



Preliminary Ecological Appraisal

For

Josh Roughan

Lordship Farm

Hollwell

Hitchin

Hertfordshire

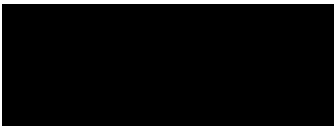
SG5 3SS

Reference: Q13532

Prepared by
ProHort Limited
Annalea House
218 Grindley Lane
Blythe Bridge
Stoke-on-Trent
ST11 9JS
Telephone: 01782 479479

Date: February 2025

Quality Assurance

Client	Josh Roughan, Lordship Farm, Hollwell, Hitchin, Hertfordshire, SG5 3SS
Remarks	Version 1
Reference	Q13532
Date	11 th February 2025
Principle Author	Ioana Andor 
Qualifications	BSc (Hons), MSc
Surveyor	Hannah Burton 
Qualifications	QCIEEM, MSci (Hons)

Disclaimers

All information set out in this report is true and based on the opinions and knowledge of ProHort at the time of writing. This report has been set out for the sole use of the client under the conditions set out in this document.

This report was prepared to the standard set out in the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct. Adhering to this guidance, this report is considered valid for a period of 12 months after the date of the site visit, after this date this report will no longer be an accurate assessment of the current conditions of the Site/project area.

Contents

Summary	4
1. Introduction	5
1.2. Site location.....	5
1.3. Historic Context.....	6
2. Methods	6
2.1. Aims and Objectives of the Survey.....	6
2.2. Desk Top Study	6
2.3. Habitat Survey	7
2.4. Preliminary Roost Assessment	7
2.7. Limitations of the Survey	8
3. Results	9
3.1. Designated Sites	9
3.2. Priority and Notable Habitats	9
3.3. European Protected Species Licences	9
3.4. Tree preservation Orders	9
3.5. UK Habitat Classification Survey	9
3.6. Species Records	10
3.6. Preliminary Roost Assessment	15
3.6.1 Bat Building Assessment	15
3.6.3 Foraging and Commuting Bats	16
3.6.4 Conclusions on Roosting Bats	16
3.7. Evaluation	16
4. Outputs and Opportunities	17
4.1. Mitigation	17
4.1.1 Artificial Lighting Strategy	17
4.2. Recommendations for biodiversity enhancement	18
Appendix 1 Reference List and Useful Sources	21
Appendix 2 Planning Policy & Legislation	22
Appendix 3 Habitat Plan of the Site.....	26
Appendix 4 Photographs	27

ProHort Limited
Annalea House
218 Grindley Lane
Blythe Bridge
Stoke-on-Trent
ST11 9JS

Telephone: 01782 479479
Email: info@prohort.co.uk
Website: www.prohort.co.uk

Summary

A Preliminary Ecological Appraisal (PEA) was undertaken at Lordship Farm, Hollwell, Hitchin, Hertfordshire, SG5 3SS (TL1633532924), to support a planning application to convert existing barns to residential dwellings and newbuild houses. A site survey was undertaken on the 12.01.2025 and a desktop study was undertaken in February 2025. The appraisal assessed the current ecological value of habitats within the Site and their potential to support protected and notable species.

Overall, further considerations are required before the proposed works begin. There are several measures that should be installed prior to works commencing to ensure the safety of wildlife.

A barn owl nest site verification survey will be required to establish whether the provisional nesting implemented from previous ecological mitigation actions are occupied and the likely degree of impact for breeding pairs/ required mitigation for the conversion of proposed buildings.

One emergence bat survey with three surveyors should be undertaken to establish the presence of bats within the barns to be converted and to establish that no other roosts formed on Site within these buildings since previous surveys that were undertaken.

For full details, please read the report in its entirety.

1. Introduction

ProHort Limited have been commissioned by Josh Roughan of Lordship Farm, Hollwell, Hitchin, Hertfordshire, SG5 3SS (TL1633532924) to conduct a Preliminary Ecological Appraisal (PEA), hereafter referred to as the 'Site'. The purpose of the survey was to assess the likely presence of rare or protected species, to identify any features, habitats or species which would constitute potential constraints to any development which may take place on the Site, and to make recommendations for mitigation and/or further survey work.

This report sets out the results of a desk-based study and a survey of the Site, undertaken on the 11.02.2025. A PEA is required to support a planning application.

1.2. Site location

The Site is a farm located south of Holwell and is circa 0.47 hectares composed of grassland, barns (Barn 1 circa 190m² and Barn 2 circa 118m²) and areas of bare ground (Figure 1). The Site is surrounded by agricultural fields, hedgerow and pockets of woodland.

There are plans to develop the site. The planning application involves the demolition of some of the existing barns (for which there is planning approval) and the retention of two with the aim of converting these barns to residential dwellings and newbuild houses.

