Proposed Extension to Stonehill House, Bloxham School, Bloxham, Oxfordshire OX15 4PE

Preliminary Ecological Appraisal

March 2021

***on behalf of* Bloxham School**

Windrush Ecology Limited – Howbery Park – Benson Lane – Wallingford OX10 8BA
Tel 01491 822681 – Web www.windrushecology.com – Email enquiry@windrushecology.com
Company Registration No: 7068178 – Place of Registration – 4 Witan Way, Witney, Oxfordshire OX28 6FF

Disclaimer

This report is issued to the client for their sole use and for the intended purpose as stated in the agreement between the client and Windrush Ecology Ltd. This report may not be relied upon by any other party without the express written consent of Windrush Ecology Ltd.

Windrush Ecology has exercised due care in preparing this report. It has not independently verified information provided by others, and no warranty is made in relation to the content of this report and Windrush Ecology Ltd assumes no liability for any loss resulting from errors, omissions or misinterpretation made by others.

Any recommendation, opinion or finding stated in this report is based on the circumstances and facts as they existed at the time that Windrush Ecology Ltd performed the work. The content of this report has been provided in accordance with the provisions of the CIEEM Code of Conduct.

Nothing in this report constitutes legal opinion.

Client	Bloxham School care of Edgards Ltd
Job name	Extension to Stonehill House, Bloxham School, Bloxham, Oxfordshire OX15 4PE
Survey dates	16th February 2021 & 26th March 2021
Report date	29th March 2021
Report title	Preliminary Ecological Appraisal
Reference	W4067_rep_Land at Bloxham School_29-03-21

	Signed	**Name**	**Position**	**Date**
Prepared by	[redacted]	Oliver Bevan *MEnvSci*	Ecologist	18/02/2021
Reviewed by		Edward Bodsworth *MA (Cantab) PhD MCIEEM*	Director	24/02/2021
Updated by		Oliver Bevan MEnvSci	Ecologist	29/03/2021

Report Contents

1 Executive Summary

Site Details	Stonehill House, is a stone-built, three-storey building which forms part of Bloxham School. The focus of this report is on a yard area to the west of Stonehill House. The site is located on Stone Hill in the village of Bloxham, Oxfordshire OX15 4PE. The approximate Ordnance Survey grid reference for the site is SP 429 360.
Proposals	There is a proposal to demolish the garage and store and erect a new building in their place. A link will be constructed between this building and the existing boarding house (Stonehill House). The proposals also include the construction of a new building in the footprint of the ruined coach house.
Methodology	An extended Phase 1 Habitat Survey was undertaken on 16th February 2021 by Oliver Bevan MEnvSci. A walkover of the site was conducted, and a description of the habitats present was prepared using standard Phase 1 Habitat Survey methodology (JNCC, 2010). Following the results of the initial bat survey and roost assessment, an endoscope survey was conducted to explore identified crevice features within stone walls. The endoscope survey was conducted on 29th March 2021.
Evaluation	• The site comprises a yard of hard-standing bounded by stone walls on three sides. Other features within the site include part of a garden, a garage, a store and the stone walls of a ruined coach house. • None of the habitats on site are considered to meet the criteria for habitats of 'principal importance' under Section 41 of the NERC Act 2006. • All trees are assessed as having 'negligible' potential to offer shelter to bats (Collins, 2016). • No evidence of bats was found in the garage or the store, and bats are considered to be absent from both buildings. • The garage and store are assessed as having 'negligible' potential to offer shelter to bats (Collins, 2016). • The stone walls are assessed as having 'low' potential (Collins, 2016) to offer shelter to roosting bats. This is due to a number of cavities noted in the western and southern walls which provide potential bat access to the fabric of the walls. • No evidence of bats was found during the endoscope survey of the stone walls. Bats are considered to be absent from the stone walls.

	• Trees, and shrubs offer limited habitat suitable for nesting birds. • Amphibians and reptiles are considered absent from the site.
Impact Assessment	• The proposals may result in the loss of amenity grassland, hard-standing and some trees and ornamental planting. This is not considered to result in any significant ecological impacts. • Removal of woody vegetation during the bird nesting period may result in disturbance, destruction of nests and killing and injury of young and eggs.
Recommendations	Recommendations for habitat enhancement are made through planting of native flora and ornamentals of known value to wildlife. Recommendations are made with regard to habitat creation and species-specific enhancement, such as bird boxes.

2 Introduction

2.1 Site Description & Context

Stonehill House is a stone-built, three-storey building which forms part of Bloxham School. The focus of this report is a yard/area of land to the west of Stonehill House, that is referred to as the 'site' for the purpose of this report. The site is located to the north side of Stone Hill (a road) within the village of Bloxham, Oxfordshire OX15 4PE. The approximate Ordnance Survey grid reference for the site is SP 429 360.

The site comprises a yard of hard-standing bounded by stone walls on three sides and Stonehill house to the east. Other features within the site include a garden comprising amenity grassland and ornamental planting, a single-storey stone-built garage, a single-storey timber-built store and the stone walls of a ruined coach house.

