (August 2026)

Scope of Assessment

- 2.8. The process of EclA aims to identify, quantify and evaluate the potential effects of development-related or other proposed actions on habitats, species and ecosystems.
- 2.9. Potential effects on the following ecologically sensitive receptors have been considered during the EclA of Lincolns:
- Statutory designated sites;
 - On-site habitats of intrinsic importance (such as priority habitats); and
 - Habitats with the potential to support protected species.
- 2.10. The aim of this report is to:
- Identify and describe ecologically sensitive receptors within the site;
 - Carry out an impact assessment of the proposed works and how they will directly / indirectly affect the ecological receptors identified;
 - Outline the relevant legislation and protection afforded to protected species present at the site; and
 - Provide avoidance, compensation, mitigation and enhancement measures recommended to avoid harm / injury to protected species.

3. LEGISLATION & POLICY

General Wildlife Legislation

- 3.1. Wildlife in the United Kingdom (UK) is protected through European and national legislation, supported by national and local policy and guidance. Development can contribute to conservation and enhancement goals outlined by these various legislation and policy by retaining and protecting the most valuable ecological features within a site and incorporating enhancements to provide biodiversity net gain.
- 3.2. This section provides a brief summary of the principle legislation and policy that triggers the requirement for PRA and further ecological assessments in the UK. The presence of protected species within a site are a material consideration during the planning process. PRAs and any necessary further ecological assessments provide an ecological baseline for a site and evaluation of the potential impact of proposals.
- 3.3. It is the responsibility of those involved with development works to ensure that the relevant legislation is complied with at every stage of a project. Such legislation applies even in the absence of related planning conditions or projects outside the scope of the usual planning process (i.e. permitted development projects or projects requiring Listed Building Consent only).

Bat Legislation

- 3.4. In England and Wales, all bat species and their roosts are legally protected under the European *Habitats Directive (1992)*; the *Conservation of Habitats and Species Regulations (2017)*; the *Wildlife and Countryside Act (1981) (as amended)*; the *Countryside and Rights of Way Act, 2000*; and the *Natural Environment and Rural Communities Act (NERC, 2006)*.
- 3.5. Barbastelle *Barbastella barbastellus*, Bechstein's *Myotis bechsteinii*, greater horseshoe *Rhinolophus ferrumequinum*, lesser horseshoe *Rhinolophus hipposideros*, brown long-eared *Plecotus auritus*, soprano pipistrelle *Pipistrellus pygmaeus*, and noctule *Nyctalus noctula* bats are all species of principal importance in England under *Section 41* of the *Natural Environment and Rural Communities Act 2006*.
- 3.6. You will be committing a criminal offence if you:
 - Deliberately capture, injure or kill a bat;
 - Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
 - Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time);
 - Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat; or
 - Intentionally or recklessly obstruct access to a bat roost.

- 3.7. The government's statutory conservation advisory organisation, Natural England, is responsible for administering European Protected Species (EPS) licences that permit activities that would otherwise lead to an offence.
- 3.8. A licence can be obtained if the following three tests have been met:
- Regulation 53(9)(a) - there is "no satisfactory alternative" to the derogation, and;
 - Regulation 53(9)(b) - the derogation "will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range" and;
 - Regulation 53(2)(e) - the derogation is for the purposes of "preserving public health or public safety or other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment".

National Planning Policy

- 3.9. The *National Planning Policy Framework (2024)* aims to minimise impacts on biodiversity and provide net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity. Chapter 15 'Conserving and enhancing the natural environment' details what local planning policies should seek to consider with regard to planning applications.
- 3.10. Planning policies and decisions should contribute to and enhance the natural and local environment by:
- 187 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);
 - 187 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;
 - 187 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 and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs;
 - 188) Plans should: distinguish between the hierarchy of international, national and local designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement

of natural capital at a catchment or landscape scale across local authority boundaries;

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

3.11. Specific policies regarding habitats and biodiversity comprise:

192) To protect and enhance biodiversity and geodiversity, plans should:

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

193) When determining planning applications, local planning authorities should apply the following principles:

- a) If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) Development on land within or outside of Sites 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 feature of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around development 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.

194) The following should be given the same protection as habitats sites:

a) Potential Special Protection Areas and possible Special Areas of Conservation;

b) Listed or proposed Ramsar sites; and

c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

Local Planning Policy

3.12. The local planning policy for the site is the Eastleigh Borough Council Local Plan (2016-2036), which was adopted in April 2022, with relevant policies comprising:

3.13. *Strategic policy S9, Green infrastructure*

- Through new development and other initiatives the Borough Council will seek to achieve the provision, retention and/or enhancement of the following forms of multi-functional green infrastructure, including provision of:
 - Landscape scale strategic links across the Borough boundary, to and between the Borough's settlements, the countryside, the coast, and the major areas of open space including the country parks
 - Interlinked publicly accessible open space through new and existing development including for example formal sports facilities and informal amenity spaces and cemeteries
 - Green infrastructure incorporated into all new development with multifunctional spaces connected by primary, secondary and tertiary green links;
 - Interconnected urban green infrastructure within the fine grain of existing and new development including green, cycle ways, paths and linkages between community facilities and open spaces to link community facilities;

- Green stepping stones such as street trees, green roofs and walls, pocket parks and urban copses;
- Connected habitats linking the network of designated sites and existing priority habitats, taking account of the Hampshire ecological network map;
- Incorporation of historic buildings and landscapes, including historic parks and gardens within the wider Green Infrastructure to protect their setting;
- Opportunities for local food growing, including allotments, community orchards and farms

3.14. *Policy DM1, General criteria for new development*

- All new development should (as relevant):
 - Not have an unacceptable impact on, and where possible should enhance:
 - Residential amenities of both new and existing residents; the character and appearance of urban areas, the countryside and the coast;
 - Biodiversity (avoiding significant adverse impacts); and iii. the significance of heritage assets;
 - Make efficient use of the site, maximise opportunities to increase density and have regard to potential development opportunities on adjoining land;
 - Take full and proper account of the context of the site including the character, appearance and land uses of the locality or neighbourhood, and be compatible with adjoining uses and be well integrated with these in terms of mass, scale, materials, layout, density, design and siting, both in itself and in relation to adjoining buildings, spaces and views. Where adjoining development is poor in urban design terms, new development should contribute to improving the character of the area;
 - Not involve the loss of or damage to trees, woodlands, hedgerows, ponds, priority habitats or other landscape features of value to the character of the area, for appearance or biodiversity unless they can be replaced with features of equivalent or enhanced value, (recognising that some species and habitats may be irreplaceable);
 - Include a landscape scheme covering the design and layout of external space; protect and enhance public rights of way and National Trails and provide fully connected green infrastructure that interlaces the development and connects into the wider network;
 - Provide satisfactory management arrangements for all landscape, green infrastructure and biodiversity enhancement; incorporate provision for people with disabilities and create accessible communities that cater for all;
 - Incorporate design measures to inhibit criminal and anti-social behaviour; incorporate provision for on-site waste management; and

- Include provision for public art associated with new large-scale development in accordance with the Council's adopted Public Art Strategy.

3.15. *Policy DM11, Nature conservation*

- The Council will work with statutory and voluntary agencies and developers, and will determine planning applications, to:
 - Protect, conserve and enhance all:
 - international, national and local nature conservation designations; and
 - networks of natural habitats and features, including the Local Ecological Network, Priority Biodiversity Areas and Priority Biodiversity Links, watercourses, wetland complexes, woodland trees, and trees and hedgerows important to biodiversity and local character;
 - And facilitate their adaptation to climate change wherever possible;
 - Assist in achieving national, county and local biodiversity targets as set out in Biodiversity Action Plans (BAPs);
 - Seek a net gain of biodiversity on all development sites (including sites for redevelopment) through the protection, enhancement and connection of existing and provision of new habitats and features of nature conservation interest compatible with the native biodiversity characteristics of the Borough, having regard to local geodiversity and soils;
 - And contribute to major elements of the PfSH Green Infrastructure Strategy and other strategies for the provision and enhancement of multifunctional green infrastructure, including green routes, ecological networks and biodiversity enhancements.

3.16. *International Designations*

- Development which is likely (either individually or in combination with other developments) to adversely affect the integrity of an international or European nature conservation site will not be permitted, subject only to imperative reasons of overriding public interest and securing any necessary compensatory measures in the absence of alternative solutions. A 'project level' Habitat Regulations Assessment will be required where there are likely significant effects or uncertainty. Any mitigation measures required to ensure no adverse impact must be implemented at the appropriate time.
- The Council will work with PfSH, Natural England, the Environment Agency and other wildlife organisations to develop and implement with developers a strategic approach to the protection and enhancement of international and European sites from the direct and indirect effects of development. Within Eastleigh Borough, this will include:
 - Implementing:

- The Solent Recreation Mitigation Strategy (requiring contributions from residential developments within 5.6 kilometres of the Solent Special Protection Area to the Strategy); and
- The interim and any future New Forest Recreation Mitigation Strategy if required; or alternative agreed site specific measures to address recreational disturbance;
- Preserving the water quality and flows within the Itchen and Hamble, Southampton Water and Solent; protecting the River Itchen SAC, in particular the maintenance and where appropriate restoration of habitats and qualifying species to favourable conservation status (as defined by article 1 of the Habitats Directive);
- And seek contributions towards measures set out in the Southern Damselfly Conservation Strategy (or other strategy) specifically to deliver biodiversity net gain.

3.17. *National and Local Designations*

- Development will not be permitted if it is likely (either individually or in combination with other developments) to have a direct or indirect adverse effect on a Site of Special Scientific Interest (SSSI), Site of Importance for Nature Conservation (SINC) or Local Nature Reserve (LNR) as shown on the policies map (or on a more recent plan provided by the Hampshire Biodiversity Information Centre) unless it can be demonstrated that:
 - There are no alternative solutions;
 - The adverse effects are unavoidable;
 - Measures are taken to mitigate or, as a last resort, compensate for the adverse effects;
 - There is an overall biodiversity net gain; and
 - If there are any residual adverse effects which cannot be avoided, mitigated or compensated, the benefits of the development must clearly outweigh the adverse effects on the nature conservation value of the site and any broader impacts on national and local designations.

3.18. *Priority habitats, protected and priority species and the local ecological network*

- Development will not be permitted if it is likely (either individually or in combination with other developments) to have a direct or indirect adverse effect on priority habitats, protected or priority species, or on the local ecological network unless it can be demonstrated that:
 - There are no alternative solutions;
 - The adverse effects are unavoidable;
 - Measures are taken to mitigate or, as a last resort, compensate for the adverse effects;

- There is an overall biodiversity net gain; and
- If there are any residual adverse effects, the benefits of the development clearly outweigh the adverse effects on priority habitats, priority and protected species, and the local ecological network.

3.19. *Irreplaceable habitats*

- Development will not be permitted if it results in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees), unless there are wholly exceptional reasons and a suitable compensation strategy exists.

3.20. *Buffers*

- Buffers free from development will be provided to designated sites to avoid/mitigate impacts, including recreational impact and impacts on edge habitats, and to maintain dark skies.

3.21. *Surveys*

- Development will not be permitted unless it can be demonstrated that:
 - There have been thorough habitat and species surveys;
 - The great crested newt strategic survey and strategy have been considered in all developments within 500m of a great crested newt pond; and
 - The strategic bat trapping survey has been considered in all developments within the locality of a woodland or connected habitat networks.

3.22. *Policy DM6, Sustainable surface water management and watercourse management*

- New development (excluding extensions to dwellings and changes of use), will only be permitted if it incorporates Sustainable Drainage Systems (SuDS). Wherever feasible, naturalised filtration should be included within the treatment train as follows:
 - On sites of 1 hectare or more, or within 100m of the River Itchen SAC or Solent Maritime SAC, SuDS schemes should include at least three forms of naturalised filtration. On sites within 100m of headwaters and tributaries draining into a SAC, SuDS schemes should include at least three forms of naturalised filtration unless hydrological studies and project-level Habitats Regulations Assessment demonstrate this to be unnecessary to protect the integrity of the SAC and its qualifying features;
 - On other sites of between 0.5 hectares and 1 hectare, SuDS schemes should include at least two forms of naturalised filtration;
 - On other sites of less than 0.5 hectares non-naturalised SuDS e.g. permeable paving will be considered where justified.
- Where a watercourse is present on a development site, it should be retained or restored into a natural state and enhanced where possible. The culverting of any watercourse will

not generally be permitted, and development should wherever possible remove any existing culverts and increase onsite flood storage. Development should be laid out to enable maintenance of the watercourse.

- Where development drains into a waterway connected to the Natura 2000 or Ramsar network a site specific Construction Environment Management Plan must be prepared before permission

Hampshire Biodiversity Action Plan

3.23. The Hampshire Biodiversity Partnership was set up by Hampshire County Council to raise awareness of Hampshire's natural environment and increase commitment to its conservation. The Biodiversity Action Plan provides the platform from which the Hampshire Biodiversity Partnership can take effect. Detailed habitat action plans for 21 key habitats are in development, as well as for action outline for 443 priority species that occur amongst these habitats. To advance biodiversity conservation in Hampshire, the following objectives have been identified:

- To audit the nature conservation resource of Hampshire;
- To identify from the audit habitats and species of priority nature conservation concern, including those which are locally distinct;
- To prepare action plans for habitats and species of priority concern and follow through with programmes of implementation and monitoring;
- To ensure that data on habitats and species is sufficient to enable effective implementation and monitoring of biodiversity objectives;
- To review general issues affecting biodiversity, such as agriculture and development, and chart a course of appropriate action;
- To raise awareness and involvement in biodiversity conservation across all sectors;
- To encourage individuals and organisations to review their role in biodiversity conservation and the resources required, and develop their own action in response to the Biodiversity Action Plan for Hampshire;
- To maintain an ongoing partnership which will co-ordinate, develop and support action for biodiversity;
- To monitor and review progress towards meeting the above objectives and the targets set out in the habitat and species action plans; and
- To periodically update the Biodiversity Action Plan for Hampshire and its component habitat and species action plans to take account of changing circumstances.