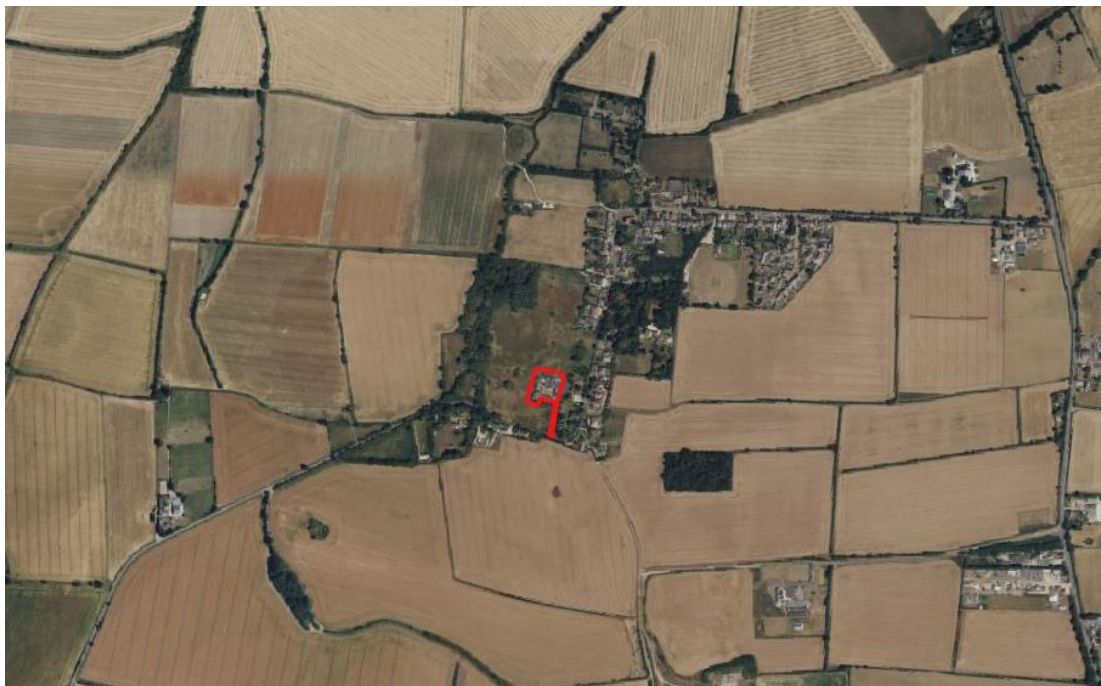


Figure 1 – Site location (redline), showing the wider local landscape.

Taken from Bing Maps (©2024 Microsoft Corporation, ©2024 Maxar, ©CNES(2024) Distribution Airbus DS)

The focus of this report is to determine whether the proposed works on the area on Site will impact any protected species or habitats.

ProHort Limited
Annalea House
218 Grindley Lane
Blythe Bridge
Stoke-on-Trent
ST11 9JS

Telephone: 01782 479479
Email: info@prohort.co.uk
Website: www.prohort.co.uk

1.3. Historic Context

According to opensource historic mapping, the earliest accessible records of the property were in 2000, which showed one of the barns built (the one south of the boundary line). By 2002 the Site featured all buildings as it currently shows. The wider landscape did not change much during this time.

2. Methods

2.1. Aims and Objectives of the Survey

The aims and objectives of this report are as follows:

- To record and describe the current habitats and species present within the Site.
- To identify any occurrences or rare and/or protected plant species within the Site.
- To identify any invasive, non-native plant species.
- To undertake a habitat appraisal and assess the potential of the site to support protected species.
- To identify any potential ecological concerns or constraints that could influence the development and provide feedback on appropriate mitigation measures to avoid, mitigate or compensate for impacts on protected species and other local wildlife.

2.2. Desk Top Study

The purpose of a desk study is to collect baseline ecological data held by statutory and non-statutory consultees. This includes any records of species from the Site and the surrounding 2km.

To ensure the information within this report is current, only species data collected within the last 10 years was considered. This data is used as an indicator of species presence and should not be used to indicate absence.

A search on DEFRA's open source, online MAGIC Maps tool was used to identify any designated sites, priority habitats, and previous protected species licences within 2km of the Site.

Data provided by the Site's Local Record Centre was used to identify any non-statutory designated sites and any protected and notable species records within 2km of the Site.

Any trees with the Site or any trees affected by the proposed works will be checked to identify any existing Tree Preservation Orders (TPO). The local authority maps/records where searched.

2.3. Habitat Survey

A survey was completed of the defined boundary of the Site as well as the surrounding area, where applicable. The Site area was assessed in accordance with the UK Habitat Classification Version 2.0 (UKHab Ltd 2023). A species list of flora was compiled for each habitat and an estimate of abundance was assigned using the DAFOR (Dominant, Abundant, Frequent, Occasional, or Rare) scale (Walker *et al.* 2010). The Site was then assessed for its suitability for any protected and notable species. The surrounding area was assessed for any evidence or suitability for any protected and notable species.

2.4. Preliminary Roost Assessment

A Preliminary Roost Assessment (PRA) was undertaken on any objects of interest within the Site (buildings or trees etc. where applicable) in reference to the Bat Conservation Trust (BCT) Good Practice Guidelines 4th Edition (Collins, 2023). A thorough search for evidence of bats was undertaken in any internal loft spaces or voids and on any external features of any appropriate buildings, notably any windowsills, walls, floors and flat surfaces.

A ground level tree assessment for all individual trees and tree groups within the Site was undertaken to determine any bat roosting potential. A note was made of any features (e.g. cracks, holes, crevices, loose bark, or dense ivy *Hedera helix*) or evidence of bats visible from ground level.

Evidence of roosting bats include:

- Presence of live/dead bats.
- Bat droppings (can be distinguished from rat/mouse droppings by their crumbly texture).
- Staining from fur around access points.
- The presence of feeding remains, such as insect wings and casings.
- Absence of cobwebs around crevices

A building/tree would be identified as a 'confirmed' bat roost if evidence of roosting bats was recorded.

Evidence of bats is often concealed and/or inaccessible due to remote nature of the roost. Therefore, where no evidence of roosting bats was recorded, an assessment on the availability of potential roosting areas and bat access points around the building/tree, as well as the quality/availability of surrounding bat habitat, was conducted. The building/tree was then assigned a category that is based on a sliding scale of 'negligible' to 'high potential' (based on Collins, 2023).

2.5. Great Crested Newt Habitat Suitability Index Assessment

Ponds within 250m of the Site, where possible, were assessed for the suitability for Great Crested Newts (GCN). The assessment of these ponds followed the GCN Habitat Suitability Index (HSI) methods (ARG UK, 2010). The HSI methods assess a number of parameters that influence breeding populations of GCN. These parameters include: location, pond size, permanence of pond, water quality, bank shading, waterfowl activity, presence of fish, number of ponds within the surrounding area, terrestrial habitat type, and macrophyte cover of the pond. Each of these variables can score a number between 0 and 1 and the geometric mean of these numbers provide a final value which can be used to categorise the suitability level (poor, below average, average, good, or excellent). These categories can then be used to inform the need for further surveys.

2.6. Legislation and Policy

Appendix 2 sets out the relevant policies and environmental and wildlife legislation relevant to the Site. The project must follow these documents, and this report is set out to avoid any offenses being committed regarding these policies and legislations.