The site is surrounded by the roads, dwellings and gardens of Bloxham. Habitats of ecological value within the immediate proximity of the site are limited to vegetated gardens and the Sor Brook, which runs through the centre of the village, approximately 140m south of the site. The wider landscape comprises the village environment of Bloxham as well as pasture, amenity grassland and hedgerows which surround the village within the open countryside.

2.2 Proposals

There is a proposal to demolish the existing garage and store and to erect a new building in their place. A link will be constructed between this building and the existing boarding house (Stonehill House). The proposals also include the construction of a new building in the footprint of the ruined coach house.

2.3 Aims of Study

The aims of this study are to describe and evaluate the habitats present within the site and to assess the potential for the site to support protected and notable species. The report discusses the potential impacts of the proposed development on the ecology of the site, on valued habitats and on protected/notable species. The study also makes recommendations for appropriate mitigation measures and habitat enhancement with regard to habitats and species. The need for further ecological survey work is discussed in light of the impact assessment.

One specific aim of the study is to survey the buildings for bats, and evidence of roosting bats, as well as other protected species such as nesting birds. The report discusses the potential impacts on bats and their roost sites and makes recommendations for appropriate mitigation, compensation and enhancement measures in this regard. The potential impacts are assessed in accordance with the legal protection afforded to bats under The Conservation of Habitats & Species Regulations 2017.

2.4 Bat Ecology

Bats are the only mammals to have developed the ability of true flight. At present, over 1,100 species of bat are recognised worldwide, making bats the second largest mammal group after rodents. As well as flight, bats have evolved a system of navigation and orientation using echolocation which has allowed many species to become nocturnal. There are 18 species of bat that occur within the British Isles, of which 17 are known to breed here. More species occur in the south and west of the country, with species numbers declining towards the north and into Scotland.

All bat species in the UK are nocturnal and feed exclusively on insects (they are insectivorous) which they catch in flight during their night-time activity, using echolocation to locate and home-in on their prey. Bats will roost during the daytime and seek out dark, enclosed and undisturbed places in which

to do so, often using a variety of roosting sites within their home range. Different roost sites are used for different purposes (such as mating, giving birth and hibernation) and at different periods of a bat's life cycle.

During the summer, female bats will gather together in a maternity or breeding roost. In the UK, this starts to occur towards the end of May and the females will seek out a warm and undisturbed site in which to give birth. Because maternity roosts require a particular set of environmental attributes (such as location, temperature, orientation and size), breeding bats tend to return to roost and breed in the same locations year after year. Given that bats live a relatively long time (anywhere from 10-20 years), and only give birth to one pup a year, maternity colonies are crucial to the reproduction and survival of the local population and can be very sensitive to environmental change.

Relatively little is known about hibernation roosts, as tracking and locating hibernating bats is very difficult. However, many species (particularly those within the genera *Myotis* and *Rhinolophus*) have been found within underground sites such as caves, mines and cellars, where the temperature remains constant and low throughout the winter allowing the bats to remain in a state of torpor. The spring and autumn are periods of transition and bats can use a number of different locations on a temporary basis, often moving between roosts as environmental conditions change and temperatures fluctuate. In the autumn, bats will mate and it has been shown that male and female bats will gather at particular locations (such as a building, cave or tree) to meet, socialise and mate.

Bats choose to roost in a number of different locations, depending on the species, their activity pattern and the period of their lifecycle. Certain species, such as the pipistrelles, favour crevices and small cavities for roosting and will use features such as cracks, crevices and small rot holes in the boughs and trunks of trees and within certain features of buildings such as boxed eaves, gaps under roof tiles, hanging tiles and soffit boards. Other species favour large, uncluttered roof spaces and lofts within buildings where they can hang up on the underside of the roof and use the interior space for flying prior to emergence. Hollow trees, cellars, caves, barns, churches and cavity walls can also all be used for roosting, given suitable access. Certain species, such as the noctule, favour roosting sites within trees whilst others tend to favour buildings. Roost sites may be used by only a very small number of bats, such as solitary males, or may offer shelter to tens or hundreds of bats within maternity and hibernation roost sites.

The suitability of roosting sites is also highly influenced by the location or context of a tree, building or cave. Roost sites are most often favoured when they are within close proximity to foraging habitats and where those habitats are connected to one another within the landscape by features such as hedgerows, woodlands, rivers or sunken lanes along which bats disperse and 'commute' from place to place. Suitable foraging habitats are any places where insect prey is diverse and abundant such as woodlands, ponds, lakes, rivers, scrub, hedgerows and unimproved grassland or pasture. Thus, the ecological context of a site is very important for determining if bats may be present within a roost and the potential for a roost to be present tends to be much higher within rural or village locations.

3 Methodology

3.1 Field Surveys

3.1.1 *Extended Phase 1 Habitat Survey*

An extended Phase 1 Habitat Survey was undertaken on 16th February 2021 by Oliver Bevan *MEnvSci*. A walkover of the site was conducted, and a description of the habitats present was prepared using standard Phase 1 Habitat Survey methodology (JNCC, 2010).

Target notes were also prepared on features of particular ecological interest and an assessment was made of the site's potential to support protected and notable species (such as species listed under Section 41 of the NERC Act 2006).