4. METHODOLOGY

Desk Study

- 4.1. A desk study was undertaken for designated sites, and protected species and habitat records within 2km of the site:
- The MagicMap website was reviewed to obtain information on any designated sites of nature conservation interest within 2km of the site and details of any EPS licences issued within 1km, extended to 2km for bats;
 - The Eastleigh Borough Council Planning Portal was searched for past and pending planning applications that may have associated ecological documents detailing results of bat surveys; and
 - Google Maps and Ordnance Survey (OS) Leisure Maps were utilised to view aerial photographs and maps to assess the ecological context of the site within the wider landscape.
- 4.2. Natural England has developed a tool to help assess the potential risks to SSSIs from proposed developments. These are known as 'Impact Risk Zones' (IRZs), and they define the area around an SSSI that could be sensitive to development, considering the particular sensitivities of the feature for which the site is designated.
- 4.3. The IRZs help inform whether a development proposal may affect an SSSI and if so, whether it is necessary for the Local Planning Authority (LPA) to seek pre-application advice from Natural England. Information on the IRZs was determined from the MAGIC website to determine if the LPA is required to seek consultation for the current development.

Habitat Walkover Survey

- 4.4. Licensed Ecologist Eleanor Kemp² BSc (Hons) MSc and Assistant Ecologist Jordan Holman-Thatcher BSc (Hons) conducted a walkover survey at Lincolns on 11th November 2025. The weather conditions at the time of the survey were dry and overcast with a light breeze. The temperature at the time of the survey was approximately 8°C.
- 4.5. Habitats on site were broadly mapped to a minimum of 5m² in accordance with current guidance from UK Habitat Classification Version 2.0 UKHab Ltd (2023).
- 4.6. The walkover survey also assessed habitats present within the application red line boundary for their potential to support protected species, including:
- Bats;
 - Great crested newt *Triturus cristatus* and common amphibians;
 - Reptiles;
 - Dormouse *Muscardinus avellanarius*;

² Bat Class I Licence: 2025-84506-CL17-BAT

- Other terrestrial mammals, including hedgehog *Erinaceus europaeus* and badger *Meles meles*;
- Schedule 1 birds, including but not limited to; barn owl *Tyto alba*, lapwing *Vanellus vanellus* and skylark *Alauda arvensis*
- Breeding birds; and
- Invertebrates.

- 4.7. As there is no running water within the site, in combination with their nationally sparse distribution, it is considered highly unlikely that white clawed crayfish *Austropotamobius pallipes* would be using the site and they are therefore not considered further in this report.
- 4.8. Otter *Lutra lutra* and water vole *Arvicola amphibius* are not considered further in this report due to the lack of running water on site and within the wider area. The site also does not offer any suitable habitat for these species.
- 4.9. The site was also searched for non-native, invasive plant species, with particular care to search for the most commonly occurring and problematic species, such as Japanese knotweed *Fallopia japonica*, Indian balsam *Impatiens glandulifera* and giant hogweed *Heracleum mantegazzianum*.

Building Inspection

- 4.10. Licensed Ecologist Eleanor Kemp BSc (Hons) MSc and Assistant Ecologist Jordan Holman-Thatcher BSc (Hons) conducted a building inspection at the site at Lincolns on 11th November 2025. The following methodology was followed:

External Survey

- 4.11. An investigation was carried out of external features with potential for use by roosting bats, such as gaps under roof and ridge tiles, gaps at soffit boxes or fascias. A search for bat droppings was made beneath each potential entry/exit point identified where accessible. The surveyor used binoculars and powerful, low-heat LED torch.

Internal Survey

- 4.12. An investigation was carried out of the roof void (including the floor and walls) for signs of bats roosting and the access potential into the roof void for bats. The surveyor looked for bats, bat droppings, likely access points, signs of feeding, dead bats, scratch marks and staining, and made a suitability assessment of the structure of the roof.

Potential to support roosting bats

- 4.13. Each building was assessed for its potential to support roosting bats as detailed in **Table 1** below which is taken from the Bat Conservation Trust 2023 guidelines Table 4.1, Table 7.1 and Table 7.2.

Table 1: Roost classification from the Bat Conservation Trust (2023) guidelines.

Category	Description of roosting habitat	Number of surveys required
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No further surveys
Negligible	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No further surveys
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis by large numbers of bats.	Single survey between May to August
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, condition and surrounding habitat but unlikely to support a roost of high conservation status.	Two surveys with at least one survey between May to August.
High / Confirmed	A structure with one or more potential roost sites that are obviously suitable for use by a larger number of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roosts.	Three surveys with at least two surveys between May to August.

Emergence Surveys

- 4.14. Three dusk emergence surveys were conducted during the 2026 survey season. Surveys were undertaken in line with BCT Good Practice Guidelines (2023), with any limitations outlined below.
- 4.15. Surveyors were positioned strategically around the building in order to provide adequate coverage of all elevations. Surveyors focused on any features identified during the Preliminary Roost Assessment (PRA) as having potential to be used as bat access points. The location of the surveyors and building numbers and names are shown on **Figure 4, Bat Survey Results**.
- 4.16. Dusk surveys began 15 minutes prior to sunset and lasted 1.5-1.75 hours after sunset. Surveyors recorded bat activity using hand-held Echometer Touch detectors connected to Android or iPhone devices. Analysis of recordings was undertaken after the surveys to confirm species identification. Observations recorded during surveys included bat access points, bat species, time, and type of activity (e.g. emergence, re-entry, commuting, foraging, etc.). Incidental records of bats within the vicinity of the building (but not necessarily roosting) were also recorded.
- 4.17. Each surveyor used a night vision aid (NVA) to aid in their visibility during each survey. A standalone NVA, fitted with a Songmeter Mini static detector, was used as an additional surveyor position. Equipment used consisted of Nightfox Whisker night vision binoculars with Nightfox Arc infra-red floodlights, Canon AX20 video cameras with Black Sun 2 B502

infra-red illuminator, and PixFra Thermal Camera Model: PF1-A613. These were used to film bat activity for the duration of the survey at a fixed position; see the **Appendices**.

4.18. All recorded video footage was reviewed in full following the survey to identify any bat activity captured, and any significant activity patterns and access points were identified and recorded.

4.19. A summary of the surveyors, survey dates and weather conditions are provided in **Table 2**.

Table 2: Emergence and re-entry survey dates and weather conditions

Date	Survey type	Sunset time	Start weather conditions	End weather conditions	Surveyors
11.06.26	Emergence	21:17	Rain: 0 Wind: 2 Cloud cover: 8 Temperature: 16°C	Rain: 0 Wind: 4 Cloud cover: 8 Temperature: 16°C	Libby Pinches BSc (Hons) ³ Cassie Young BA (Hons)
02.07.26	Emergence	21:23	Rain: 0 Wind: 1 Cloud cover: 0 Temperature: 19°C	Rain: 0 Wind: 2 Cloud cover: 0 Temperature: 17°C	Jordan Holman-Thatcher BSc (Hons) MSc Annie Butcher
03.07.26	Emergence	21:05	Rain: 0 Wind: 1 Cloud cover: 1 Temperature: 20°C	Rain: 0 Wind: 0 Cloud cover: 0 Temperature: 19°C	Jordan Holman-Thatcher BSc (Hons) MSc Annie Butcher
Rain: a scale of 0 to 5 (e.g 0 (dry) - 5 (very heavy rain), Wind: a Beaufort scale of 0 to 12. (e.g 0 (calm) - 6 (strong breeze) - 12 (hurricane)) Cloud cover: an Okta scale of 0 to 8 (e.g 0 (no cloud) - 4 (half visible sky) - 8 (no visible sky))					
³ Class I Bat Licence: 2025-85211-CL17-BAT					

Evaluating Bat Roosts

4.20. The value of the bat roosts on site was assessed in accordance with the article published in the CIEEM In Practice Magazine - *Valuing Bats in Ecological Impact Assessment* (Wray, et al., 2010).

4.21. Roosts are assigned a relative ecological value based on the rarity of the species (**Table 3**) and categorisation of roost type (**Table 4**), informed by survey results. Once a value has been calculated, robust mitigation for any impacts identified from the proposed development can be determined.

Table 3: Categorising bat species by distribution and rarity

Rarest	Rare	Common
Greater horseshoe Bechstein's Alcahoo Greater mouse-eared Grey long-eared Barbastelle	Lesser horseshoe Whiskered Brandt's Daubenton's Natterer's Leisler's Noctule Nathusius' pipistrelle Serotine	Common pipistrelle Soprano pipistrelle Brown long-eared

Table 4: Valuing bat roosts

Geographic Frame of Reference	Roost Type
District, Local or Parish	Feeding perches (common species) Individual bats (common species) Small numbers of non-breeding bats (common species) Mating sites (common species)
County	Maternity sites (common species) Small number of hibernating bats (common and rarer species) Feeding perches (rarer/rarest species) Individual bats (rarer/rarest species) Small numbers of non-breeding bats (rarer/rarest species)
Regional	Mating sites(rarer/rarest species) including well-used swarming sites Maternity roosts (rarer species) Hibernation sites (rarest species) Significant hibernation sites for rarer/rarest species or all species assemblages
National/UK	Maternity sites (rarest species) Sites meeting Sites of Special Scientific Interest (SSSI) guidelines
International	Special Areas of conservation (SAC) sites

Limitations

- 4.22. Ecological surveys are limited by factors that affect the presence of plants and animals such as the time of the year, weather, and migration patterns. The surveys were undertaken in November, June, and July, and therefore represents a valid sample of ecological evidence present on that date/season.
- 4.23. The desk study does not include data from the local environmental records centre (LERC). However, following CIEEM guidelines (2017), it is possible to conduct a robust assessment without the need for LERC data, for example for small-scale projects or on sites such as;

- A field in active arable cultivation where there is no impact on any hedges, trees or water bodies;
- A small area of cultivated garden/amenity grassland, as above; or
- A small urban site comprising mostly asphalt or compacted hardstanding.

- 4.24. The site is a small residential plot, comprising a dwelling set within an area of amenity garden. Additionally, the proposals will not result in the loss of any habitats of ecological value. Therefore, the lack of LERC data is not considered a limitation to the ecological assessment of the site.
- 4.25. Many species of bat in the UK are crevice-dwelling, and bats or signs of bats can be difficult to find within a building. In addition, there may be areas that are inaccessible to the surveyor. All internal areas and all elevations were accessible to the surveyors during the surveys.
- 4.26. It is noted that some UK bat species are easier to detect than others; for example, the noctule *Nyctalus noctula* can be detected at a significantly greater distance when compared to the quieter brown long-eared. This can result in the undercounting of some bat species when compared to others.
- 4.27. The northern NVA failed during the first survey, resulting in no data being recorded by the NVA at that location. This NVA was used as a surveyor aid. This limitation has been taken into account within the conclusions and recommendations made within this report.
- 4.28. The emergence surveys were undertaken in accordance with the best practice guidelines within the peak bat activity period (May to September inclusive). The results are therefore considered to be an accurate representation of the general use of the building by roosting bats.
- 4.29. Nevertheless, bats may use roosting features intermittently throughout the year and may be present in larger or smaller numbers depending on their breeding cycle, weather conditions and in response to disturbance. Bats may be present at other times of the year and the results in this report should therefore be viewed in the context intended.
- 4.30. No other limitations were encountered, or assumptions made during either the desk study or the field survey and it is considered that with the access gained and recording undertaken, an accurate assessment of the site's ecological importance has been made.

5. SURVEY RESULTS

Desk Study

- 5.1. There are two statutory designated sites within 2km of the site, comprising a Site of Special Scientific Interest (SSSI) and a National Park. Additionally, there is one internationally designated site within 2km of the site, comprising a Special Area of Conservation (SAC). One additional SAC is located within 5km of the site. These are detailed in **Table 5**.

Table 5: Statutory designated sites within 2km and 5km of the site.