2.7. Limitations of the Survey

- The survey was conducted outside of the main flowering season, therefore there may have been flora species present on Site that were not visible at the time of the survey.
- It should be noted that a single visit cannot always ascertain the presence or absence of a protected species. However, an assessment is made of the likelihood for protected species to occur based on habitat characteristics and ecology of each species. Where there is potential for protected species, additional survey work may be required to ascertain their presence or absence.
- The information contained within this report is as robust as the information provided in the field notes, previous reports and other freely available information.
- Data on species that has been obtained from local records, are sometimes only available at low spatial resolutions and are constrained by the voluntary nature of the contributions and what has been chosen to be submitted. While these records provide a useful indication of species recorded in the local area, the data is not necessarily an accurate reflection of species assemblages or abundance in the vicinity.

3. Results

3.1. Designated Sites

No statutory designated sites were identified within 2km of the Site. Additionally, no non-statutory designated sites were identified within 2 km of the Site.

3.2. Priority and Notable Habitats

The priority habitats (outlined in Section 41 of the Natural Environment and Rural Communities Act 2006 (as amended)) within 2km of the Site are outlined in Table 1 below.

Table 1 – All priority habitats within 2km of the Site; taken from Magic Maps in February 2025.

Priority habitat	No. of sites within 2km	Closest site	Connectivity
Deciduous woodland	15	155m W	<u>High</u> – No dispersal barriers part of the adjacent property.
Traditional orchard	3	155m W	<u>High</u> – No dispersal barriers part of the adjacent property.

It is considered that multiple hedgerows and ponds within 2km of the Site may meet criteria of priority habitats.

3.3. European Protected Species Licences

No European Protected Species licences were identified within 2km of the Site.

3.4. Tree preservation Orders

No TPOs were found surrounding within directly surrounding the Site.

3.5. UK Habitat Classification Survey

Four UKHab habitats were identified within the Site:

- Developed land; sealed surface u1b~ u1b5
- Bare ground 510
- Modified grassland g4
- Native hedgerow h2a

An on-site habitat plan is shown in Appendix 3 and photographs of the Site are shown in Appendix 4. Each of these habitats are described in Table 2 below.

Table 2 – All UKHabs classification descriptions.

Habitat Type	Habitat Description	Flora Species
Developed land; sealed surface u1b~ u1b5	Includes buildings and other hardstand.	-
Bare ground 510	Little to no vegetation on paths leading up to the barns and areas immediate to the barn lack vegetation.	-
Modified grassland g4	Some patches of grass around the Site.	Abundant: Perennial ryegrass <i>Lolium perenne</i> Cow parsley <i>Anthriscus sylvestris</i> Moss <i>Bryophyta</i> Frequent: Creeping buttercup <i>Ranunculus repens</i> Blue comfrey <i>Symphytum caucasicum</i> Occasional: Creeping thistle <i>Cirsium arvense</i> Orchard grass <i>Dactylis glomerata</i> Rare: Spear thistle <i>Cirsium vulgare</i>
Native hedgerow h2a	On the eastern boundary of the Site.	Abundant: Beech <i>Pendula betula</i> Occasional: Bramble <i>Rubus</i>

3.6. Species Records

A search of local biological records was conducted by the Bedfordshire & Luton Biodiversity Recording & Monitoring Centre up to 2km from the Site. Only records within the past 10 years were included in the following assessment. The records were filtered based on the relevance to the project proposal.

3.6.1 Badgers

The records returned eight occurrences of Badger (*Meles meles*) within 2km of the Site, the closest being 100m N. The site has little vegetation with large area of bare ground, making it a less favourable place for badgers to forage. During the Site visit no signs of badgers were found and none of the on-site habitats appeared favourable to Badgers. The site may be used for commuting across territories and may be part of a wider site patrol which includes latrines and scent marking spots. There are no notable barriers that would limit a badgers ability to disperse in proximity to the Site. Even though badgers may be present in the wider surrounding area it is unlikely that the

proposed works will impact any of the populations of badgers present in the area surrounding the Site. Overall, the likelihood for the Site to support badgers is low and further action is required in the form of protective fencing to be installed around the construction zone to deter animals from entering the works area. Specifically, to mitigate any negative impacts:

- A toolbox talk will be given to all staff working on Site regarding the legislation protecting badgers as well as typical signs of badger activity like latrine areas, claw markings and snout markings.
- Works must take place during daylight hours, and no overnight lighting should be installed beyond the necessary level for health and safety.
- Badger protective fencing should be installed around the boundary of the development area before works begin. The fencing should be made of a highly tensile material to ensure durability and effectiveness. Its size should be ground level to at least 1.5m tall, at least 30cm below ground and 100mm width gaps to prevent badgers and other mammals from entering the construction zone.
- Daily checks by site personnel of excavations for the presence of trapped wildlife.
- The fencing should be regularly checked to ensure there is no damage that would allow entry of Badgers. If damage is found, the Site must be checked for signs of Badger activity and the fence repaired as soon as possible.
- If it becomes apparent at any time that the works could impact a sett or an entrance to a sett, all works must cease and an ecologist must be consulted on the appropriate action or mitigation, if necessary. If a badger or sett entrance is found whilst the development is ongoing, all works must cease immediately, and a suitably qualified ecologist should be consulted.

3.6.2 Bats

The recent records search and European Protected Species licence application identified no records of breeding, foraging and resting bats within the last 10 years.

3.6.3 Birds

There were six species of protected or priority bird species (species listed in Section 41 of the Natural Environment and Rural Communities Act 2006 or Schedule 1 of the Wildlife and Countryside Act 1981) returned by the local records (Table 3).

Table 3 – bird records (these are not all the examples of birds within these lists).

<i>Species name</i>	<i>Number of records</i>	<i>Likelihood of presence on site</i>
Schedule 1		
Fieldfare (<i>Turdus pilaris</i>)	8	Moderate- Vegetation around the wider area offers suitable opportunities for foraging and nesting.

Quail (<i>Coturnix coturnix</i>)	1	Moderate- Vegetation around the wider area offers suitable opportunities for foraging and nesting.
Kingfisher (<i>Alcedo atthis</i>)	6	Moderate- Vegetation around the wider area offers suitable opportunities for foraging and nesting.
Barn Owl (<i>Tyto alba</i>)	4	Moderate- Vegetation around the wider area offers suitable opportunities for foraging and nesting.
Red Kite (<i>Milvus milvus</i>)	39	Moderate- Vegetation around the wider area offers suitable opportunities for foraging and nesting.
Redwing (<i>Turdus iliacus</i>)	11	Moderate- Vegetation around the wider area offers suitable opportunities for foraging and nesting.