3.1.2 *Weather Conditions*

Surveys were conducted on 16th February 2021. The weather on the day was cool (12°C), overcast (100% cloud cover) and dry with a light breeze (Beaufort Scale 3).

3.1.3 *Initial Bat Survey & Preliminary Roost Assessment*

An initial bat survey (daytime building inspection) and preliminary roost assessment (PRA) were undertaken on 16th February 2021 by Mr Bevan.

A detailed internal and external survey of the buildings was undertaken using a 1 million candle-power torch in order to look for bats and/or evidence of bats and to assess the potential of the buildings to support roosting bats. Internal rooms, loft spaces (if present) and external elevations were inspected for evidence of bats including, bat droppings, urine stains, feeding remains (such as moth wings) and characteristic fur staining around access points.

The bat survey was undertaken according to best practice guidelines published by the Bat Conservation Trust (Collins, 2016) and the *Bat Workers Manual* (JNCC, 2010).

Trees, buildings and built structures were assessed for their potential to offer shelter to roosting bats in accordance with best practice guidelines published by the Bat Conservation Trust (Collins, 2016). The trees were assessed from ground level (using binoculars) as either having high, moderate, low or negligible potential to shelter roosting bats according to the criteria shown in Table 1.

Table 1. Criteria for the assessment of buildings and trees for roosting bats (Collins, 2016)

Potential	**Features**
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation significance.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

Potential roost features (PRFs) in trees that may be used by bats include (Collins, 2016):

- woodpecker holes;
- rot holes;
- hazard beams:
- other vertical or horizontal cracks and splits (such as frost cracks) in stems or branches;
- partially detached bark;

- knot holes arising from naturally shed branches, or branches previously pruned back to the branch collar;
- man-made holes (e.g. cavities that have developed from flush cuts) or cavities created by branches tearing out from parent stems;
- cankers (caused by localised bark death) in which cavities have developed;
- other hollows or cavities, including butt-rots;
- double leaders forming compression forks with included bark and potential cavities;
- gaps between overlapping stems or branches;
- partially detached ivy with stem diameters in excess of 50mm; and bat, bird or dormouse boxes

The study also takes into account the structure and ecological context of buildings and structures, including the following factors which may increase the likelihood of roosting bats being present:

- Age of the building (pre-20th Century or early 20th Century construction)
- Nature of construction; traditional brick, stone or timber construction
- Large and complicated roof void with unobstructed flying spaces
- Large (>20 cm) roof timbers with mortice/tenon joints, cracks and holes
- Entrances and gaps for bats to fly and crawl through
- Poorly maintained fabric providing ready access points for bats into roofs, walls; but at the same time not being too draughty and cool.
- Roof warmed by the sun, south-facing roofs in particular
- Weatherboarding and/or hanging tiles with gaps
- Undisturbed roof voids
- Buildings and built structures in proximity to each other providing a variety of roosting opportunities throughout the year
- Buildings or built structures close to good foraging habitat, in particular mature trees, parkland, woodland or wetland, especially in a rural setting.

3.1.4 *Endoscope Survey*

Following the results of the initial bat survey and PRA, an endoscope survey was conducted to explore identified crevice features within stone walls, which were assessed as having 'low' potential to offer shelter to bats within gaps and cervices of the stone walls. The endoscope survey was conducted on 29th March 2021 by Jan-Piet Stuursma, on behalf of Windrush Ecology.

Mr Stuursma holds a licence from Natural England to survey for bats within all counties of England (WLM-A34-Level 2 2019-44236-CLS-CLS). This licence includes the use of an endoscope to look for bats, and potentially, disturb bats whilst using the technique.

A detailed internal survey of previously identified crevice features was undertaken using an Explorer Premium 8803AL endoscope and a 1 million candle-power torch. Notes were made on the location and species of any bats seen, and the relative freshness, shape and size of bat droppings, along with locations and quantity.

3.2 Limitations

Whilst it is considered that a thorough habitat survey has been undertaken, and robust data and conclusions have been delivered within the assessment, the study provides only a snapshot of the species present at the time of the survey and should be considered with this in mind.

4 Results & Evaluation

4.1 Habitats

Photographs of the site are presented in Appendix 1. Appendix 2 illustrates the location of the site and provides an aerial photograph of the site within the surrounding landscape. A habitat map can be viewed in Appendix 3.

4.1.1 *Hard-standing*

The dominant habitat within the site is hard-standing. Hard-standing within the site includes brick paving, concrete paving, gravel and tarmac. The hard-standing is interspersed with limited sections of bare ground, which have formed atop and amongst damaged hard-standing. Species present which have colonised the hard-standing at low density include butterfly bush *buddleia davidii*, herb-Robert *Geranium robertianum* and pale corydalis *Pseudofumaria alba*.

Areas of hard-standing are considered to be of negligible ecological value.

4.1.2 *Buildings*

4.1.2.1 Garage

The garage building is situated to the north of the site. The garage is a single storey building which occupies a rectangular footprint of approximately 25m^2. The building is predominantly constructed of stone, with a brick wall section to the west. The roof of the garage is formed of a single pitch of corrugated concrete fibreboard atop a simple timber frame. There is no roof underlay. The interior of the garage forms a single vaulted void used for furniture storage. There is no loft space.