Designated sites	Name and designation type	Reason for designation	Approximate distance from site
Within Site Boundaries	There are no designated sites within the site boundaries		
Within 2km of Site	River Itchen SAC	This site is designated primarily due to it being a classic example of a sub-type 1 chalk river. The river is dominated throughout by aquatic <i>Ranunculus spp.</i> The headwaters contain pond water-crowfoot <i>Ranunculus peltatus</i> , while two <i>Ranunculus</i> species occur further downstream: stream water-crowfoot <i>R. penicillatus ssp. pseudofluitans</i> , a species especially characteristic of calcium-rich rivers, and river water-crowfoot <i>R. fluitans</i> . Additionally there are strong populations of southern damselfly <i>Coenagrion mercuriale</i> and high densities of bullhead <i>Cottus gobio</i> .	1.05km east
	River Itchen SSSI	This site is notified for classic chalk stream and river, fen meadow, flood pasture and swamp habitats, particularly formations of in-channel vegetation dominated by water crowfoot <i>Ranunculus spp.</i> riparian vegetation communities (including wet woodlands) and side channels, runnels and ditches associated with the main river and former water meadows. The site is also notified for significant populations of the nationally-rare southern damselfly <i>Coenagrion mercuriale</i> and assemblages of nationally-rare and scarce freshwater and riparian invertebrates, including the white-clawed crayfish <i>Austropotamobius pallipes</i> . This site is notified for otter <i>Lutra lutra</i> , water vole <i>Arvicola terrestris</i> , freshwater fishes including bullhead <i>Cottus gobio</i> , brook lamprey <i>Lampetra planeri</i> and Atlantic salmon <i>Salmo salar</i> , and the assemblage of breeding birds including tufted duck <i>Aythya fuligula</i> , pochard <i>A. ferina</i> and shoveler <i>Anas clypeata</i> , the waders lapwing <i>Vanellus vanellus</i> , redshank <i>Tringa totanus</i> and snipe <i>Gallinago gallinago</i> , and wetland passerines including sedge warbler <i>Acrocephalus schoenobaenus</i> , reed warbler <i>A. scirpaceus</i> and Cetti's warbler <i>Cettia cettia</i> .	1.05km east
	South Downs National Park	This site covers over 1600 square kilometres of England's most valued lowland landscapes. It has a number of important habitats and species including lowland heath, chalk grassland and the Adonis blue butterfly <i>Polyommatus bellargus</i> .	1.70km north-east

Within 5km of Site	Emer Bog SAC	Emer Bog lies in a wet infilled hollow on the developed eastern hinterland of the New Forest. The site is designated for the presence of Transition Mires and Quaking Bogs - an Annex I habitat. Apart from scattered willow <i>Salix</i> scrub, it is largely open, and dominated by bottle sedge <i>Carex rostrata</i> and marsh cinquefoil <i>Potentilla palustris</i> , with frequent common cottongrass <i>Eriophorum angustifolium</i> , and occasional pools with bogbean <i>Menyanthes trifoliata</i> . White sedge <i>Carex curta</i> and the bog-mosses <i>Sphagnum fimbriatum</i> and <i>S. squarrosum</i> become common at the edge of the bog, with the rushes <i>Juncus effusus</i> and <i>J. acutiflorus</i> . There are also patches of common reed <i>Phragmites australis</i> . The basin is surrounded by more mature willow <i>Salix</i> woodland and open heathland.	4.90km west
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- 5.2. The site is within the IRZs for the River Itchen SSSI, Trodds Copse SSSI, and the River Test SSSI.
- 5.3. Eastleigh Borough Council Planning Portal was consulted for relevant planning applications concerning protected species within the locality from the past two years and returned the following results:
- Planning application H/23/94849 found a confirmed bat roost (species unconfirmed) at 3 Oakfields, Eastleigh, Hampshire, SO50 4RP, 310m south of the application site.
- 5.4. There are roughly 20 areas of priority deciduous woodland within 1km of the site boundary, the closest of which is located to the west of the M3, 105m west of the site. Two further areas are located within proximity to the site, situated to the east of the M3, 115m southwest of the site and 175m southeast of the site. These areas of woodland are also registered on the National Forest Inventory (Woodland - Broadleaved).
- 5.5. Further priority habitats within 1km of the site comprise an area of wood-pasture and parkland (645m north), a low-certainty chalk river (445m east), and a parcel of lowland fens (935m southeast).
- 5.6. There are nine areas of ancient woodland within 1km of the application site, the closest of which is located to the west of the M3, 140m north-west of the site.

Habitat Walkover Survey

- 5.7. The habitats on site comprised building footprint, developed land; sealed surface, artificial unvegetated unsealed surface, modified grassland, and ornamental planting. Individual trees and non-native and ornamental hedgerows are also present across the site. This section is to be read in conjunction with **Figure 3. Table 6** below outlines the summary of habitats identified on site, as well as their applicable secondary codes.

Table 6: Habitat applicable codes

Primary Habitat	UK Hab Primary Code	Applicable Secondary Code(s) used	Secondary Code(s) description
Buildings	u1b5	818	Residential Building
Developed Land; Sealed Surface	u1b	827	Garden
		845	Ground Level Planters
Artificial Unvegetated Unsealed Surface	u1c	827	Garden
		845	Ground Level Planters
		846	Flower Bed
Modified Grassland	g4	32	Scattered Trees
		108	Frequently Mown
		510	Bare Ground
		524	Invasive Non-native Species
		828	Vegetated Garden
		845	Ground Level Planters
		846	Flower Bed
Non-native and Ornamental Hedgerow	h2b	847	Introduced Shrub
		523	Non-native

Buildings (Secondary Codes: 818)

- 5.8. Three buildings are present on site, comprising a residential dwelling (B1) and two outbuildings (B2 and B3). These buildings are detailed further in the building inspection section.
- 5.9. B2 and B3 will not be impacted by the proposals, and as such, were not subject to a full building assessment.

Outbuilding - B2

- 5.10. B2 comprises a single-storey outbuilding of brick construction with a concrete render. The building has a pitched roof of slate tile construction, with a concrete ridge. Timber soffit boxes line the eaves and verges of the structure. The building was in very good condition,

with no areas of damage recorded. No crevice roosting opportunities or access points into the structure were noted. Internal access was not possible during the survey.

Garage - B3

- 5.11. B3 comprises a single-storey garage building of brick construction. Areas of shiplap panelling are present on the gable ends. The building has a pitched roof of interlocking concrete tile construction with a concrete ridge. The eaves of the building are lined by timber soffit boxes, and the verges are lined by timber barge boards. The building is in good condition, with only low levels of superficial damage recorded. No crevice roosting opportunities or access points into the structure were noted. Internal access was not possible during the survey.

Developed Land; Sealed Surface (Secondary code: 827, 845)

- 5.12. A stone-paved patio and pathway are present on the northwestern and western aspects of the site. These areas of hardstanding are in good condition, with no areas of damage or encroaching vegetation recorded. A couple of ground-level planters containing ornamental species are present on the patio.

Artificial unvegetated, unsealed surface (Secondary Codes: 827, 845, 846)

- 5.13. A large area of gravel dominates the northern half of the site. These gravel areas comprise a driveway, parking areas, and pathways around the site. The areas of artificial unvegetated surface are in good condition, with only low levels of encroaching vegetation recorded during the survey.
- 5.14. Several flower beds, containing ornamental planting, were recorded within these areas of gravel, predominantly located around the boundary of this habitat. Additionally, several ground-level planters containing ornamental species were scattered through this habitat. Recorded ornamental species include ornamental acer *Acer sp.*, bay laurel *Laurus nobilis*, ornamental ficus, holly *Ilex aquifolium*, rhododendron *Rhododendron ponticum*, silver birch *Betula pendula*, Holm oak *Quercus ilex*, cherry laurel *Prunus laurocerasus*, Japanese spindle *Euonymus japonicus*, Japanese aucuba *Aucuba japonica*, gunnera *Gunnera sp.*, hydrangea *Hydrangea macrophylla*, and ornamental rose *Rosa sp.*

Modified Grassland (Secondary Codes: 32, 108, 510, 524 828, 845, 846, 847)

- 5.15. Modified grassland dominates the southern and western aspects of the site.
- 5.16. The western grassland is regularly mown and maintained at a short sward height of approximately 15cm. There is some light variability in the sward, with the height ranging between 5cm and 20cm. Moderate levels of bare earth are present across the grassland in the form of flower beds and damaged areas. Bare earth accounts for approximately 40% of the ground cover.
- 5.17. This grassland habitat is dominated by perennial ryegrass *Lolium perenne*, with this species comprising >80% of the species composition. Other recorded species include

dandelion *Taraxacum* sp, creeping buttercup *Ranunculus repens*, common daisy *Bellis perennis*, creeping thistle *Cirsium arvense*, round-leaved cranesbill *Geranium rotundifolium*, common nettle *Urtica dioica*, ragwort *Jacobaea vulgaris*, white clover *Trifolium repens*, and common nightshade *Solanum nigrum*. Four olive trees *Olea europaea* are planted within this grassland habitat, and two flowerbeds containing lavender are present.

- 5.18. The southern grassland is regularly mown and maintained at a short sward height of approximately 10cm. There is some light variability in the sward, with the height ranging between 5cm and 15cm. Bare earth accounts for approximately 30% of the ground cover, with large patches of bare earth being recorded throughout the grassland. The areas of bare earth predominantly make up the flower beds, which bound the grassland habitat. A large area of bare earth is present within the northern third of the grassland in the form of damaged ground.
- 5.19. This grassland habitat is dominated by perennial ryegrass, with this species accounting for 90% of the species composition. Other recorded species include common daisy, creeping buttercup, dandelion, creeping thistle, ground ivy *Glechoma hederacea*, cleavers *Galium aparine*, white clover, and common nightshade.
- 5.20. The flower beds which bound the grassland are patchy in nature, with large gaps present within the canopy. The understory of the flower beds comprises bare earth and wood chips. The areas of ornamental planting are managed regularly, holding a manicured appearance at the time of the survey. Recorded species include ornamental acer, rhododendron, magnolia *Magnolia grandiflora*, holly, beech *Fagus sylvatica*, yew *Taxus baccata*, hazel *Corylus avellana*, hawthorn *Crataegus monogyna*, cherry laurel, domestic apple *Malus domestica*, hydrangea, lavender *Lavandula angustifolia*, bay laurel, cotoneaster *Cotoneaster horizontalis*, and ornamental rose.
- 5.21. An defunct bonfire is present on the southern edge of this grassland habitat.

Non-native and Ornamental Hedgerow (Secondary Codes: 523)

- 5.22. Two hedgerows are present within the northwestern corner of the site.
- 5.23. The western hedgerow (H1) comprises solely yew, and measures approximately 2m in height and 0.75m in width on average throughout its length.
- 5.24. The eastern hedgerow (H2) comprises bay laurel and measures approximately 1.5m in height and 0.75m in width on average throughout its length. A couple of cherry laurel shrubs are also present within this hedgerow.
- 5.25. The hedgerows are regularly managed, holding a manicured appearance at the time of the survey. The hedgerows are dense, with no gaps recorded throughout their length, and no gap is present between the base of the canopy and the ground. Both hedgerows are located within flower beds and have a bare earth understory.



Legend

Red Line Boundary

INDIVIDUAL TREES

- Existing Large Rural Tree
- Existing Medium Rural Tree
- Existing Small Rural Tree

HEDGEROWS

- Non-native and ornamental hedgerow

HABITATS

- Artificial unvegetated, unsealed surface
- Buildings
- Developed land; sealed surface
- Modified grassland
- Vegetated garden

Google Satellite



Info@darwin-ecology.co.uk
www.darwin-ecology.co.uk

Project: Lincolns, Boyatt Lane, Eastleigh,
SO50 4LJ

Figure 3: Habitat Walkover Map

Date: February 2026

Habitat Walkover Survey Photos



Image 1: Gravel driveway



Image 2: Gravel pathway to the east of B1



Image 3: Stone patio and pathway to the west of B1



Image 4: Southern area of modified grassland, facing south



Image 5: Southern area of modified grassland, facing north



Image 6: Western area of modified grassland, facing north



Image 7: Area of gravel bounded by ornamental hedgerows, facing north



Image 8: Northern elevation of B3



Image 9: Western elevation of B3



Image 10: Northern and western elevations of B2



Image 11: Southern and western elevations of B2



Image 12: Area of boundary ornamental planting

Protected Species

Bats

- 5.26. MagicMap held six records of EPS Licences issued for works impacting bats within 2km of the site boundary. These are detailed in **Table 7**.

Table 7: ESPL granted for bats within 2km of the site

Case Reference	Licence dates	Species designation	Licensable Impact	Approximate distance from site
EPSM2012-4192	17/04/2012 - 30/09/2016	Common pipistrelle <i>Pipistrellus pipistrellus</i> , Soprano pipistrelle <i>Pipistrellus pygmaeus</i> , Brown long-eared <i>Plecotus auritus</i> , Natterer's <i>Myotis nattereri</i>	Destruction of a breeding site and destruction of a resting place	415m north-east
2017-28716-EPS-MIT	27/04/2017 - 27/04/2022	Common pipistrelle, Soprano pipistrelle, Brown long-eared	Destruction of a resting place	550m north-east
2016-21370-EPS-MIT	01/03/2016 - 28/02/2021	Common pipistrelle, Soprano pipistrelle	Destruction of a resting place	590m north-west
2020-49783-EPS-MIT	02/01/2021 - 04/09/2026	Soprano pipistrelle	Damage to a resting place	1.20km west
2017-27981-EPS-MIT-1	04/01/2018 - 20/03/2027	Common pipistrelle, Soprano pipistrelle, Brown long-eared, Serotine <i>Eptesicus serotinus</i>	Destruction of a resting place	1.60km south-west
2015-16388-EPS-MIT	01/12/2015 - 01/12/2020	Soprano pipistrelle	Destruction of a resting place	1.75km east

- 5.27. The majority of the trees on site are young and ornamental in nature. As such, they were not assessed to be of the age or character to support potential roosting features, and no potential roosting features were identified from the ground. As such, these trees were assessed to hold negligible potential to support roosting bats.
- 5.28. A holm oak in the northeastern corner of the site (T1), and a dead oak in the centre of the eastern boundary (T2), were assessed to be of the age and character to support potential roosting features, although no features were identified from the ground.
- 5.29. The scattered trees, hedgerows, modified grassland, and areas of ornamental planting on site offered suitable foraging and commuting opportunities for bats. It is considered likely that bats access and utilise the site for foraging and commuting.
- 5.30. The wider landscape contains areas of high-quality habitat for bats, with the areas of woodland, waterbodies, hedgerows, scattered trees, and pastoral fields offering good foraging, commuting, and roosting opportunities for a variety of bat species. It is anticipated that a range of bat species regularly access and utilise the wider landscape.