There is a hedgerow on Site which could be valuable habitat for passerine species and the wider area has mature hedgerow and trees, all which would be of benefit for generalist species of birds. It is understood that these features will not be affected by the proposed works.

All the barns on Site have previously been confirmed to be occupied by barn owls *Tyto alba*. A barn owl nest site verification survey will be required to establish whether the provisional nesting implemented from previous ecological mitigation actions are occupied and the likely degree of impact for breeding pairs/ required mitigation for the conversion of proposed buildings. These checks/ mitigation plans should be undertaken by a suitably licensed and experienced ecologist.

Evidence of nesting birds were noted within both barns with dead feral pigeons *Columba livia domestica*, bird faeces, broken eggshells and a hatched egg. Since species of feral pigeon breed year around a breeding birds check should be done on the barns by a suitably experienced ecologist prior to demolition works being undertaken to ensure no active nests are present.

3.6.4 Great Crested Newt

The local record search returned no occurrences of Great Crested Newt (*Triturus cristatus*) (GCN) and no signs of the species were recorded on Site.

No ponds were located within the Site and two waterbodies, a pond and a moat were present within 250m of the Site boundary. These were within the boundary of a private curtilage and were not accessible at the time for surveying.

The terrestrial habitat surrounding the Site is not suitable for GCN due to large areas of bare ground within the immediate vicinity of the buildings. However the wider area is grassland with hedgerow, which could be utilised for commuting and resting amphibians, but these areas are understood to not be affected by proposed works. Given the lack of breeding habitat for GCN within the Site and

surrounding area, the proposed works can be considered as having a negligible impact on GCN breeding populations. Therefore, no further surveys are required.

3.6.5 Other Mammals

No records of Hazel Dormice (*Muscardinus avellanarius*) were returned from the record search. The Site lacks characteristic habitats preferred by this species which includes mature woodland edges, rich hedgerows and areas of scrubland/ woodland. Since the proposed works are understood to not be affecting any hedgerows present and the Site is not connected to woodland blocks which have dormice records, the likelihood that Hazel Dormice are present is negligible and no further action is required. At the time of the survey no signs of this species were found.

No records of otter (*Lutra lutra*), beaver (*Castor fiber*), water vole (*Arvicola amphibius*) or white-clawed crayfish (*Austropotamobius pallipes*) were returned by the records search. The nearest watercourse to the Site is 190m W and is connected to the pipeline at the sewage works north of the Site. Habitats within the Site are not suitable for these species which require freshwater habitats with riparian vegetation (e.g. for otters) with banks (e.g. for water voles) and often connections to wooded areas (e.g. for beavers). Additionally, the white clawed crayfish is an aquatic species that relies on the presence of healthy clean freshwater within shallow courses that are rich in vegetation, have adequate substrate and softer banks. At the time of the survey no signs of these species were found. Overall, the likelihood for the Site to support watercourse species is negligible and no further action is required.

One record of hedgehog (*Erinaceus europaeus*) and six records of brown hare (*Lepus europaeus*) were returned from the records search. The Site has not got the characteristic habitat preferred by brown hares for foraging and shelter and at the time of the survey no signs of hares were recorded. It is not uncommon for there to be little to no signs of these species as they are nocturnal. The wider area may provide some resources for commuting hares if the grass is left to grow long however, local populations are more likely to use open farmland away from areas of human activity. Overall, the likelihood for the Site to support this species is negligible and no further surveys are required. A precautionary method of works is advised to avoid negative impacts on this species.

Specifically, to mitigate any negative impacts:

- A toolbox talk will be given to all staff working on Site regarding the identification of the species and legislation protecting it.
- Works must take place during daylight hours, and no overnight lighting should be installed beyond the necessary level for health and safety.
- Hare protective fencing should be installed around the boundary of the development area before works begin. The fencing should be made of a highly tensile material to ensure durability and effectiveness. Its size should be ground level to at least 1.5m tall, at least 30cm below ground and 100mm width gaps to prevent badgers and other mammals from entering the construction zone.
- Daily checks by site personnel of excavations for the presence of trapped wildlife.

- The fencing should be regularly checked to ensure there is no damage that would allow entry of hares. If damage is found, the Site must be checked for signs of hare activity and the fence repaired as soon as possible.
- If it becomes apparent at any time that the works could impact on individual animals or an entrance to a den, all works must cease and an ecologist must be consulted on the appropriate action or mitigation, if necessary. If a hare or young is found whilst the development is ongoing, all works must cease immediately, and a suitably qualified ecologist should be consulted.

Hedgehogs may utilise the boundaries of the Site for commuting and foraging. Even though during the Site visit no signs of hedgehogs were observed, it is not uncommon for there to be little to no sign for this nocturnal species. The proposed plans are not likely to destroy or remove any valuable resources for this species. Overall, further action is required in the form of precautionary measures to ensure that no animals will become trapped or harmed during the construction. Any excavations, pipes or other containers should be covered at night to prevent animals from becoming trapped. Any rubble or brash piles created as a result of the proposed works or already present on Site could be utilised by hedgehogs. These piles should be removed by hand during the proposed works and should not be removed during the hibernation period (October- March).

3.6.6 Reptiles

No records of reptiles were returned from the records search. The large areas of bare ground on Site provide little to no shelter or foraging opportunities for reptiles. No signs of protected species were noted during the survey. Overall, the likelihood for the Site to support reptiles is negligible and no further surveys are required. Any rubble or brash piles created as a result of the proposed works or already present on Site could be utilised by reptiles. Any excavations, pipes or other containers should be covered at night to prevent animals from becoming trapped. Any rubble or brash piles created as a result of the proposed works or already present on Site could be utilised by reptiles. These piles should be removed by hand during the proposed works and should not be removed during the hibernation period (October- March).

3.6.7 Amphibians

Two records of amphibians, common frog *Rana temporaria* and common toad *Bufo bufo* were returned from the records search. No signs of protected species were noted during the survey. Given the lack of suitable breeding habitat on Site and immediate surrounding area, and since large proportions of bare ground are present on Site providing little to no resources of ecological value for these species, it is deemed that the likelihood of the Site to support amphibians is negligible and no further action is required. Any excavations, pipes or other containers should be covered at night to prevent animals from becoming trapped. Any rubble or brash piles created as a result of the proposed works or already present on Site could be utilised by amphibians. These piles should be removed by hand during the proposed works and should not be removed during the hibernation period (October- March).