The walls of the garage are in a good condition with no cracks or crevices suitable for roosting bats present on either the exterior or interior. The corrugated sheet roof does not form any cavities or crevices suitable for roosting bats due to the simple, single-layer nature of its construction.

The garage is assessed as having ‘negligible’ potential to offer shelter to roosting bats (Collins, 2016) within an undetectable location.

4.1.2.2 Store

The store is a detached single storey building which occupies a rectangular footprint of approximately 60m^2. The store has single-skin timber plank walls which sit atop a timber frame. The roof is a single pitch of bitumen and mineral roofing felt which sits atop timber panels. The interior of the store is used to store furniture. Windows in the eastern elevation of the store allow natural light ingress into the interior. There is no loft space.

The roof and walls of the store are in a good state of repair with no cracks or cavities observed, nor any warped or lifted timber. The store does not contain features suitable for use by roosting bats in its fabric due to the simple single skin nature of its construction.

The store is assessed as having ‘negligible’ potential (Collins, 2016) to offer shelter to roosting bats.

4.1.2.3 Stone Walls

The site is flanked by stone walls to the northern, western and southern boundaries. These stone walls also form a ruined coach house in the southern portion of the site. The stone walls are constructed from ironstone blockwork of irregular sizes, with some limited sections of brick. Ivy *Hedera helix* has colonised some sections of the walls. The stone walls are in a mixed state of repair, with a number of cavities observed in the western and southern sections of wall. These cavities are present where mortar is missing, or where blockwork has shifted, or is missing entirely.

A simple wooden bat box was noted on the interior southern wall of the ruined coach house. The bat box is in a poor state of repair, with warped timber reducing the suitability of the box for bats, due to light and water ingress. The box does not appear to have been utilised by roosting bats, as evidence by cobwebs within the interior and across the entrance of the box.

The stone walls are assessed as having 'low' potential (Collins, 2016) to offer shelter to roosting bats. This takes into account the relatively poor ecological context of the site, which is likely to support low numbers of common and widespread bats.

4.1.3 *Amenity Grassland (Lawn)*

To the north-eastern corner of the site is a garden area. The garden is dominated by amenity grassland (lawn). The grass is maintained at a short sward of approximately 10cm. This grassland shows obvious signs of improvement with a lush sward of coarse grasses interspersed with some mosses. Species observed within the amenity grassland include daisy *Bellis perennis* and dandelion *Taraxacum officinale*.

The amenity grassland is dominated by common and widespread species. The habitat is relatively homogeneous with regard to its structure and species composition, and is not considered to meet the criteria for a grassland habitat of 'principal importance' as listed within Section 41 of the NERC Act 2006. The habitat is considered to be of negligible/low ecological value.

4.1.4 *Trees & Ornamental Planting*

The amenity grassland garden area within the north-east of the site is flanked by trees and ornamental planting. Species observed include snowdrop *Galanthus* sp., butterfly bush and forsythia species. Trees noted include mature and semi-mature holly *Ilex aquifolium*, magnolia sp., young yew *Taxus baccata* as well as a mature cypress *Cupressaceae*.

The vegetation is considered to be of low ecological value, with the majority of that value stemming from the trees, particularly the yew and holly.

4.2 Species

4.2.1 *Plants*

No rare or scarce plants were noted within the site. In particular, no rare native flowering plants were observed within the garden.

4.2.2 *Invertebrates*

Habitats are likely to support a limited assemblage of common and widespread invertebrates that are typical of suburban/garden habitats.

4.2.3 *Amphibians*

The site does not contain any freshwater habitats that may be suitable for breeding amphibians such as great crested newts *Triturus cristatus*. Ordnance Survey maps show no ponds within a 250m radius of the site. The site is surrounded by barriers to amphibian dispersal such as dwellings, roads and walls. Amphibians are considered to be absent from the site.

4.2.4 *Reptiles*

The site is considered unsuitable for reptiles. The habitats offer no obvious foraging areas or sufficient refugia for common reptile species. Reptiles are subsequently considered to be absent from the site.

4.2.5 *Birds*

The shrubs and trees of the site offer very limited nesting habitats to common and widespread bird species which could include species listed within Section 41 of the NERC Act 2006 such as the song thrush *Turdus philomelos*. The site is not suitable for ground-nesting species.

4.2.6 *Bats*

No bats or evidence of bats were observed during the surveys of the buildings and stone walls. In particular, no evidence of bats was noted during the endoscope survey, and the majority of the crevice features were found to be relatively open and exposed. No evidence of bats was noted within or in association with the bat box on the stone walls.

Both buildings (the store and garage) are assessed as having 'negligible' potential (Collins, 2016) to offer shelter to roosting bats, including within the fabric of the walls.

As discussed earlier, the stone walls are considered to have 'low' potential to offer shelter to roosting bats (Collins, 2016). This is due to the presence of approximately nine cavities within the western and southern stone walls which extend into the fabric of the stone walls. An endoscope survey was undertaken focussing upon the identified features surveys were conducted, the results of which are presented below (Section 4.2.6.1).