Building Inspection

External Assessment

- 5.31. B1 comprises a two-storey residential building of brick construction. The building is in good condition with only low levels of superficial damage recorded, and no areas of missing mortar noted. A veranda, of zinc construction, is present on the western elevation of the property.
- 5.32. The southern elevation of the property is covered in mass-manufactured clay hanging tiles. The tiles are in a moderate condition, with numerous lifted tiles, and several damaged and missing tiles recorded.
- 5.33. The property has a hipped roof of handmade clay tile construction, with rounded clay ridge tiles and clay hip bonnets. The hipped roof runs around the edges of the building, with a lead flashing valley present in the centre. The property was re-roofed in the year 2000. The roof of the building is in moderate condition, with no areas of significant damage recorded. However, a number of lifted, damaged, and missing roof tiles were noted.
- 5.34. The ridges and the hips of the structure are in good condition and are intact throughout. No lifted, damaged, or missing ridge tiles or hip bonnets were recorded.
- 5.35. The eaves of the roof are sealed by timber soffit boxes. Large timber soffit boxes are present at the eaves on the northeastern, eastern, and southeastern elevations of the property. The soffits on the northeastern and southeastern elevations are in good condition, with only a few areas of superficial damage, and no lifting or bowing recorded. The soffit on the eastern elevation is in poor condition, with numerous areas of significant damage recorded. The client reported that birds regularly use the soffit on this elevation to nest due to the large gaps in the soffit created by the damage. These gaps would provide suitable access points into the void for bats.
- 5.36. Small timber soffit boxes are present at the eaves on the northwestern, western, and southwestern elevations of the property. These boxes appeared to have been installed more recently than the eastern boxes, and are in good condition, with no damage, lifting, or bowing recorded.
- 5.37. Five chimneys are present on the property. These are in good condition, with no areas of damage or missing mortar recorded. Areas of lead flashing are present around the base of the chimneys. Further areas of lead flashing are present underneath the windows situated within the areas of hanging tiles, below the eaves on the southern elevation, and within the central valley of the roof. No areas of damaged or lifted lead flashing were noted across the roof of the property (around the base of the chimneys and in the valley), however, several areas of lifted lead flashing were noted underneath the windows and along the eaves on the southern elevation. These areas of lifted flashing would provide suitable crevice roosting opportunities.

Internal Assessment

- 5.38. A single void is present within the building, running throughout the footprint of the roof. The void measures approximately 130m² and 1.5m to the apex. Several chimney breasts are present within the void. These are in good condition, with no areas of damage or missing mortar recorded. The void is currently unused and does not contain any storage. A water tank is present in the centre of the eastern elevation.
- 5.39. A Velux window is present above the loft hatch within the eastern area of the void. This window results in moderate levels of light ingress within this area of the void. Low levels of light ingress were noted at the eaves within the northeastern corner of the void. No other areas of light ingress were recorded.
- 5.40. The void comprises a timber A-frame, which consists of rafters, purlins, tie beams, struts, and an exposed ridge beam. Several collar ties are also present. The void is unboarded throughout, exposing the combination of vermiculite and fibreglass insulation that is present at floor level.
- 5.41. The void is lined with breathable membrane. The membrane is in good condition, with no damage or gapping recorded. A couple of areas of the membrane are slightly lifted, exposing a layer of polythene lining underneath.
- 5.42. A moderate level of cobwebbing is present, and several old wasp nests are scattered throughout the void. Approximately 100 rodent droppings were recorded within the void. A small scattering (approximately 20-40 droppings) of bat droppings, which were morphologically consistent with long-eared droppings, were recorded within the northern elevation of the void. These droppings were scattered below the ridge beam, and no distinct piles were noted.
- 5.43. The void was warm at the time of the survey, and it is considered likely that it has a stable temperature throughout the year. No draught was recorded.
- 5.44. A cellar of brick construction is present to the south of B1. The cellar is accessed via a stairway in the garden, which is covered over by MDF panels. Whilst these MDF panels may restrict access to the cellar for bats, due to the unfixed nature of the panels, it cannot be guaranteed that the cellar entrance will always be sealed.
- 5.45. The cellar measures approximately 35m² and 2.5m to the apex. The cellar has a curved ceiling. The client reported that the cellar regularly floods, and a layer of water, approximately 20cm deep, was present within the cellar at the time of the survey. A small offshoot is present on the northern aspect of the cellar, containing a set of stairs which lead into B1.
- 5.46. The cellar was cold at the time of the survey, and it likely has a stable temperature throughout the year. Moderate-high levels of humidity were recorded at the time of the survey, and a light layer of minerals and mould is present across the brickwork of the cellar.

- 5.47. Several areas of missing mortar are present within the cellar, creating suitable internal crevice roosting opportunities.
- 5.48. The client reported that the cellar regularly floods to ceiling level throughout winter. This regular flooding significantly reduces the suitability of the cellar to support hibernating bats.

Concluded Roosting Potential

- 5.49. The property at Lincolns provides numerous internal and external roosting opportunities for bats, with suitability to support individual or low number of bats, alongside several suitable access points into the void. As such, B1 was assessed to hold **moderate potential** to support roosting bats. A low number of droppings, which were morphologically consistent with brown long-eared droppings, were identified within the void. Due to the presence of bat droppings within the void, B1 was assessed to be a **confirmed roost**.
- 5.50. The cellar present at Lincolns matches the character of a classic hibernation roost for bats, providing suitable conditions for hibernation, alongside several suitable roosting opportunities. However, only a single access point into the cellar was recorded, reducing the ability of bats to access the cellar, and subsequently reducing the potential for this structure to support hibernating bats. Additionally, due to the regular flooding faced by the cellar throughout the winter period, it is considered unlikely that the cellar presents a suitable internal environment to support hibernating bats. Overall, the cellar of B1 was assessed to hold **negligible potential to support hibernating bats**.

Building Inspection Photographs



Image 12: Western elevation of B1, facing east



Image 13: Northern elevation of B1, facing west



Image 14: Northern elevation of B1, facing south



Image 15: Eastern elevation of B1, facing south



Image 15: Southwestern elevation of B1, facing north



Image 16: Southeastern elevation of B1, facing east



Image 17: Damaged soffit box on eastern elevation of B1



Image 18: Intact soffit box on northeastern elevation of B1



Image 19: Southern elevation of the roof of B1



Image 20: Eastern area of the void, facing north



Image 21: Southeastern hipped end of the void



Image 22: Northeastern corner of the void



Image 23: Chimney in the centre in the northern area of the void



Image 24: Eaves of the northern area of the void. The polythene layer is visible at the base of the eaves



Image 25: The cellar, facing west



Image 26: Areas of missing mortar within the cellar



Image 27: External entrance to the cellar



Image 28: Internal entrance to the cellar. The cellar is flooded to ceiling level at the time of the photo - dated 9th January 2025.

Emergence Survey Results

- 5.51. This section is to be read in conjunction with **Figures 4a-4c**, which illustrate a summary of the survey results.
- 5.52. A total of three dusk emergence surveys were undertaken during the 2026 ecological season.
- 5.53. The views from the NVAs at the darkest point of the survey can be found in **the Appendices**.

Survey 1

- 5.54. During the first survey on the 11th June 2026, a single emergence was recorded from the property. A common pipistrelle was recorded to emerge from under a hanging tile near the second-storey western window on the southern elevation. Additionally, a collection of droppings was recorded underneath a hanging tile on the second-storey southeastern corner of the property.
- 5.55. A low level of activity was recorded on site during the survey. Regular common pipistrelle foraging activity was recorded between 17 minutes after sunset and 25 minutes after sunset. No other bat activity was recorded on site. Bat activity was predominantly restricted to the southern half of the site.

Table 8: Emergence survey results 11th June 2026

Timing	Activity	Time of activity	Species	Roost type	No. of bats	Location on structure	Roost description	Fig 4 Ref
Start: 21:02 Sunset: 21:17 End: 22:47	Emergence	21:34	Common Pipistrelle	Day	1	Southern elevation	Underneath a hanging tile near the second storey-western window	A1

Survey 2

- 5.56. During the second survey on the 2nd July 2026, a single emergence was recorded from the property. A common pipistrelle was recorded to emerge from under a hanging tile at the base of the central second-storey window on the southern elevation.
- 5.57. A low level of activity was recorded on site during the survey. Foraging activity by a common pipistrelle within the southern garden was recorded between 17 minutes after sunset and 50 minutes after sunset. Two commuting passes by soprano pipistrelle were recorded at 64 minutes after sunset and 69 minutes after sunset. No other bat activity was recorded on site. Bat activity was predominantly restricted to the southern half of the site.

Table 9: Emergence survey results 2nd July 2026

Timing	Activity	Time of activity	Species	Roost type	No. of bats	Location on structure	Roost description	Fig 4 Ref
Start: 21:07 Sunset: 21:23 End: 23:07	Emergence	21:40	Common Pipistrelle	Day	1	Southern elevation	Underneath a hanging tile near the central second storey-window	A2

Survey 3

- 5.58. During the third survey on 23rd July 2026, no bats were recorded to emerge from the residential building on site.
- 5.59. A low level of activity was recorded on site during the survey. Regular foraging passes by common pipistrelle was recorded within the southern garden from 33 minutes after sunset to 55 minutes after sunset. This activity then reduced to occasional passes by common pipistrelle until the end of the survey. Two individual commuting passes by noctule were recorded at 63 minutes after sunset and 78 minutes after sunset. Individual commuting passes by soprano pipistrelle and brown long-eared bat were recorded at 82 minutes after sunset and 78 minutes after sunset, respectively. Bat activity was predominantly restricted to the southern half of the site.



***NOTE Areas are indicative and are not shown to exact scale.**

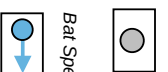
*** Failed during survey**



Building surveyed
Surveyor Location with view lines
NVA Location with view lines



Emergence/Re-entry Location (coloured by species)
Bat Flight Path (coloured by species)
Area of Continuous Bat Activity (coloured by species)



Location of collection of bat droppings underneath corner hanging tile
Bat Species
Common Pipistrelle



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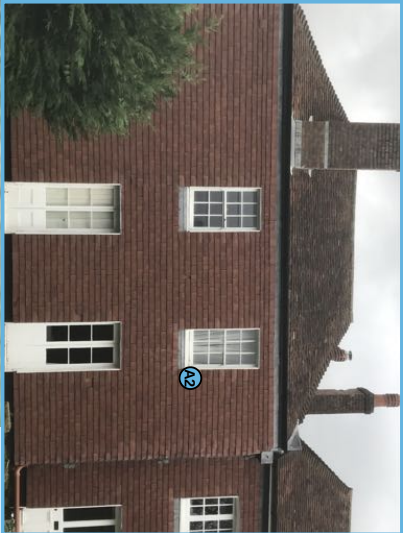
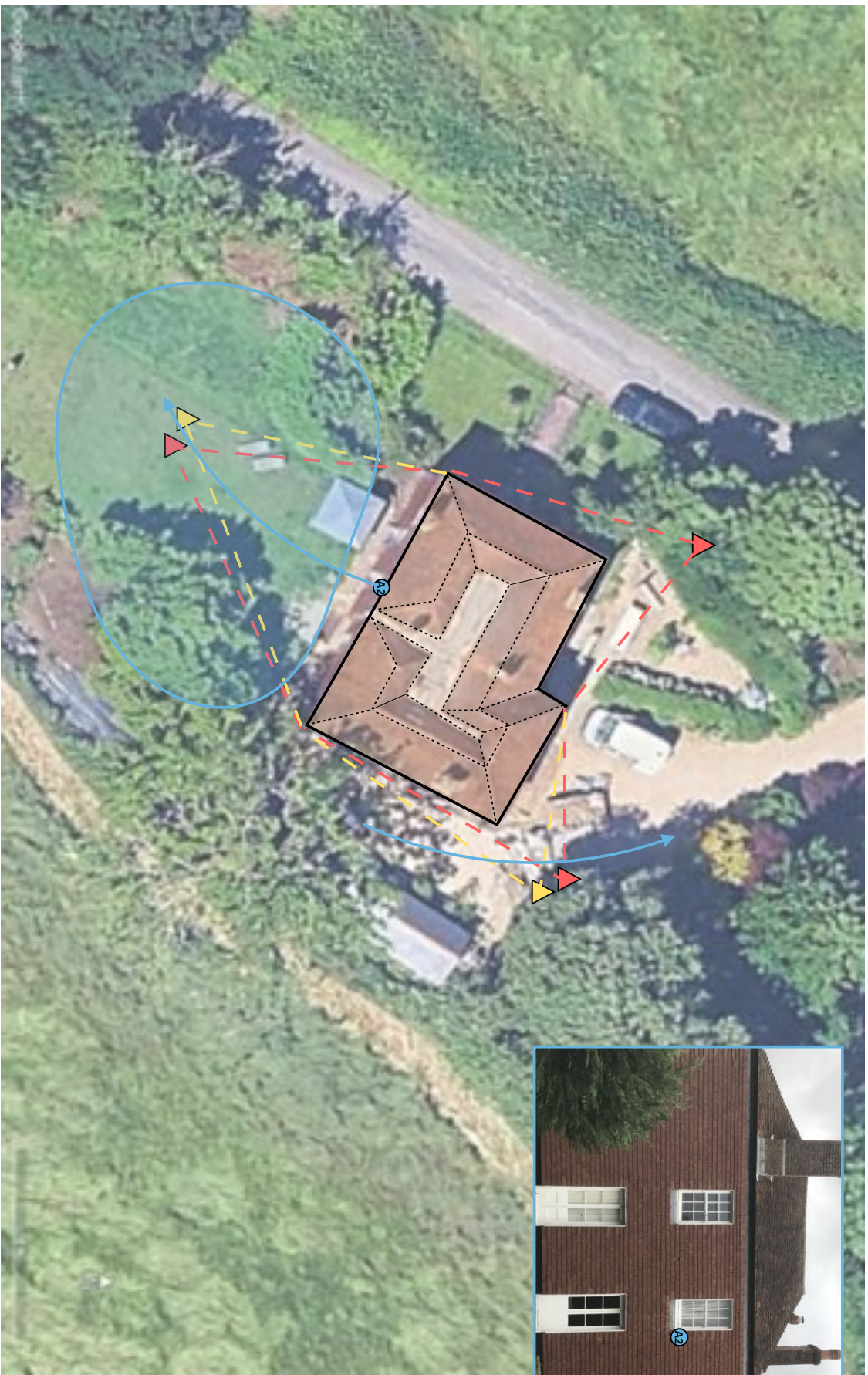
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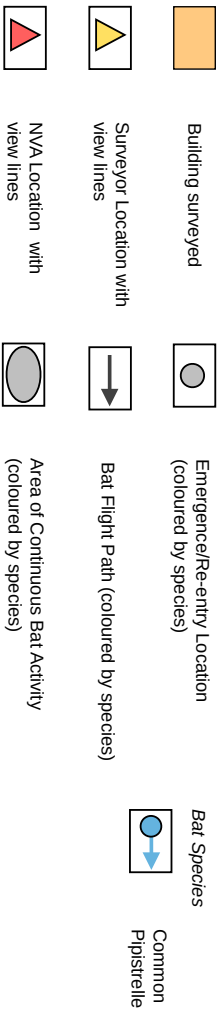
Project: Lincoln's, Boyatt Lane,
Eastleigh, SO50 4LJ