3.6.8 Invertebrates

Five records of two priority invertebrate species (Section 41 in the Natural Environment and Rural Communities Act (NERC) 2006 (as amended)) were returned by the data search: toadflax brocade

(*Calophasia lunula*), liquorice piercer (*Grapholita pallifrontana*). None of these species are reliant on species or habitats that will be impacted by the proposed works.

3.6.6 Invasive non-native plant species (INNS)

There were three recorded INNS, Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*) and few-flowered garlic (*Allium paradoxum*) returned by the data search, located 10m, 2000m and 10m respectively from Site. No signs of any invasive (Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)) flora species were found during the site visit. The site survey was conducted outside the flowering period, therefore if any invasive or protected plants were present within the Site they might have not been visible. It can be assumed no invasive or protected plants were present within the Site and therefore no further action is required.

3.7. Preliminary Roost Assessment

Two barns were assessed for their likelihood to sustain roosting bats.

3.7.1 Bat Building Assessment

Building on Site that were surveyed and assessed for their likelihood to host roosting bats were described in Table 4.

Table 4 – Description of all onsite buildings

Building name	Description	Bat roosting potential
Barn 1 (B1)	One storey building with no loft or cellar spaces. The main structural composition is wood and brick, and the roof is pitched and slate tiled with wooden beams. The building is currently a disused barn. There are several access points within the barn that would allow entrance to bats and birds (see Image 1 in Appendix 4). There were signs that the building has been used previously by birds as there was a dead bird found inside, and multiple areas of feathers and bird faeces spotted throughout the building including splattered walls/beams.	Low
Barn 2 (B2)	One storey building with no loft or cellar spaces. The main structural composition is wood and brick, and the roof is pitched and slate tiled with wooden beams. The building is currently a disused barn. There are several access points within the barn that would allow entrance to bats and birds (see Image 2 in Appendix 4). There were signs that the building has been used previously by birds as faeces including splattered walls/beams and feathers were found in multiple areas as well as a hatched egg.	Low

3.7.2 Foraging and Commuting Bats

The general surrounding area has moderate suitability for commuting and foraging bats, due to wooded blocks adjacent to and surrounding the Site which bats could use for roosting and as part of their fly transects when feeding.

An artificial lighting strategy is required to be implemented to ensure that foraging bats in the area are not disturbed by increased light levels associated with the works. An artificial lighting strategy has been devised and can be found in Section 4.1.1 of the report.

3.7.3 Conclusions on Roosting Bats

The Preliminary Roost Assessment (PRA) of the property was undertaken, and the disused barn buildings were considered to hold a 'low potential' for roosting bats due to an abundance of bat roosting provisions and potential access points, the surrounding area which has moderate suitability for foraging bats, and the age of the buildings. Roosting bats are considered to be impacted as part of the proposed works as the buildings are due for conversion which will likely entail undertaking high level works at roof level and therefore, further action is recommended.

We recommend that one emergence bat survey is conducted with three surveyors to ascertain the potential presence of roosting bats within your property before works commence.

It must be noted that the PRA provides a current assessment of the bat roosting potential on Site. It is always possible for bat species to ingress at any point in the future, and therefore it is recommended that if 18 months pass and no works have been undertaken, and/or if the condition of the buildings change, an updated PRA is required to assess whether the potential of the buildings to support roosting bats has altered.

In the event a bat is discovered, the nature of the advice will concern allowing the bat(s) to leave on their own accord or waiting for a licensed person to remove the bat(s). A bat license may then be deemed necessary following the necessary survey work. All building contractors/roofers are explicitly forbidden from handling bats or interfering with bats in any way.

3.8. Evaluation

Based on these results, further considerations are required before the proposed works begin. There are several measures that should be installed prior to works commencing to ensure that no animals will be harmed during the course of the works due to trapping/injury related to machinery etc.

A barn owl nest site verification survey will be required to establish whether the provisional nesting implemented from previous ecological mitigation actions are occupied and the likely degree of impact for breeding pairs/ required mitigation for the conversion of proposed buildings.

One emergence bat survey with three surveyors should be undertaken to establish that the barns are discussed and no other roosts formed on Site since the previous surveys that were undertaken.

4. Outputs and Opportunities

4.1. Mitigation

All the following measures should be adhered to throughout the proposed works to protect local fauna and flora:

- In the situation where any protected, notable or vulnerable animals are encountered during the works all work must stop and a suitable ecologist should be consulted before continuing.
- Any trenches created by the works should be covered overnight or a means of escape should be provided for any fauna that enters it.
- The creation of rubble, soil or brash piles should be avoided where possible as these can be used by hedgehogs, reptiles and amphibians.
- Using artificial lights between dusk and dawn should be avoided/minimised where possible.
- Avoid using unnecessary chemicals during the works and if any chemicals are required leakages are avoided through fuel drip trays, drip-capture devices and/or spill mitigation devices.

4.1.1 Artificial Lighting Strategy

Artificial lighting can impact local bats as it can impede their ability to forage successfully and can deter bats from commuting across the property. Therefore, to ensure any lighting disturbance on bats is minimised, the following strategy for artificial lighting around the property will be adhered to:

- Where lighting is required for health and safety purposes only, any external lighting required as part of the scheme (e.g. security lighting) will be motion triggered, set on timers (1 minute or less) and directional towards the ground to avoid upward light spill.
- Any light spill must be directed away from the roof and from surrounding tree canopies and vegetation.
- All luminaires used will lack UV elements when manufactured. Metal halide, fluorescent sources will not be used.
- LED luminaires will be used due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (ideally <2700 Kelvin) must be adopted to reduce blue light component.