The stone walls are not considered suitable for hibernating bats. Hibernating bats require a cool, humid environment with stable temperatures. Cavities within the stone wall are relatively exposed and subsequently exposed to external temperature fluctuations, furthermore, the walls are not considered thick enough to provide stable, humid conditions.

All trees within the site lack features that roosting bats could use for shelter. Trees within the site are assessed as having 'negligible' bat roost potential.

The site offers very limited foraging and commuting habitats for bats, as the site is dominated by hard-standing. The site is located within a suburban area and is surrounded on all sides by built development. Subsequently the site is unlikely to form a key foraging habitat for bats within the locality.

4.2.6.1 Endoscope Survey

Cavities within the stone walls were thoroughly explored through the use of an endoscope. No bats or evidence of bats such as fur staining, feeding remains or droppings, was observed within the cavities. The cavities tended to be relatively exposed with cobwebs in multiple areas indicating a lack of roosting bat activity. Roosting bats are subsequently considered to be absent from the stone walls.

4.2.7 *Other Mammals*

No badger setts or other evidence of badgers was noted during the survey. The site offers very limited potential foraging habitat to hedgehogs.

4.2.8 *Other Species*

No evidence of any other protected species was found.

5 Discussion

5.1 Relevant Legislation & Policy Guidance

5.1.1 *Nesting Birds*

Nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. The nesting season for most species is between March and August inclusive.

5.1.2 *Bats*

As with many animal species within the UK, declines in the abundance and distribution of many bat species have been documented through recent decades. The reasons for these declines are various and complex but it is considered that the major factors are changes in landuse and agriculture, the loss of woodlands and hedgerows and the loss of suitable roosting sites.

Bats are particularly sensitive to human activity due to the fact that they roost within buildings, trees and underground structures such as mines, and the availability of suitable roost sites is considered to be a key factor in the conservation of bats within the UK. As a consequence, all species of bat and their roost sites are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) and under The Conservation of Habitats and Species Regulations 2017, as amended. Taken together, these make it an offence to:

(a) Deliberately capture or intentionally take a bat
(b) Deliberately or intentionally kill or injure a bat
(c) To be in possession or control of any live or dead wild bat or any part of, or anything derived from a wild bat
(d) Damage or destroy a breeding site or resting place of such an animal or intentionally or recklessly damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection
(e) Intentionally or recklessly disturb any wild bat while it is occupying a structure or place that it uses for shelter or protection
(f) Deliberately disturb any bat, in particular any disturbance which is likely
- to impair their ability;
(i) to survive, breed, reproduce or to rear or nurture their young; or
(ii) in the case of hibernating or migratory species, to hibernate or migrate; or
- to affect significantly the local distribution or abundance of the species to which they belong

A bat roost may be any structure a bat uses for breeding, resting, shelter or protection. It is important to note that since bats tend to re-use the same roost sites, current legal opinion is that a bat roost is protected whether or not the bats are present at the time.

Although the law provides strict protection to bats, it also allows this protection to be set aside (derogation) under The Conservation of Habitats and Species Regulations 2017, as amended through the issuing of licences (European Protected Species Licence – EPSL). Where a lawful operation is required to be carried out, but which is likely to result in one of the above offences, a licence may be obtained from Natural England (the statutory body in England with responsibility for nature conservation) to allow the operation to proceed.

Bat Mitigation Class Licence (BMCL)

In 2015, Natural England launched a new class licence (WML-CL21), which provides a streamlined process to the European Protected Species Licence (EPSL) described above. The Bat Mitigation

Class Licence (formerly the Low Impact Bat Class Licence) permits work that has a low or temporary impact on certain bat species and certain roost types, but which still needed to be licensed in order to meet legal requirements. Specifically, the criteria for using the class licence are set out below.

Bat species
The Bat Mitigation Class Licence can be used for sites where the following species are roosting:

- Common pipistrelle *Pipistrellus pipistrellus*
- Soprano pipistrelle *Pipistrellus pygmaeus*
- Brown long-eared *Plecotus auritus*
- Whiskered *Myotis mystacinus*
- Brandt's *Myotis brandtii*
- Daubenton's *Myotis daubentonii*
- Natterer's *Myotis nattereri*
- Serotine *Eptesicus serotinus*[1]
- Lesser horseshoe *Rhinolophus hipposideros*[2]

Assemblage of bats
Sites that support a maximum of three bat species listed above can be registered for the class licence. Sites with a more diverse assemblage of bat roosts must apply for an individual European Protected Species (EPS) licence.

Number of bats
Sites that support individuals or small numbers (in total) of the bat species listed above can register for the low impact class licence. If more than one bat species will be affected, it is the total number of bats which must be considered. The conservation status of bats varies across regions, and must be considered by the ecologist when determining what constitutes 'small numbers'.

Roost type
The low impact class licence applies to roosts of low conservation significance, and is regulated to cover the following types of roosts in buildings:

- Feeding roosts
- Night roosts
- Day roosts
- Transitional roosts / occasional roosts

Sites with roosts of higher conservation significance such as maternity roosts, hibernation sites or swarming sites do not qualify.

Number of roosts
The low impact class licence is applicable to sites that support no more than three roosts in total (across all structures).