Figure 4a: Emergence Survey
Results - Survey 1

Date: August 2026



***NOTE Areas are indicative and are not shown to exact scale.**



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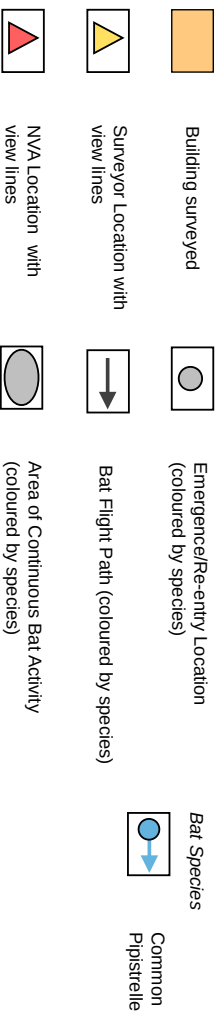
Project: Lincoln's, Boyatt Lane,
Eastleigh, SO50 4LJ

Figure 4b: Emergence Survey
Results - Survey 2

Date: August 2026



***NOTE Areas are indicative and are not shown to exact scale.**



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Figure 4c: Emergence Survey
Results - Survey 3

Date: August 2026

Great Crested Newt and Common Amphibians

- 5.60. MagicMap held no records of EPS Licences for works impacting great crested newts, great crested newt class survey licence returns, or the results of great crested newt pond surveys 2017-2019 within 1km of the site boundary.
- 5.61. No waterbodies are present on site. A single waterbody (P1) is present within 250m of the site, located within Broom Hill Woodland, 205m southeast of the site. A further six (P2-P7) waterbodies are located within 500m of the site. Five of these waterbodies (P2-P6) are also located within Broom Hill Woodland, situated between 270m and 360m southeast of the site. P7 is located within an area of woodland, 495m south of the site.

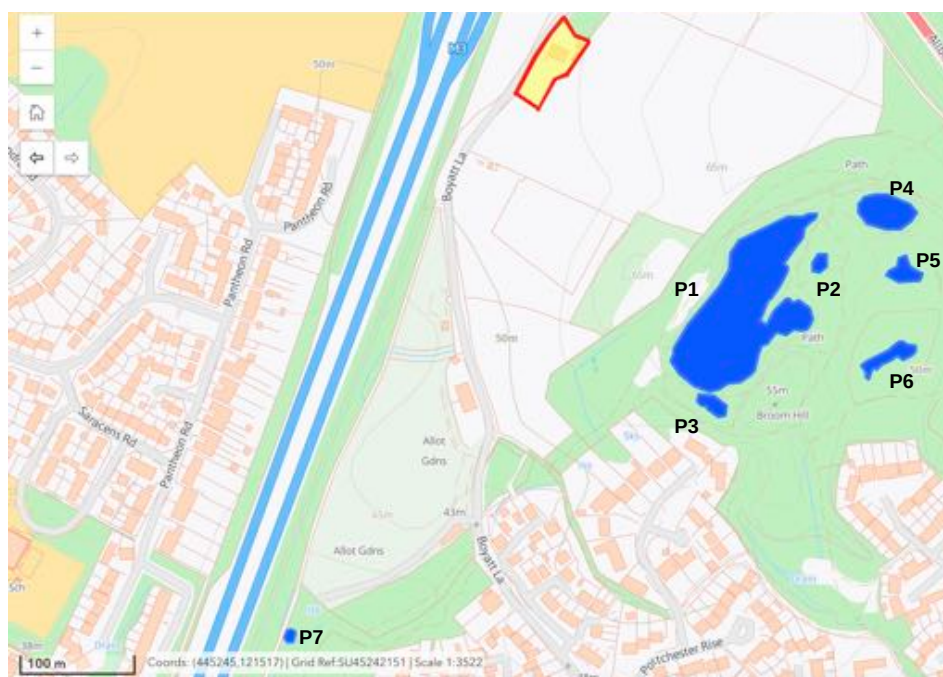


Figure 5: Location of ponds (blue) within 500m of the site boundary (red) in respect to the site.

- 5.62. A moderate level of connectivity is present between these waterbodies and the site, and it is anticipated that, should breeding populations of amphibians be present within the waterbodies, individuals of these species would be able to commute between the waterbodies and the site.
- 5.63. The wider landscape offers suitable habitat to support amphibians, with the field margins, areas of woodland, waterbodies, and hedgerows offering suitable foraging, resting, and commuting opportunities for these species. It is considered likely that populations of amphibians are present within the wider landscape.
- 5.64. The site offers limited suitability to support great crested newt and common amphibians, with the habitats on site offering few foraging, commuting, and resting opportunities. The hedgerows and areas of ornamental planting offer some foraging, resting, and commuting opportunities for amphibians; however, the opportunities presented are limited by the small

size of these habitats and their sparse and ornamental character. Additionally, the hedgerows on site are isolated from other habitats with suitability to support amphibians. Therefore, these habitats are considered to be suboptimal to support amphibians.

- 5.65. The areas of modified grassland offer suboptimal opportunities for amphibian species due to the regular management, limited species diversity, and short sward height. The short sward height of the grassland limits the ability of amphibians to commute through and utilise the habitat. No suitable discrete refugia were recorded on site.
- 5.66. Due to the low value of the habitats and the lack of waterbodies on site, it is considered significantly unlikely that the site supports individuals or populations of amphibians.
- 5.67. Due to the likely presence of amphibian populations within the wider landscape, and the moderate level of connectivity between the site and the wider landscape, it is considered that individual amphibians may access and utilise the site on occasion. It is considered likely that any amphibian activity would be limited to the areas of ornamental planting around the boundaries of the site.

Reptiles

- 5.68. MagicMap held no records of EPS Licences for works impacting rare reptiles within 1km of the site boundary.
- 5.69. The habitats on site offer sub-optimal opportunities to support reptiles. The areas of modified grassland were considered unsuitable to support reptiles due to the short sward height, lack of species diversity, and regular management of these areas.
- 5.70. The areas of ornamental planting and non-native and ornamental hedgerows may offer some suitable foraging, resting, and commuting habitats for reptiles, however, the opportunities presented by these habitats are limited by their small size, sparse character, and ornamental nature. Additionally, the ornamental hedgerows are isolated from other habitats with suitability to support reptiles. As such, these habitats are considered to be of low value to reptiles.
- 5.71. The areas of bare earth may provide suitable basking opportunities for reptiles.
- 5.72. No suitable discrete refugia were recorded on site.
- 5.73. The site is considered significantly unlikely to support individuals or populations of reptiles due to the dominance of low-value habitats such as modified grassland and hardstanding.
- 5.74. The wider landscape contains some areas of suitable habitat to support common reptiles, with the areas of woodland, field margins, and hedgerows, offering suitable foraging, commuting, and resting opportunities for these species. It is therefore considered that populations of common reptiles may be present within the wider landscape. Due to the moderate level of connectivity between the site and the wider landscape, it is anticipated that should reptile populations be present within the wider landscape, individuals of these

species would be able to access the site. The surrounding landscape does not contain any habitat suitable to support sand lizard *Lacerta agilis* or smooth snake *Coronella austriaca*.

- 5.75. Due to the likely presence of reptile populations within the wider landscape, and the moderate level of connectivity between the site and the wider landscape, it is considered that individuals of common reptile species may access and utilise the site on occasion. It is considered likely that any reptile activity would be limited to the areas of ornamental planting around the boundaries of the site.

Dormouse

- 5.76. MagicMap held no records of EPS Licences for works impacting hazel dormouse within 1km of the site boundary.
- 5.77. There was no physical evidence of dormouse on site in the form of individual dormice, nests, or chewed scrub or nuts.
- 5.78. The majority of the habitats on site were considered unsuitable to support individuals or populations of dormouse.
- 5.79. The bay laurel hedgerow did not offer any suitable foraging or nesting resources or commuting opportunities for dormouse. The yew hedgerow offered some low-value foraging and nesting resources and opportunities for this species. However, this hedgerow had limited connectivity to other areas of suitable habitat for dormouse on site or within the wider landscape. As such, any dormice, should they be present within the wider landscape, would not be able to access and utilise this hedgerow.
- 5.80. Due to the lack of suitable habitat on site, and the lack of connectivity between the site and the wider landscape, it is considered significantly unlikely that populations of dormouse would be present on site.
- 5.81. The wider landscape contained several parcels of woodland, which may support populations of dormouse, however, these habitats had minimal connectivity to the site. Therefore, although individuals or populations of dormouse may be present within the wider landscape, it is considered significantly unlikely that individual dormouse would be able to access or utilise the site. This species will not be considered further in this report.

Other Terrestrial Mammals

- 5.82. No evidence of badgers (hairs, latrines, scat, or snuffle holes) or badger setts was identified on site. No evidence of badger setts was identified within 30m of site.
- 5.83. No evidence of mammal activity, such as mammal paths, tracks, droppings, or digging, was recorded on site.
- 5.84. The site offers some suitable habitat to support terrestrial mammals, with the hedgerows, areas of ornamental planting, and modified grassland offering some foraging, commuting, and resting opportunities for these species. It is considered unlikely that the site would

support populations of terrestrial mammals due to the small size and low quality of the habitats present on site.

- 5.85. The wider landscape contains suitable habitat to support terrestrial mammals, with the areas of woodland, pastoral fields, and hedgerows offering suitable foraging, resting, and commuting opportunities for these species. It is considered that there is potential for individuals and populations of more mobile species, such as badger, hedgehog, and fox *Vulpes vulpes* to be present within the wider landscape. Due to the mobile nature of these species, there is potential for individuals to access and utilise the site on occasion.

Breeding Birds

- 5.86. The majority of the habitats on site (excluding areas of developed land) provided suitable foraging opportunities for a variety of birds.
- 5.87. The hedgerows, ornamental planting, and scattered trees on site offer suitable nesting opportunities for local birds. No nests were identified at the time of the survey. The client reported that birds frequently nest within the soffit box on the eastern elevation of the property.
- 5.88. It is considered likely that the site supports an assemblage of common garden bird species.

Barn Owl

- 5.89. The habitats on site did not provide suitable hunting opportunities for barn owls, and it is considered unlikely that barn owls would access and utilise the site for hunting.
- 5.90. No evidence of features suitable to support roosting barn owl were identified on site. It is therefore considered significantly unlikely that barn owls would be roosting on site.

Invertebrates

- 5.91. The hedgerows, individual trees, and ornamental planting provide good opportunities for foraging, basking, nesting, commuting, and resting for a variety of invertebrate species.
- 5.92. The modified grassland habitats offer some low-quality opportunities for invertebrates. The other habitats on site offer limited suitability to support invertebrate species.
- 5.93. It is considered likely that the site supports a variety of common invertebrate species.
- 5.94. It is considered significantly unlikely that Roman snail *Helix pomatia* or stag beetle *Lucanus cervus* would be present on site due to a lack of suitable habitat.