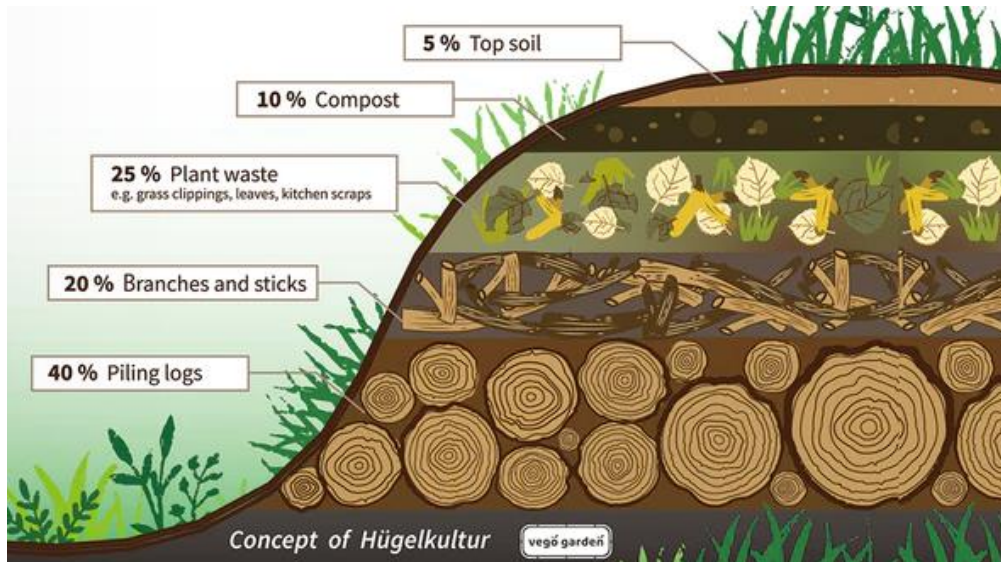
- Luminaires must feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Internal luminaires will be recessed where installed in proximity to windows to reduce glare and light spill.
- The use of specialist bollard or low level downward directional luminaires to reduce upwards lighting spill can be considered, however, should be used as a final resort.
- Column heights should be carefully considered to minimise light spill. Only luminaires with an upward light ratio of 0% and with good optical control must be used.
- Luminaires will always be mounted on the horizontal, i.e., no upward tilt.

4.2. Recommendations for biodiversity enhancement

The below measures are recommended to increase viable habitat for specific species within the local environment:

- At least 1 bat roosting box should be installed on mature trees or retained buildings. The box should be either CJM, Kent-style or 1FW Schwegler Bat Hibernation Boxes (available at nhbs.com) and be mounted at least 4m from the ground. The box should face north and should remain unobstructed. Good quality boxes can last for up to 25 years. If any maintenance work is required, this should be done by a suitably qualified and licensed ecologist.
- At least 1 bird box should be installed on the on Site building or mature trees. These boxes should be to target a variety of species (e.g. Schwegler 1B 32mm bird box to target tits, redstart, nuthatch, flycatchers, wrynecks or sparrows; or Vivara Pro Woodstone Swift nest box etc.). A minimum of two bird boxes are suggested. Annual cleaning of boxes is recommended between October- February. Using plant- based detergent will be most appropriate, allowing the boxes to fully dry before placing them back.
- A Biocube planter (available at bioscapes.co.uk) should be placed within the Site to create a habitat for a variety of species. These should be sown with native seeds and/or native bulbs like wild anemone *Anemone blanda*, English bluebell *Hyacinthoides non-scripta*, snowdrops *Galanthus nivalis*, daffodils *Narcissus lobularis* or *N. obvallaris*, *Crocus*, grape hyacinth *Muscari* or spring quills *Scilla verna*. These plant species were recommended for their aesthetic attractiveness and wildlife benefits.
- Green and Blue Bee bricks (available at greenandblue.co.uk) should be used within the brick walls of the building to be constructed. Bug hotels should be created out of suitable materials like non-varnished and unglazed wood black which then can be drilled with holes to provide refuge for burrowing bees. The holes drilled should range between 4-10 mm (4mm, 5mm, 6mm, 7mm, 8mm, 9mm, 10mm respectively) and have a depth of 15cm. This provides the optimum depth and size hole to target species like those in the families *Osmia* Mason bees, *Megachile* Leaf cutter and resin bees, and *Eumeninae* Potter wasps. Alternatively, bamboo, reed and hollow plant stems with holes around that diameter mentioned can be effective. Hanging bug friendly structures should be placed between 1-1.5 m above ground.

- Heap and brash piles can be created to benefit overwintering invertebrates and other species like mammals, amphibians and reptiles. Mounds like Hugelkultur mounds can be beneficial as they function on the principle of stacking biological material overtime to generate a rich microclimate for invertebrates. These can be planted over with wildflowers or bulbs to improve their aesthetic value or left as a place for disposing of garden cutting/ other biological material like leaves, twigs and mulch.



Note. Hugelkultur; source: Vego garden

- Leaving areas of long grass which can be cut late spring will provide overwintering habitat for hibernating insects like bees, caterpillars and even vertebrates like reptiles, amphibians and small mammals.
- Ideally mowing should occur late autumn to ensure that flowering plants have set seed.

General recommendations:

- Avoid leaving pollutants like polystyrene, plastics and other harsh non-biodegradable materials and litter/debris on Site and within the surrounding area, and any present or left as a consequence of the works should be cleared away carefully.
- Adequate horticultural practices should be adopted, including the use of peat free composts, mulches and soil conditioners. Substitutes like coir are available. Peat extraction is unsustainable and damages unique ecosystems. Avoiding this component in products ensures sustainable practices are followed.
- Native species should be selected for planting schemes where possible and those listed in the Schedule 9 of the Wildlife and Countryside Act (1981, as amended) should be avoided. Native species have been a part of our ecosystems since the beginning and they are the types of species best suited to sustain native wildlife, so they should be selected where possible. Transporting of any off site soil should be avoided.