[1] *Under Annex C (for use in the following counties Berkshire, Buckinghamshire, Devon, Dorset, East Sussex, Essex, Greater London, Hampshire, Hertfordshire, Kent, Oxfordshire, Somerset, Surrey, West Sussex and Wiltshire) the low impact bat class licence also covers damage and destruction of no more than 3 feeding, day, night and transitional serotine bat roosts and the disturbance and capture serotine bats in appropriate small numbers.*

[2] *Under Annex D (for use in the following counties Cornwall, Devon, Dorset, Gloucestershire, Herefordshire, Somerset and Wiltshire) the low impact bat class licence also covers damage and destruction of no more than 3 low conservation significance day and transitional lesser horseshoe bat roosts and disturb and capture lesser horseshoe bats in appropriate small numbers.*

Impacts
Natural England's low impact class licence permits activities resulting in the disturbance and/or capture of certain bat species (listed above) and/or the damage or destruction of roosts of low conservation significance. Works should be short term and usually only last for up to 6 months.

Natural England's low impact class licence is held by Registered Ecological Consultants and sites must be registered with, and approved by Natural England before any licensable work can commence. The ecological consultant must apply to Natural England's Sustainable Development Wildlife Licensing to register the site with at least 3 weeks (15 working days) notice and no more than 12 weeks before commencement of any licensable activities.

European Protected Species Licence (EPSL)
A bat roost may be any structure a bat uses for breeding, resting, shelter or protection. It is important to note that since bats tend to re-use the same roost sites, current legal opinion is that a bat roost is protected whether or not the bats are present at the time.

Although the law provides strict protection to bats, it also allows this protection to be set aside (derogation) under The Conservation of Habitats and Species Regulations 2017 through the issuing of licences. Where a lawful operation is required to be carried out, but which is likely to result in one of the above offences, a licence may be obtained from Natural England (the statutory body in England with responsibility for nature conservation) to allow the operation to proceed. However, in accordance with the requirements of The Conservation of Habitats and Species Regulations 2017, a licence can only be issued where the following requirements are satisfied:

- The proposal is necessary 'to preserve 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';
- 'There is no satisfactory alternative';
- The proposals 'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range'.

These three criteria are often referred to as the 'three tests' of the Regulations. All three must be satisfied in order for a licence to be granted.

5.1.3 *The Natural Environment and Rural Communities Act 2006*
Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 places a duty on the Secretary of State to publish, review and revise lists of living organisms and types of habitat in England that are of principal importance for the purpose of conserving English biodiversity.

It also requires the Secretary of State to take, and promote the taking of, steps to further the conservation of the listed organisms and habitats. This is important in the context of planning decisions as the National Planning Policy Framework affords planning policy protection to the habitats of species listed by virtue of Section 41.

There are no habitats listed within Section 41 of the NERC Act 2006 that are relevant to the site.

Species listed within Section 41 of the NERC Act 2006 that are relevant to the site, or considered to be potentially relevant, include:

- A number of common bird species, such as dunnock *Prunella modularis* and song thrush *Turdus philomelos* (trees and shrubs offer potential, but limited, nesting opportunities)
- Hedgehog (garden offers limited foraging habitat)

- Bats such as the soprano pipistrelle *Pipistrellus pygmaeus* (bats may occasionally forage above the site)

5.1.4 *National Planning Policy Framework (NPPF)*

The revised National Planning Policy Framework was updated in February 2019 and sets out the government's planning policies for England and how these are expected to be applied. This revised Framework replaces the previous National Planning Policy Framework published in March 2012, and revised in July 2018.

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;
- Maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- 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; and
- Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Plans should: distinguish between the hierarchy of international, national and locally 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.

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 the Broads. The scale and extent of development within these designated areas should be limited. Planning permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:

- The need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;
- The cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and
- Any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.

Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 172), planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.

To protect and enhance biodiversity and geodiversity, plans should:

- 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
- 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.

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

- If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- 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 following should be given the same protection as habitats sites:

- ❖ Potential Special Protection Areas and possible Special Areas of Conservation;
- ❖ Listed or proposed Ramsar sites; and
- ❖ Sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

5.2 Impact Assessment

5.2.1 *Habitats*

It is understood that proposals are to demolish the garage building and store and erect a new building in their place. The proposals also include the construction of a new building in the footprint of the ruined coach house.

Habitat loss is expected to include buildings and hard-standing as well as a limited area of amenity grassland, trees and ornamental planting. These habitats are of negligible, or low, ecological value and habitat loss is unlikely to result in any significant ecological impacts. The majority of the garden to the north-east is expected to remain as part of the proposals.

With new garden planting of native species and species of known value to wildlife, it is considered that the site can be enhanced with regard to its ecological value.

5.2.2 *Species*

5.2.2.1 Birds

Without sensitive timing, or the adoption of careful work practices, removal of trees and shrubs or other woody vegetation could result in the destruction of active birds' nests and the killing/injury of eggs/young. There are no predicted impacts on ground-nesting species.

5.2.2.2 Bats

There are no other foreseeable impacts on roosting bats or trees that bats may use for roosting as a result of the proposals. The endoscope survey of the stone walls did not reveal any evidence that bats are using the walls for shelter and protection (a roost).