6. IMPACT ASSESSMENT

Designated Sites and Priority Habitats

- 6.1. The site is located within Impact Risk Zones for several SSSIs, which applies restrictions to service infrastructure outside of existing networks, quarries, large residential developments (over 100 units or over 50 units outside existing settlements), combustion, landfill, wind turbines, industrial or agricultural proposals, transport proposals, and large infrastructure proposals. However, the proposed works do not come under any description which would require the local planning authority to consult Natural England.
- 6.2. It is not anticipated that the proposed works will directly impact any statutory designated sites, locally designated sites, priority habitats, or ancient woodlands through land-take or other direct impacts due to the localised nature of the works.
- 6.3. Additionally, due to the localised nature and small-scale of the development, and as the proposals will not result in a net increase in residential units on site, it is not anticipated that the proposed works will impact any statutory designated sites, priority habitats or ancient woodland indirectly as a result of incidental impacts.
- 6.4. The proposed development does not fall within the catchment areas of either the River Itchen SAC or the Emer Bog SAC. Due to the development site falling outside of these catchment areas, in combination with the small scale and localised nature of the works, it is considered unlikely that the proposals will have a significant negative impact on these internationally designated sites.
- 6.5. Given the above, it is considered likely that there will be no residual impacts on designated sites, priority habitats, or ancient woodlands.

Habitats

Status of Habitats on Site

- 6.6. The habitats on site comprise building footprint, developed land; sealed surface, artificial unvegetated unsealed surface, modified grassland, ornamental planting, and individual trees. Several non-native and ornamental hedgerows are also present across the site.
- 6.7. The areas of building footprint, developed land; sealed surface, and artificial unvegetated unsealed surface are of negligible intrinsic ecological value.
- 6.8. The modified grassland, ornamental planting and non-native and ornamental hedgerows are habitats of low intrinsic ecological value.
- 6.9. The individual trees are of moderate intrinsic ecological value.

Potential Impacts

- 6.10. The proposals include the construction of an orangery extension on the southern elevation of the property and the renovation of the cellar.

- 6.11. The majority of the habitats on site will be retained as part of the proposals. The proposed works will result in the loss of small areas of developed land; sealed surface, modified grassland, and ornamental planting.
- 6.12. The loss of developed land; sealed surface, will have a negligible impact on the local level. The loss of small areas of modified grassland and ornamental planting will have a low impact on the local level. The proposals include the planting of a new non-native and ornamental hedgerow, which will help to compensate for the loss of low-value habitat resulting from the proposals.
- 6.13. Overall, the proposed development will result in the loss of **low** importance habitats, resulting in a temporary **low** negative impact and a permanent **negligible** negative impact on a **local** level.
- 6.14. Rhododendron and Cotoneaster, schedule 9 listed invasive non-native species, and Cherry laurel, an invasive non-native species, are present on site. It is an offence to plant or cause the spread of these species.

Recommendations

- 6.15. *Tree root protection zones:* All retained trees and hedgerows on site will be protected in accordance with British Standards BS 5837:2012. Root protection areas will be 12x the diameter at breast height (DBH) or the reach of the longest branch (whichever is greater), unless otherwise advised by a qualified arboriculturist. Trees located off-site but with their roots on-site should also be protected. No materials should be allowed to be stored within these root protection areas, and no heavy machinery should run over them.
- 6.16. The landscape proposals for the site should include at least 60% native species. No invasive non-native species should be used within the landscape proposals for the site.
- 6.17. *Native shrub planting:* It is recommended that areas of native shrubs be provided within the landscape proposals, particularly around the boundaries, including the use and the addition of native plants, to provide opportunities for nesting birds, and foraging and shelter habitats for a range of protected species.
- 6.18. This will be achieved by planting a mixture of native species such as hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa* and spindle *Euonymus europaeus*, along with complementary species such as honeysuckle *Lonicera periclymenum* and dog rose *Rosa canina*. This area can be managed to provide an edge-habitat along the boundaries of the site.
- 6.19. *Invasive species:* If invasive species on site are due to be removed as part of the proposals, these should be removed appropriately so as to prevent the spread of these species.
- 6.20. Good site hygiene should be maintained during the works, which will include;
- The installation of fencing with clear signs indicating the presence of non-native species.

- Personnel working on or between sites should ensure their clothing and footwear are cleaned before leaving the contaminated area.
- Tracked vehicles should not be used within the area of infestation.
- All vehicles leaving the infested area must be thoroughly pressure-washed in a designated area, and material or water left after vehicles have been pressure-washed must be contained, collected and disposed of appropriately.
- All wash facilities, including wastewater from washing vehicles, equipment or personnel, should be managed in a responsible way so as not to cause harm to the environment.
- All machinery and tools brought onto site must be cleaned prior to use on the site so that earth and plant material from other locations are not introduced to the site or spread to adjacent habitats.
- Contractors working on or between sites must ensure that they are aware of the potential for invasive species at other sites and that the clothing and protective equipment worn on site are clean and free from contamination.
- Any soil or aggregate, or other loose materials brought onto the site must be from a reputable source and free from contaminants or pollutants.

6.21. Given the above, it is considered likely that there will be no residual impacts on habitats

Protected Species

Bats

Status of Bats on Site

- 6.22. The ornamental planting, hedgerows, modified grassland, and individual trees on site provide suitable foraging and commuting habitat for bats, and it is considered likely that bats access and utilise the site to forage and commute regularly.
- 6.23. Two of the trees on site (T1 and T2) were assessed to be of the age and character to support potential roosting features, although no potential roosting features were identified from the ground. No other trees on site were assessed to hold potential to support roosting bats.
- 6.24. B2 and B3 will not be impacted by the proposals, and as such, were not subject to a full building inspection. No external roosting features or access points into the buildings were identified during the external inspection. No internal access was possible during the surveys.
- 6.25. The residential building on site (B1) was assessed to hold moderate potential to support roosting bats. Additionally, low number of droppings, which were morphologically consistent with long-eared droppings, were identified within the void. As such, B1 was assessed to be a confirmed roost.

6.26. A total of three dusk emergence surveys were undertaken on B1. The residential dwelling at Lincolns is confirmed to support a day roost for common pipistrelle. A peak count of one bat was recorded during the surveys.

6.27. See **Table 10** for value of each roost in accordance with Wrey *et al.*, 2010. Impact of works.

Table 10: Value of bat roosts at Lincolns

Species	Rarity	Roost Type	Value
Common Pipistrelle	Common	Day	Local, Parish, or District

Potential Impacts

6.28. The proposed plans at Lincolns comprise the construction of an orangery on the southern elevation of the proposals, alongside the renovation of the cellar. The orangery construction will require the removal of the hanging tiles across the ground floor section of the southern elevation. The second-storey hanging tiles on the southern elevation will not be impacted by the proposed works.

6.29. Therefore, the proposed works on B1 are not anticipated to directly impact the roost identified at Lincolns. There will, therefore, be limited potential impacts to bats due to the works not directly impacting a roosting site. The proposed works will not result in the destruction of a bat roost, and therefore, works can proceed without any requirement of a protected species licence or further surveys.

6.30. Whilst the works to construct the orangery will not directly impact roosting points A1 and A2, the works will be within proximity of this roosting location. As such, should scaffolding directly abut this area of hanging tiles, there is the potential for the disturbance, injury or killing of bats in their roosts, and bats may be trapped within their roosts by the scaffolding.

6.31. If the proposals change to include the second-storey of hanging tiles on the southern elevation of the property, there is potential for disturbance, injury or killing of bats in their roosts during works. This would trigger the requirement for a protected species licence.

6.32. Due to the mobile nature of bats, precautionary measures will be followed throughout all works to the roof to minimise the risk of disturbance, injury, or killing of bats during works.

6.33. Light spill throughout the works and from the new extension may impact bat flight paths and activity, and potentially result in habitat fragmentation. In the absence of mitigation, light spill on the southern elevation hanging tiles from the new lantern may result in the modification of roosts A1 and A2.

6.34. In the absence of mitigation, the works would therefore result in an offence under the *Conservation of Habitats and Species Regulations (2017)*.

Mitigation

- 6.35. The following mitigation strategy provides details of the mitigation measures which will be followed throughout the works to B1 to minimise the risk of killing or injury of individual bats during the works process.
- 6.36. As the works will not impact the day roosts located on the property (B1) at Lincolns, the proposed works may proceed without any further surveys or licensing. However, due to the mobile nature of bats and the presence of roosts on the property, precautionary mitigation includes a soft strip of the roof, alongside a sensitive lighting plan, toolbox talks, and a pre-commencement building inspection.
- 6.37. *Toolbox Talk:* Before commencing any work on site, all contractors will be inducted by a licensed bat ecologist or accredited agent in a tool box talk, to ensure they are aware of the risks to wildlife on site, particularly the presence of bat roosts, their legal protection and of working practices to avoid harming bats and other species in order to ensure working practices on site follow legal requirements.
- 6.38. *Ecological Supervision:* Immediately prior to any works on site, the buildings must be subject to an internal and external survey by a suitably qualified and licensed bat ecologist to ensure, as far as possible, that no bats are present. All features to be removed should be inspected with a torch (and/or an endoscope where a torch is not appropriate) to identify whether any bats are under a feature prior to works commencing. In addition, hand removal / soft strip of all features suitable for use by bats must be done very cautiously and under supervision by a bat-licensed ecologist.
- 6.39. **In the unlikely event that a bat is discovered during the works, all works must cease, and a bat-licensed ecologist must be contacted for advice. If a bat is discovered using the features to be removed during the works, a licence will need to be obtained to permit the continuation of works impacting potential roosting features.**
- 6.40. *Roofing Membrane:* It is recommended that type 1F bitumen roofing membrane is used on any part of the building which is accessible by bats. Standard breathable roofing membrane will not be permitted as it presents a lethal entanglement hazard to bats. **If breathable membrane cannot be avoided, you must provide a certificate that proves the roofing membrane has passed a 'snagging propensity test' if you're using a non-bitumen coated roofing membrane.**
- 6.41. A snagging propensity test checks that the membrane can stand the repeated snagging actions of roosting bats. To pass, a membrane must show no change in the average number of loops per cm² as rotations are increased from 0 to 1000. At the time of writing, suitable products that conforms to these standards include SIGA Majcoat 350, SIGA Majcoat 200 and EXOPERM Duro 300 membrane. You do not need a certificate for bitumen 1F felt that has a non-woven, short fibre construction.

- 6.42. *Timber Treatment*: Any use of timber-treatment or pest control treatment must be selected from the approved lists for safe use in or near bat roosts, which can be provided on request.
- 6.43. *Scaffolding*: Scaffolding for the works located on the southern elevation of the property should not be installed in a way which results in any of the timber planks or scaffolding poles directly abutting the second-storey area of hanging tiles. Where scaffolding is installed on the southwestern elevation, a gap of at least 10cm should be present between the hanging tiles and the edge of the timber boards/scaffolding poles. Alternatively, a scaffolding tower may be used, so long as it is moved away from the area of hanging tiles overnight.
- 6.44. *Development Lighting*: All works throughout the development period should be undertaken during daylight hours to minimise the requirement for artificial lighting during the period when nocturnal wildlife may be active. Where artificial lighting is required on site during the construction phase, shielding must be used, and a sensitive lighting plan must be developed to minimise the amount of light spill during the construction phase. Artificial lighting must not be left on whilst the construction site is not in operation.
- 6.45. *Operational Lighting*: Any new artificial lighting should be directed to avoid light spillage onto vegetation, particularly linear habitat features such as woodland edges or potential roosting sites within trees and buildings. Appropriate lighting options will prevent a negative impact on nocturnal wildlife potentially using the habitats on site, and should be approved by a suitably qualified and licensed bat ecologist. A sensitive lighting plan must be produced for the site by a suitably qualified professional. Lighting plans should follow the latest guidance from the Institution of Lighting Professionals (ILP), which considers the impact upon bats when designing lighting schemes (BCT, 2023). If appropriate measures are taken to reduce light spillage from the development, it is likely that there will be no negative impacts on local bat populations.
- 6.46. The following should be considered when choosing luminaires.
- All light spill must be directed away from vegetation, particularly linear habitat features such as woodland edges, watercourses, hedgerows, and scrub, or potential roosting sites within trees.
 - Care should be taken to direct all lighting away from the retained roosts present on B1.
 - All luminaires should lack UV elements when manufactured. Metal halide and fluorescent sources should not be used.
 - LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.

- A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce the blue light component.
 - Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
 - Internal luminaires must be recessed where installed in proximity to windows to reduce glare and light spill.
 - The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered.
 - Column heights should be carefully considered to minimise light spill.
 - Only luminaires with an upward light ratio of 0% and with good optical control should be used.
 - Luminaires should always be mounted on the horizontal, with no light output above 70° and/or no upward tilt.
 - Any external security lighting should be set on motion sensors and short (1min) timers.
 - The use of a Central Management System (CMS) with additional web-enabled devices to light on demand is recommended.
 - As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.
- 6.47. Glazing should be restricted or redesigned wherever the ecologist and lighting professional determine there is a likely significant effect upon key bat habitat and features. Where windows and glass facades, etc., cannot be avoided, low transmission glazing treatments may be a suitable option in achieving reduced illuminance targets.
- 6.48. Products available include retrofit window films and factory-tinted glazing. 'Smart glass', which can be set to automatically obscure on a timer during the hours of darkness, and automatic blinds can also be used, but their longevity depends on regular maintenance and successful routine operation by the occupant, and should not be solely relied upon.
- 6.49. Depending on the height of the building and windows, and therefore predicted light spill, such glazing treatments may not be required on all storeys. This effect can be more accurately determined by a lighting professional.
- 6.50. See **Appendices** for further information on designing lighting to minimise impacts on bats.
- 6.51. Habitats: The proposed works will only result in the loss of small areas of ornamental planting. As such, the proposed development will not result in any significant loss of

suitable foraging and commuting habitat for local bats. However, a wildlife-friendly landscaping scheme is recommended to enhance the site for bats and other wildlife.