- Any existing or created log piles and brash piles should be cleared away carefully by hand outside the main hibernation season for fauna (October- March).
- Spill kits should be used where spillages occur to avoid contamination of the environment.
- Ensure construction materials like gravel, fencing, logs, etc should be kept tidy and coverings should be used where possible to deter animals from taking refuge inside. Alternatively, storing these off ground or within an area with no access would also decrease the chances of animals being harmed, consider the use of pallets or larger storage containers. Any arisings should be stored in skips or removed from the Site at the end of the day.
- Large plant equipment or tools should be covered at night where possible to avoid animals using them for shelter. Excavations should be covered at night/ when not in use to prevent animals from becoming trapped.
- Traditional Type 1F membranes degrade overtime, as bats move into crevices and crawl on top of the membrane, strands can begin to form, which can tangle and kill bats as they enter or exit their roosts. Additionally, this is a non- breathable membrane and whilst there are ways to create even for vaulted ceilings ventilation, there are other options. For example TLX BatSafe or SIGA Majcoat 350, are breathable membranes that pass the 'Snagging Propensity Test' making them suitable choices to be considered during the designing stage. The most effective and suitable method should be utilised in the final design, however, considerations to be made on breathability of membranes and structures is encouraged.
- Best sensitive timing measures should be applied for clearing away vegetation. This should be done outside the bird breeding season between October and February. If sensitive timing measures cannot be applied then checks for nesting birds should be done immediately prior to habitat removal by a suitably experienced ecologist. In instances where nests have been found an 'exclusion zone' will need to be set up around the nesting area until young have fledged.
- Boundary vegetation/ areas of dense vegetation should not be lit by external lighting to maintain darker areas around the Site for commuting fauna.
- Arisings from vegetation clearance should be removed by hand to check for sheltering mammals. If an animal is discovered they should be left to move at their own accord. Remove arisings from the Site on the day created or stored in skips.

Appendix 1 Reference List and Useful Sources

- **Amphibian and Reptile Groups of the UK (2010)** Advice Note 5: Great Crested Newt Habitat Suitability Index. London, Amphibian and Reptile Groups of the UK.
- **British Standards (2012)** BS 5837: 2012 – Trees in relation to design, demolition and construction. London, British Standards Institution.
- **British Standards (2020)** BS 42020: 2013 - Biodiversity Code of Practice for Planning and Development. London, British Standards Institution.
- **British Standards (2021)** BS 8683: 2021 - Process for designing and implementing Biodiversity Net Gain. London, British Standards Institution.
- **CIEEM (2017a)** Guidelines for Preliminary Ecological Appraisals (2nd Edition). Winchester, CIEEM.
- **CIEEM (2017b)** Guidelines on Ecological Report Writing (2nd Edition). Winchester, CIEEM.
- **CIEEM (2018)** Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Winchester, CIEEM.
- **CIEEM (2019)** Advice Note: On the Lifespan of Ecological Reports & Surveys. Winchester, CIEEM.
- **Collins, J. (ed.) (2023)** Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London.
- **Department for Levelling Up, Housing & Communities (2023)** National Planning Policy Framework. London, Department for Levelling Up, Housing & Communities.
- **HMSO (1981)** Wildlife and Countryside Act 1981 [online]. Available at: <http://www.legislation.gov.uk/ukpga/1981/69>
- **HMSO (2000)** Countryside and Rights of Way Act 2000 [online]. Available at: <http://www.legislation.gov.uk/ukpga/2000/37/contents>
- **HMSO (2017)** Conservation of Habitats and Species Regulations 2017 [online]. Available at: <http://www.legislation.gov.uk/uksi/2017/1012/contents/made>
- **HMSO (2006)** Natural Environment and Rural Communities Act 2006 [online]. Available at: <http://www.legislation.gov.uk/ukpga/2006/27/contents>
- **Magic database (2024)** <http://www.magic.gov.uk/MagicMap.aspx>
- **Reason, P.F. & Wray, S. (2023)** UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Ampfield, CIEEM.
- **UKHab Ltd (2023)** UK Habitat Classification Version 2.0. Available at: ukhab.org.

- Walker, K., Pearman, B.E., McIntosh, J. & Lockton, A. (2010) BSBI Recording the British and Irish flora 2010-2020. Annex 1: Guidance on sampling approaches. Cumbria, Botanical Society of Britain and Ireland.

Appendix 2 Planning Policy & Legislation

National Planning Policy Framework 2024

The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2024) sets out the government's planning policies for England and how these are expected to be applied. The NPPF states that 'planning policies and decisions should contribute to and enhance the natural and local environment by:

- 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.
- 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.
- Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.
- Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions, such as air and water quality, taking into account relevant information such as river basin management plans.

A list of principles which local planning authorities should follow when determining planning applications is included in the NPPF which includes the following:

- Distinguish between international, national and locally designated sites.
- Allocate land with the least environmental or amenity value.
- Maintain and enhance habitats and green infrastructure networks.
- Enhance natural capital at a catchment or landscape scale across local authority boundaries.
- Give weight to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty.
- Map and safeguard components of local wildlife-rich habitats and wider ecological networks, including wildlife corridors and stepping stones, and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation.

- Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species
- If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.
- Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Species Scientific Interest.
- 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 development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

The Wildlife and Countryside Act (WCA) 1981

The WCA is the primary piece of legislation relating to nature conservation in Great Britain. The Act is supplemented by provisions in the CRoW Act 2000 and the NERC Act 2006.

Part 1 of this act makes it an offence to intentionally or recklessly kill, injure or take any wild bird, to take, damage or destroy the nest of any wild bird while that nest is in use or being built, and/or to take or destroy an egg of any wild bird.

Part 1 also makes it an offence to intentionally or recklessly disturb any wild bird included in Schedule 1 of the act, and to take, damage, or destroy the nest of any wild bird included in Schedule ZA1. Schedule 5 lists non-avian species that are afforded various protections under Sections 9.1a, 9.1b, 9.2, 9.4a, 9.4a (Wales), 9.4b, 9.4c, 9.5a and 9.5b.

Schedule 8 lists plant species that are protected from intentionally picking, uprooting or destroying under Section 13.

Schedule 9 lists non-native invasive plants for which it is an offence under Section 14 to plant or otherwise cause to grow in the wild any part of said plants.

The Conservation of Habitats and Species Regulations 2017

Section 43 of Part 3 of this legislation makes it an offence to do any of the following with regards to European Protected Species (animals) as listed on Schedule 2:

- Deliberately capture, injure or kill any wild animal of a European protected species. •
- Deliberately disturb wild animals of any such species.

ProHort Limited
Annalea House
218 Grindley Lane
Blythe Bridge
Stoke-on-Trent
ST11 9JS

Telephone: 01782 479479
Email: info@prohort.co.uk
Website: www.prohort.co.uk

- Deliberately takes or destroy the eggs of such an animal.
- Damage or destroy a breeding site or resting place of such an animal. (Note: no intentionality is necessary to prosecute this activity).