As a result of this conclusion, works to repair and repoint the boundary walls, the demolition of the store and garage, and any removal of trees within the site, are unlikely to result in any significant impacts on bats or the places that they use for breeding, shelter and/or protection (roosts) and no specific compensation measures are considered necessary (Mitchell-Jones 2004).

Since no significant impacts on bats are predicted under The Conservation of Habitats and Species Regulations 2017, a European Protected Species (bat) licence will not be required for the proposed works to proceed. Since there are no predicted impacts on bats or their habitats, it is not necessary to consider the 'three tests' of The Conservation of Habitats and Species Regulations 2017 in this instance.

It is considered unlikely that habitat loss will result in any significant impacts on foraging bats, or loss of foraging resources for the local bat populations.

External lighting can have an impact on bats by affecting their activity and behaviour. Certain species of bat have been shown to be attracted to mercury vapour lamps which emit light over a very broad-spectrum including UV light, to which insects are particularly sensitive.

Furthermore, insects can be attracted in large numbers to mercury lamps and so can bats of the genera *Nyctalus* and *Pipistrellus*, including noctules *N. noctula* and common pipistrelles *P. pipistrellus* (Rydell and Racey 1993). Lighting has shown to have an opposite effect on certain other species, such as the lesser horseshoe bat *Rhinolophus hipposideros*, which have been shown to avoid areas of artificial light (Stone *et al.* 2009). Given this, any new external lighting within the site could affect bat behaviour.

5.2.2.3 Hedgehogs

The proposed works may result in the loss of amenity grassland that may be used by hedgehogs for foraging. However, given that the majority of the garden will be retained, it is considered that potential habitat for hedgehogs will remain.

5.2.2.4 Other Species

There are no foreseeable impacts on other species.

6 Recommendations

6.1 Further Survey

No further bat surveys are recommended.

6.2 Habitats

It is recommended that new areas of garden planting are incorporated within the proposals. Such garden planting should be designed, planted and managed to maximise their value to wildlife. One key element of this would be the species used within the planting, which should comprise native species where possible, as well as ornamental plants of known value to wildlife. The key will be to provide a variety of flowers and fruits throughout the year in order to provide food for insects and birds, as well as providing potential nest sites through the planting of trees and shrubs.

Appendix 4 recommends a number of suitable species for landscape and garden planting schemes, including non-native species for more formal areas, although the species mix should by no means be limited to this list. Planting should aim to provide ground cover for animals such as hedgehogs and invertebrates, and so low-growing ground cover should be encouraged.

Native species such as bugle, ivy and periwinkle could be used for this purpose, or ornamental species such as lady's mantle, elephant's ears or perennial geraniums may also be suitable for formal areas of ornamental planting. A diversity of structure should also be encouraged through the planting of small trees, with shrubs and herbaceous plant species established below.

6.3 Species

6.3.1 *Bats*

6.3.1.1 External Lighting

It is recommended that external lighting be avoided within the site, unless it is necessary for reasons of security and safety. In particular, light spillage around new bat roosting features and along boundaries should be avoided, so that a dark corridor is created around the peripheries of the site in order to facilitate the movement of bats, as well as other nocturnal wildlife.

Where external lighting is required, it should be kept at low level and a low intensity, with hoods and baffles used to direct the light to where it is required (Bat Conservation Trust 2018, Emery 2008). To minimise the impact on bats, the use of low pressured sodium lamps is recommended in preference to mercury or metal halide lamps which have a UV element that can affect the distribution of insects and attract bats to the area, affecting their natural behaviour (Bat Conservation Trust 2018).

The key principals for choosing a suitable type of lamp are:

- Avoid blue-white short wavelength lights: these have a significant negative impact on the insect prey of bats. Use alternatives such as warm-white (long wavelength) lights as this will reduce the impact on insects and therefore bats.

- Avoid lights with high UV content: (e.g. metal halide or mercury light sources) or reduce/completely remove the UV content of the light. Use UV filters or glass housings on lamps which filter out a lot of the UV content.

Selecting an appropriate lamp unit that is designed to be environmentally friendly will minimise light spill, but further controls can be imposed by installing directional accessories such as baffles, hoods and louvres on lamps to direct light away from ecologically sensitive areas.

LED (Light Emitting Diode) units are an effective way to direct the light into small target areas and are recommended for lighting the proposed parking and turning area. Composite LEDs can be switched off to reduce/direct the light beam to specific areas.

6.3.1.2 Enhancement

The erection, or integration, of bat boxes on new/existing buildings within, or adjacent to, the site is recommended as an enhancement measure, and to provide gain for biodiversity under the NPPF. Bat boxes can be erected on buildings or on trees, and the following boxes are recommended:

- Schwegler 1FF Bat Box
- Schwegler 2F Bat Box
- Traditional oak double-chambered bat box

6.3.2 *Birds*

It is recommended that any clearance of shrubs, trees or other woody vegetation is undertaken outside of the breeding bird period, avoiding March to August inclusive.

The erection of bird nesting boxes is recommended in order to provide suitable nest sites for species within the local area, as nest boxes can be excellent substitutes for the nesting potential of trees. Over 60 species are known to adopt nest boxes including blue tits, great tits, starlings, robins and sparrows.