Compensation

- 6.52. To provide a compensatory roosting for bats on site, at least one bat box will be installed on a mature tree, comprising a single crevice-style tree-mounted bat box, such as the Greenwoods Ecohabitat Double Crevice box. This box will remain on site in perpetuity. The location will be determined by a licensed bat ecologist to ensure the likelihood of repeated use is increased. The bat boxes will be installed at a height of at least 4 m, preferably on a southern or western un-cluttered aspect with good connectivity to linear features such as other mature trees and hedgerows.

Amphibians and Reptiles

Baseline

- 6.53. The habitats on site were considered suboptimal to support reptiles or amphibians, and it was determined that the site was significantly unlikely to support populations of these species.
- 6.54. However, it is considered that there is potential for small populations of common amphibians and reptiles to be present within the landscape surrounding the site. As the site provides some suitable habitat to support individual reptiles and amphibians, and has a moderate level of connectivity to the wider landscape, it is considered that individual reptiles and amphibians of common species may access and utilise the site on occasion.
- 6.55. It is anticipated that any reptile and amphibian activity on site is restricted to the boundaries of the site, where the ornamental planting provides protective cover for these species.

Potential Impacts

- 6.56. If amphibians and reptiles are able to access the site during proposed works, they may be injured due to the destructive activity or trapped in any excavations.
- 6.57. Small areas of modified grassland and ornamental planting will be lost as part of the proposals. Following the development, a new non-native and ornamental hedgerow will be planted on site. The proposed works will not result in a significant loss of suitable foraging, commuting, and resting opportunities for reptiles and amphibians within the local area. As such, it is not anticipated that the works will have a significant negative impact on local populations of reptiles or amphibians.

Mitigation

- 6.58. Given the likely low impact of the proposals, it is considered disproportionate to recommend further surveys for these species. If any amphibians or reptiles are present within the development area during the works period, it is considered that standard mitigation and reasonable avoidance measures should be sufficient to protect these species.

6.59. It is proposed that the mitigation measures employed include the following measures (as appropriate):

- *Timings:* All works which may impact reptiles and amphibians should be undertaken during the day and in suitable weather conditions (above 10°C, light breeze, and dry).
- *Hibernacula identification:* No existing hibernacula (rubble piles, timber piles, and the derelict building) with the potential to support hibernating amphibians and reptiles can be disturbed during the months of November to January. Hibernacula that fall within the designated works area will either need to be fenced off during this period, or they will need to be identified, dismantled and moved off-site under ECoW supervision outside of these critical months to ensure that hibernating individuals are not disturbed.
- In order to avoid creating suitable refuges for reptiles and amphibians during construction, all stored materials should be raised off the ground on pallets or skids. Aggregates, such as gravel or sand, must be delivered in bulk bags and stored on pallets.
- *Maintaining Unsuitable Habitats:* The modified grassland on site will be maintained as mown short (sward <200mm) until construction commences to maintain the sub-optimal nature of the habitat for amphibians and reptiles. Should areas of vegetation be taller than 30cm in height, they will be cleared via a two-stage cut under supervision by a suitably qualified ecologist. This will involve strimming under the careful supervision of a suitably qualified ecologist during temperatures above 10°C. The strimming will be carried out in a two-stage cut, with the first cut to 15 centimetres and the second to ground level. This cut will take place in one direction, towards the retained hedgerows around the boundaries of the site, in order to give any amphibians or reptiles a chance to leave the area and disperse to the wider landscape.
- All arisings from the strimming and clearance will be immediately removed from the works area to prevent any amphibians or reptiles from sheltering within it.
- A buffer of at least 5m will be maintained around retained hedgerows to prevent any damage occurring in the event that amphibians disperse through the site.
- *Excavations:* Any excavations or trenches on site must be covered whilst works are paused (such as overnight), or a ramp should be provided in order to prevent animals from becoming trapped. Open excavations should be sloped to prevent entrapment.

6.60. Given the above avoidance and mitigation strategies, it is considered likely that there will be no residual impacts on amphibians or reptiles.

Other Terrestrial Mammals

Status on Site

6.61. Whilst the habitats on site are considered unlikely to support populations of terrestrial mammals, it is anticipated that individuals and small populations of these species are present within the wider area.

- 6.62. Due to the presence of suitable foraging, commuting, and resting opportunities for terrestrial mammals on site, and the connectivity between the site and the surrounding landscape, it is considered that individual terrestrial mammals may access and utilise the site on occasion.
- 6.63. No evidence of terrestrial mammal activity was recorded on site. No evidence of badger activity or badger setts were identified on site or within 30m of the site.

Potential Impacts

- 6.64. If terrestrial mammals are able to access the site during proposed works, they may be injured due to the destructive activity or trapped in any excavations.
- 6.65. The loss of habitats resulting from the proposals will result in a very small loss of foraging, resting, and commuting opportunities for terrestrial mammals on site. However, due to the low value of the habitats to be lost, and the presence of suitable habitat within the wider landscape to support these species, it is not considered that this loss will have a significant impact on local populations of terrestrial mammals.

Recommendations

- 6.66. General mitigation measures are considered sufficient to protect terrestrial mammals during construction works within the application area.
- 6.67. Reasonable avoidance measures which should be implemented in this case include:
- All works which may impact terrestrial mammals will be undertaken during the day.
 - Any excavations or trenches on site must be covered whilst works are paused (such as overnight), or a ramp should be provided in order to prevent animals from becoming trapped;
 - In order to prevent creating suitable refuges for small mammals during construction, all stored materials should be raised off the ground on pallets or skids. Aggregates, such as gravel or sand, must be delivered in bulk bags and stored on pallets; and
 - All log/brush/rubble piles on site should be dismantled carefully and by hand, allowing any terrestrial mammals (and any amphibians or reptiles in the unlikely event that they are present) to move out of the pile and avoid injury/death.
 - Vegetation removal should occur as a two-stage cut. The initial cut should be done by hand and reduce the vegetation to a height of 15cm. This should then be left overnight to allow for the dispersal of any small mammals present. The second cut should occur the next day in suitable weather.
- 6.68. All new hard boundaries (i.e. wooden panel fences) will have holes of 13x13cm cut into the base to allow for the movement of terrestrial mammals throughout the site.

- 6.69. In the event a terrestrial mammal (e.g. hedgehog) is discovered on site during the construction phase, then all works must stop and:
- Primarily, the individual should be allowed to disperse naturally, with works being halted until they are outside the development area.
 - Alternatively, if the individual appears injured or is not moving, a suitably qualified ecologist should be contacted.
- 6.70. Given the above mitigation strategies, it is considered likely that there will be no residual impacts on terrestrial mammals.

Breeding Birds

Status on Site

- 6.71. The habitats on site provide suitable foraging and nesting opportunities for a variety of local birds. It is considered likely that the site supports an assemblage of common garden bird species.
- 6.72. No nests were identified at the time of the survey. The client reported that birds frequently nest within the soffit box on the eastern elevation of the property.
- 6.73. No evidence of features suitable to support roosting or nesting barn owls were identified on site. The habitats on site do not offer suitable hunting opportunities for barn owl.

Potential Impacts

- 6.74. The proposals will result in a small loss of suitable nesting and foraging habitat for birds on site. Due to the low value of the habitats to be lost and the presence of further areas of suitable habitat to support birds within the surrounding landscape, it is not anticipated that the proposals will have a significant negative impact on birds at the local scale.
- 6.75. The landscape proposals for the site include the planting of a new non-native and ornamental hedgerow. This hedgerow will provide new foraging and nesting opportunities for local birds on site, compensating for low-value opportunities which will be lost as part of the proposals.
- 6.76. The removal of any vegetation, such as shrubs or trees, or any works to the eastern soffit box, has the potential to harm nesting birds if they are present during the works.

Recommendations

- 6.77. The removal of trees and shrubs, and any works to the eastern soffit box, should occur outside of the breeding bird season (February - August inclusive).
- 6.78. If any vegetation removal or any works to the eastern soffit box are required during the breeding bird season (February - August inclusive), a pre-works check by a suitably qualified ecologist will be conducted no more than 24 hours before the removal to ensure that no active nests are present. If active nests are recorded, a suitable buffer will be

retained around these until all chicks have fledged (to be confirmed by a suitably qualified ecologist).

- 6.79. A wildlife-friendly landscaping scheme is recommended to enhance the site and provide suitable foraging habitat for birds.
- 6.80. Given the above avoidance and mitigation strategies, it is considered likely that there will be no residual impacts on birds.

Invertebrates

Status on Site

- 6.81. The scattered trees, hedgerows, and areas of ornamental planting and modified grassland offer suitable foraging, commuting, basking, nesting, and resting habitat for a variety of invertebrates. It is considered likely that the site supports an assemblage of common invertebrate species.
- 6.82. Due to a lack of suitable habitat on site, it is considered significantly unlikely that stag beetle or Roman snail would be present on site.

Potential Impacts

- 6.83. The proposed works will result in a small loss of suitable habitat to support invertebrates within the local area. Due to the low value of the habitats to be lost, in combination with the proposed hedgerow planting and the presence of suitable habitat to support invertebrates within the wider landscape, it is considered significantly unlikely that the proposals will result in significant negative impacts to local invertebrate populations.

Recommendations

- 6.84. Where new planting is considered in the plan, then native tree, hedgerow, and shrub species should be used to enhance the ecological value of the site, with particular preference for fruiting and flowering species.
- 6.85. Given the above compensation, it is considered likely that there will be no residual impacts on invertebrates.

7. ENHANCEMENT RECOMMENDATIONS

- 7.1. National planning policy states that all developments should seek to enhance onsite biodiversity whether impacts on protected species are recorded or not. Incorporating enhancement features into new or renovated buildings should be carefully considered. These features can be simple and inexpensive, please see below for specific recommendations.

Wildlife Beneficial Landscaping Scheme

- 7.2. Any future landscape planting should seek to enhance biodiversity, improve connectivity to the surrounding habitats and provide food and shelter for a wide range of wildlife. All amenity planting and formally landscaped areas should be designed using a variety of plant species beneficial for wildlife. These do not necessarily have to be native but should be chosen for their ability to provide nectar or fruit and should be non-invasive species. There are a number of specialist seed mixes available specific to certain soil types, growing conditions and designed to benefit different groups of species e.g. bees, butterflies, moths.
- 7.3. All habitats should be managed in a suitable way to encourage a wide variety of insects and other wildlife to use the site.
- 7.4. Further information regarding habitat creation, enhancement and management can be provided on request.

Bats

- 7.5. To increase the roosting opportunities for bats in the area, at least two discrete roosting features should be integrated into the new extension.
- 7.6. Where traditional building methods are to be used, integrated, discrete features within a roof can be built into a wet ridge. This is done by providing a gap in the mortar, allowing access for bats. By linking together a couple of ridge tiles, the feature becomes more suitable for a greater range of species and number of bats. Other discrete features, such as lifted roof tile and lifted hanging tile crevice features, can provide inexpensive roosting features for bats which blend seamlessly into the building (see the **Appendix**).
- 7.7. Where discrete features are being created, breathable roofing membrane must **NOT** be used in order to avoid hazards to bats.
- 7.8. To provide suitable hibernation opportunities for bats within the local area, a tree-mounted hibernation box, such as the Large Multi-Chamber WoodStone Bat Box, can be installed on a mature tree on site. Bat boxes should be installed at a height of at least 4m, preferably on a southern un-cluttered aspect with good connectivity to linear features such as other mature trees and hedgerows. The location should be determined by a licensed bat ecologist to ensure likelihood of repeated use is increased.

Bird Boxes

- 7.9. To enhance the site for birds, tree-mounted bird boxes (at least two) suitable for garden and rural species can also be installed on any trees or building on site (see **Appendices**). Bird boxes should be installed at least 4 m from ground level and with unobstructed air space in front.
- 7.10. Within the development, wildlife-friendly landscaping and the inclusion of native hedgerow planting at the perimeter of the site will provide additional nesting and foraging opportunities for bird species (see **Appendices** for further information).