Section 43 of Part 3 of this legislation makes it an offence to do any of the following with regards to European Protected Species (plants) as listed on Schedule 5:

- Deliberately pick, collect, cut, uproot or destroy a wild plant of a European Protected Species.
- Be in position of or to transport said plant.

The Countryside and Rights of Way (CROW) Act 2000

The CROW Act applies only to England and Wales, and importantly adds the word “reckless” to the offence of damaging or destroying a place a bat uses for shelter or rest or disturbing a bat while using a roost.

Natural Environment and Rural Communities Act 2006

Section 40 of Part 3 of this act compels public bodies (local authorities, police, fire and health authorities, and utility companies) with exercisable functions within England to consider actions to be taken to conserve and enhance biodiversity in England—in particular to have regard to the United Nations Environmental Programme Convention on Biological Diversity of 1992, any relevant local nature recovery strategies, and any relevant species conservation strategy or protected site strategy (prepared by Natural England).

Section 41 of Part 3 of this Act ensures the publishing of a list containing species and habitat types that are of principle importance for the purpose of conserving or enhancing biodiversity in England.

Wild Mammals (Protection) Act 1996.

Under this legislation it is an offence to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with the intent to inflict unnecessary suffering.

Protection of Badgers Act 1992

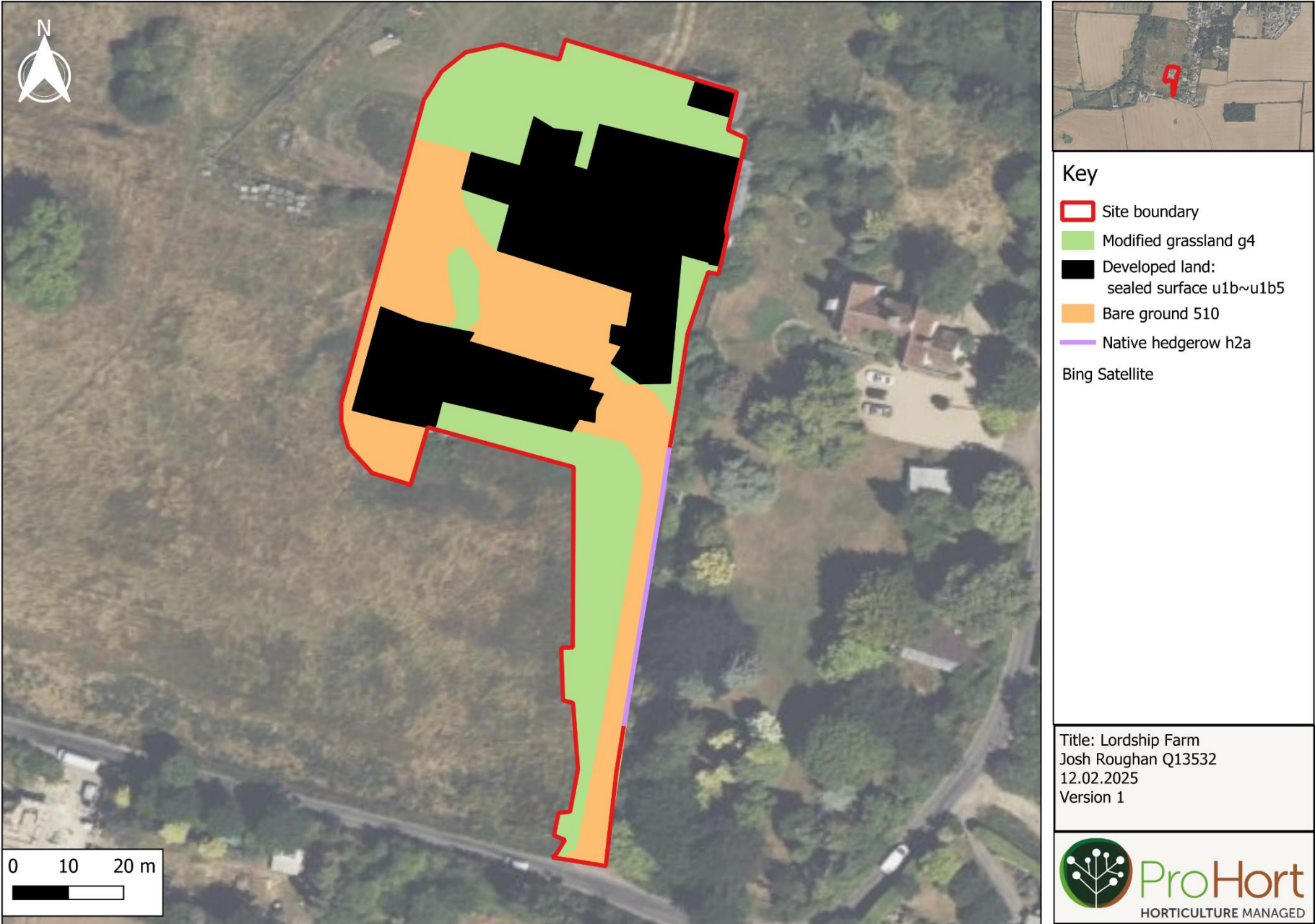
Under this legislation it is an offence to (or intend to, or to be reckless as to whether your actions would have these consequences):

- Wilfully kill, injure or take a badger (or attempts to do so).
- Damage or destroy any part of a badger sett. (Note: no intentionality is necessary to prosecute these activities).
- Obstruct access to a badger sett. (Note: no intentionality is necessary to prosecute these activities).
- Disturb a badger when it is occupying a sett. (Note: no intentionality is necessary to prosecute these activities).

ProHort Limited
Annalea House
218 Grindley Lane
Blythe Bridge
Stoke-on-Trent
ST11 9JS

Telephone: 01782 479479
Email: info@prohort.co.uk
Website: www.prohort.co.uk

Appendix 3 Habitat Plan of the Site



Appendix 4 Photographs



Image 1- Barn 1 internal view



Image 2- Barn 2 internal and external view



Image 3- Area of bare ground



Image 4- Area of modified grassland



Image 5- Native hedgerow



Image 6- hatched egg and nesting materials