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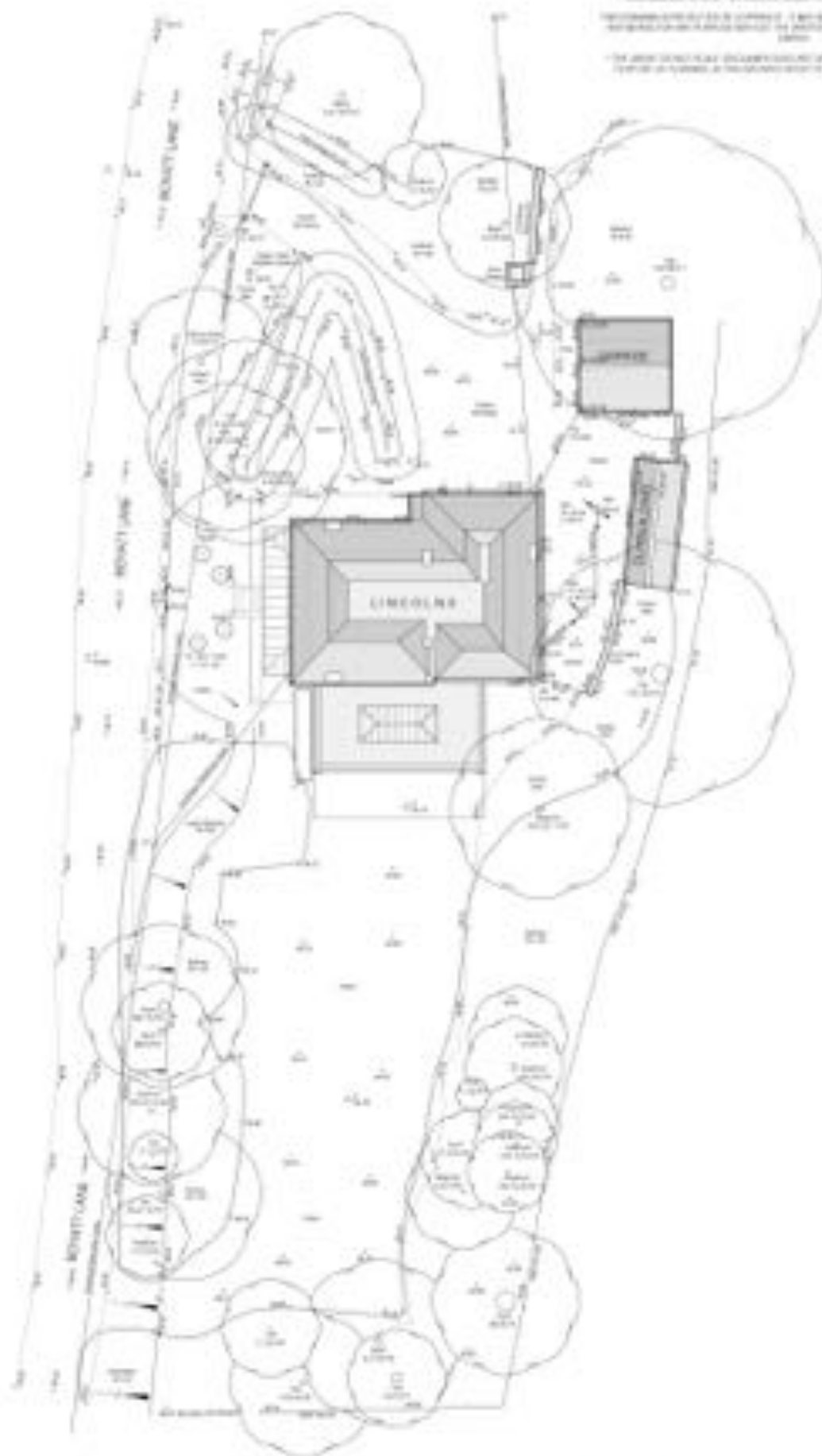
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APPENDICES

- 1. PROPOSED PLANS**
- 2. NVA VIEWS**
- 3. BATS AND LIGHTING**
- 4. BUILDING ENHANCEMENTS FOR BATS**
- 5. MOUNTED BAT AND BIRD BOXES**



NOTES: 1. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED. 2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.

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		CLIENT	PROPOSED SITE PLAN	W1789		
		R Charles & O Nichols	Proposed Site Plan	P10		
		PROJECT				
		Lincoln, Boyatt Lane				

Appendix: NVA Views at the beginning and end of each emergence survey.

Survey One - 11.06.26



Appendix Images 1-4: NVA views from the start (left) and end (right) of the survey. The NVA views from top to bottom are as follows: Southeastern NVA and Southwestern NVA.

Survey Two - 02.07.26



Appendix Images 5-10: NVA views from the start (left) and end (right) of the survey. The NVA views from top to bottom are as follows: Northeastern NVA, Northwestern NVA, and Southern NVA.

Survey Three - 23.07.26



Appendix Images 11-15: NVA views from the start (left) and end (right) of the survey. The NVA views from top to bottom are as follows: Northeastern NVA, Northwestern NVA, and Southern NVA.



THE IMPACT OF LIGHTING ON BATS

Bats favour a dark environment for both roosting and foraging as they are adapted to low-light conditions. Artificial lighting will disturb bats if the lighting covers roost access points, flight paths or foraging habitats.

The main peak of nocturnal insect abundance occurs at dusk and a delay in emergence results in a lower foraging rate for bats.

Artificial lighting creates a 'vacuum effect' for nocturnal insects. During the night nocturnal insects use the light of the moon* to navigate. However, artificial lighting and even sky glow above cities obscures the natural moonlight as it is closer

and radiates light in multiple directions.

Some species of bats have been recorded foraging around street lights such as *Pipistrellus* species and *Nyctalus* species. However, species that are less tolerant of artificial light are at a disadvantage when foraging as insects are drawn away from these species usual foraging grounds into the zones of artificial light.

Lighting must be considered in context to any development as increased lighting may cause roost abandonment, reduced reproductive success, and reduced foraging. Mitigation to reduce the impacts of lighting for bats is therefore of great importance in bat conservation.

Table 1: Summary of predicted impact of lighting for each species/genus

Impact	High	Medium	Low
Behaviour			
Maternity roost	All species	-	-
Night roost	<i>Rhinolophus hipposideros</i> <i>Rhinolophus ferrumequinum</i> <i>Myotis</i> spp. <i>Plecotus</i> spp.	<i>Pipistrellus</i> spp. <i>Nyctalus</i> spp. <i>Eptesicus serotinus</i> <i>Barbastella barbastellus</i>	-
Emergence	All species	-	-
Foraging	<i>Rhinolophus hipposideros</i> <i>Rhinolophus ferrumequinum</i> <i>Myotis</i> spp. <i>Plecotus</i> spp.	-	<i>Pipistrellus</i> spp. <i>Nyctalus</i> spp. <i>Eptesicus serotinus</i> <i>Barbastella barbastellus</i>
Commuting	<i>Rhinolophus hipposideros</i> <i>Rhinolophus ferrumequinum</i> <i>Myotis</i> spp. <i>Plecotus</i> spp.	-	<i>Pipistrellus</i> spp. <i>Nyctalus</i> spp. <i>Eptesicus serotinus</i> <i>Barbastella barbastellus</i>
Swarming	All species	-	-
Hibernation	All species	-	-

*For more information see Warrant, E., and Dacke, M. (2016) Visual Navigation in Nocturnal insects. *Physiology*, 31, 182-196.



Sources of light that can disturb bats include; light spill via windows, sport floodlighting, car headlights, roadside lighting, security lighting, aesthetic lighting of waterways, and aesthetic illumination of buildings. Glare will affect bats over greater distance than the target area directly illuminated.

Avoidance is the most effective method, but if this is not possible the following measures should be considered.

What lighting should I use?

- Low pressure sodium lights or 'warm' LEDs
- Wavelength above 540nm
- Colour temperature below 2700K
- Shielded lights that prevent light spill above a 70 degree angle
- Passive infrared (PIR) motion sensors



What to avoid:

- Lighting roost entrances, flightpaths, and foraging or commuting routes
- Reflective surfaces beneath lighting
- High level lights
- Non-directional lighting

Lighting should be considered at an early stage allowing impacts to be minimised through the design of the site.

Key Points

- Keep lighting intensity to the minimum level required
- Limit the times that lights are on to provide some dark periods (e.g. switching installations off between midnight and 5am)
- Dim lighting according to demand
- As an alternative to lighting pathways use paving materials that reflect moonlight
- Low level lighting allows darkness to be retained within higher vegetation
- Set dark habitat buffers - lighting should always be a minimum of 25m from vegetated margins and 40m from waterbodies
- Incorporate dark corridors within the site
- Compensate for the loss of dark areas by enhancing other dark areas
- Consider building design - install internal lighting away from windows



Lifted tile bat access features

Lifted tiles provide a simple, discreet bat roosting opportunity which are great for replicating existing roost features on traditional tiled roofs. They can be cheaply and easily created using materials available on site to provide a bespoke mitigation solutions for bat licence projects.



Small pieces of tile, mortar, pieces of wooden batten or rolled lead tingle can be used to raise the tile and create a suitable access gap for bats.

Lifted tiles should provide a gap of approximately 15-25 mm beneath the tile to provide access to the batten space of the roof. The roof should be lined with bitumastic felt to create the perfect warm crevices suitable for roosting bats.



These features are also suitable for incorporation on areas of hanging tiles to provide bat access to the batten space.

The locations for these features should be agreed with an ecologist to provide optimal conditions for the bat species and roost types present on site.

Lifted tile features can also be used to provide access into a roof void suitable for roosting bats. To provide access into the roof space, a small gap must be cut into the roofing felt. This should be approximately 50 mm x 20 mm to provide access for bats but discourage birds from entering the roof space.



TYPES OF BAT BOXES



Schwegler 2F Double Front Panel

- Manufactured from long-lasting woodcrete
- Lifetime - 20-25 years
- Suitable for pipistrelle and Myotis species
- A second inner wooden panel is fitted adjacent to the front panel imitating a cavity wall



Schwegler 1FD Double Front Panel

- Manufactured from long-lasting woodcrete
- Lifetime - 20-25 years
- Suitable for pipistrelle and Myotis species
- A second inner wooden panel is fitted adjacent to the front panel imitating a cavity wall
- Small entrance hole discourages birds from using the box



Vincent Pro Bat Box

- Manufactured from timber and recycled plastic
- The front and the top of the box is black, which helps heat absorption
- Suitable for a range of species including pipistrelle species, Myotis species, and brown long-eared bats.
- No maintenance required



Schwegler 2FN

- Manufactured from long-lasting woodcrete
- Lifetime - 20-25 years
- Suitable for pipistrelle species, Myotis species, serotine, brown long-eared, noctule and Leisler's bats
- Dual entrance
- Birds and dormice have also been found using this box
- A newer model is now available, Schwegler 3FN, designed with smaller entrance holes which discourage birds and dormice



Schwegler 1FS Large Colony Box

- Manufactured from long-lasting woodcrete
- Lifetime - 20-25 years
- Suitable for a range of bats including pipistrelle species, Myotis species, Noctule, and brown long-eared bats
- Three grooved inner wooden panels are connected to the front panel, which are ideal for bats to cling to.
- Accommodates large summer colonies



Schwegler 1FF Colony Box

- Manufactured from long-lasting woodcrete
- Lifetime - 20-25 years
- Suitable for a range of crevice dwelling bats including pipistrelle species, barbastelle, noctule, and brown long-eared bats
- Rough wooden surface for bats to cling onto and climb



Greenwoods Ecohabitats Small Hollow Bat Box

- Manufactured from long-lasting ecostyrocete
- Lifetime - 20-25 years
- Suitable for a range of bats preferring a cavity space, including pipistrelle species, myotis species, noctule, and brown long-eared bats
- Suitable for hibernating bats



TYPES OF BIRD BOXES



Vivar Pro Seville 32mm WoodStone Nest Box

- Manufactured from woodstone - increases longevity and provides a consistent internal temperature
- The nest box compensates for the lack of natural cavities that are found in trees
- Suitable for blue tits, tree sparrows, house sparrows, great tits, crested tits, nuthatches, coal tits and pied flycatchers
- Should be installed between 1.5m and 3m high



House Martin Nest Cups



Swallow Nest Bowl

- Suitable nest building mud is difficult for house martins and swallows to find
- Alterations to house construction and roof design have resulted in a decrease of suitable nesting sites
- Install swallow nest bowls within an outbuilding or garage that has flight access - 6cm below the ceiling
- Install house martin nest cups under the eaves of a house - minimum of 2m high



Swift Nest Box

- Swift numbers are declining partly due to a loss of nesting sites
- The entrance hole discourages other birds such as starlings and sparrows
- Install a minimum of 5m high with unobstructed airspace in front of the nest
- Integrated models of swift nest boxes are also available



5KL Schwegler Nuthatch Nest Box

- Manufactured from woodcrete
- Nuthatches prefer nest boxes with larger cavities. They will often occupy owl nest boxes and fill the entrance hole with mud reducing the size to approximately 32mm
- Nuthatches plaster mud on the internal walls of the cavity and line the floor with wood chipping and leaves to nest
- To discourage nuthatches from using owl nest boxes try installing the 5KL immediately adjacent



Open-fronted Nest Box

- Manufactured from woodstone - lifetime of 20-25 years
- Suitable for robin, wren, spotted flycatchers, and black redstart
- Best installed hidden from view on the wall of a building or hidden within ivy/honeysuckle as the boxes open-front may attract predators
- Install at a height of 1-3m



Sparrow Terrace Nest Box

- Sparrow populations are decreasing due to a lack of nesting sites
- Sparrows are a sociable species and prefer to nest in a colony
- Likelihood of uptake is increased if more nesting chambers are available (the example nest box shown contains three nesting chambers)
- Various other nest box designs are available
- Install at a minimum of 2m high



Tawny Owl Nest Box

- Install on a mature tree within a woodland (not on the outskirts)
- Install a minimum of 3m high
- Face the box entrance away from prevailing wind (generally avoiding west/south-west)



Little Owl Nest Box

- Prefer areas of mixed farmland and orchards
- Essential features; small entrance hole (70mm), narrow tunnel, and a dark nesting chamber
- Install on a horizontal tree branch/wall top or beam so that owlets can walk in/out prior to fledging
- Can be installed on any tree species apart from cherry - the cherry harvest coincides with the little owl breeding season
- Entrance hole should face the tree trunk
- Install at a minimum height of 3m