The location and nature of the nest box depends on the species it is designed for; boxes for tits, sparrows or starlings should be fixed two to four metres up a tree or a wall; open-fronted boxes for robins and wrens need to be low down, below 2m, and well-hidden in vegetation. Unless there are trees or buildings which shade the box during the day, boxes should be faced between north and east, thus avoiding strong sunlight and the wettest winds. Boxes can either be integrated into the new buildings or placed on the exterior of a building and trees.

Recommended integrated boxes are:

- Woodstone Estella House Sparrow Box
- Schwegler Brick Box Type 24

Other recommended boxes are:

- 1B Schwegler Nest Box
- 2H Schwegler Robin Box

The erection of bird boxes would be seen as an element that provides biodiversity gain.

6.3.3 *Hedgehogs*

It is recommended that hedgehog passes are created within any new boundary fencing. Movement by hedgehogs between gardens should be allowed for through the provision of holes within garden

fence panels. The holes should have minimum dimensions of 13cm x 13cm to allow movement by foraging hedgehogs within the proposed development.

Mammals passing through the site during the construction phase of development are at risk of injury and trapping due to inadvertent pitfall hazards. This is particularly the case when foundations are being excavated. It is therefore recommended that no ground works take place outside of daylight hours and at night any pits on site are appropriately covered over/fenced off, or that a ramp is put in place via which mammals can escape.

7 References

Bat Conservation Trust, 2018. *Bats and artificial lighting in the UK: Bats and the Built Environment series.* The Bat Conservation Trust, London.

CIEEM, 2016. *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

Collins, J. 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London.

Emery, M., 2008. Effect of Street Lighting on Bats. Urbis Lighting Ltd., Anglia.

JNCC, 2010. *Handbook for Phase 1 Habitat Survey - a technique for environmental audit*. JNCC First published 1990; reprinted in 2010.

8 Appendix 1. Photographs

Photograph 1. The site at Stonehill House, Bloxham School, viewed from the south. The store and garage are visible on the left and right of the image.

Photograph 2. The interior of the garage.

Photograph 3. Roof structure of the garage.

Photograph 4. Interior of the store.

Photograph 5. Roof structure of the store.

Photograph 6. Missing mortar on the western stone walls bounding the site.

Photograph 7. Missing mortar and crevices on the southern stone walls.

Photograph 8. Interior of a crevice extending into the fabric of the stone walls.

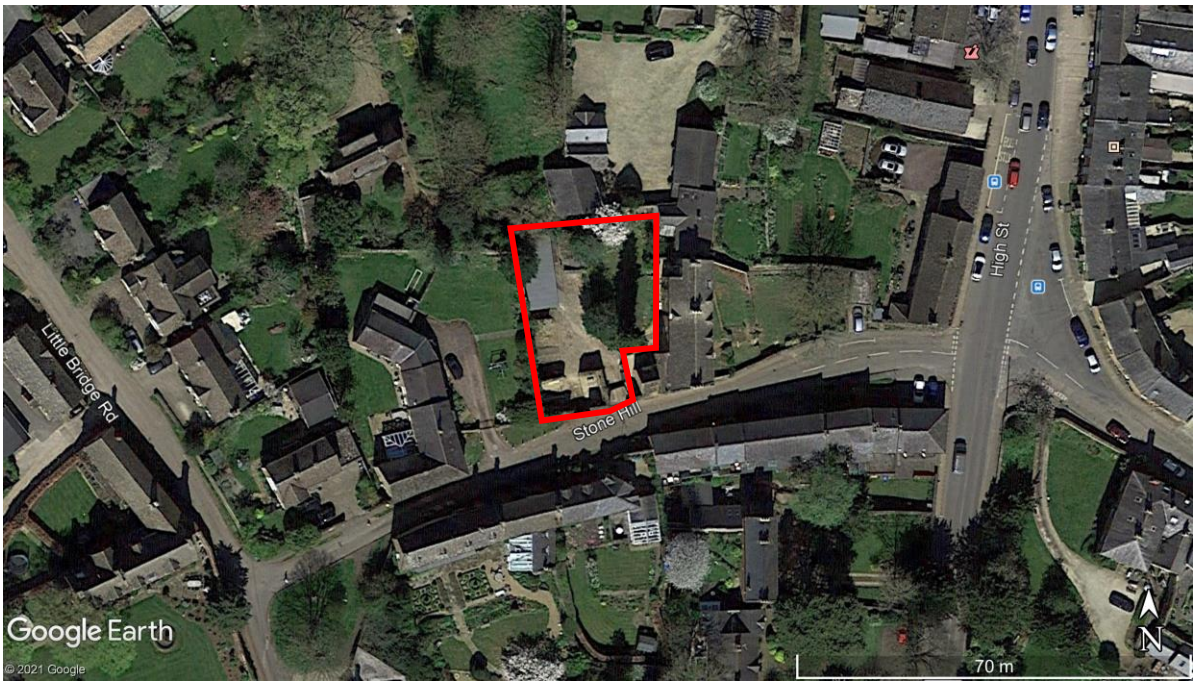
Photograph 9. Stone walls forming the ruined coach house.

Photograph 9. Amenity grassland and trees of the garden in the north-eastern corner of the site.

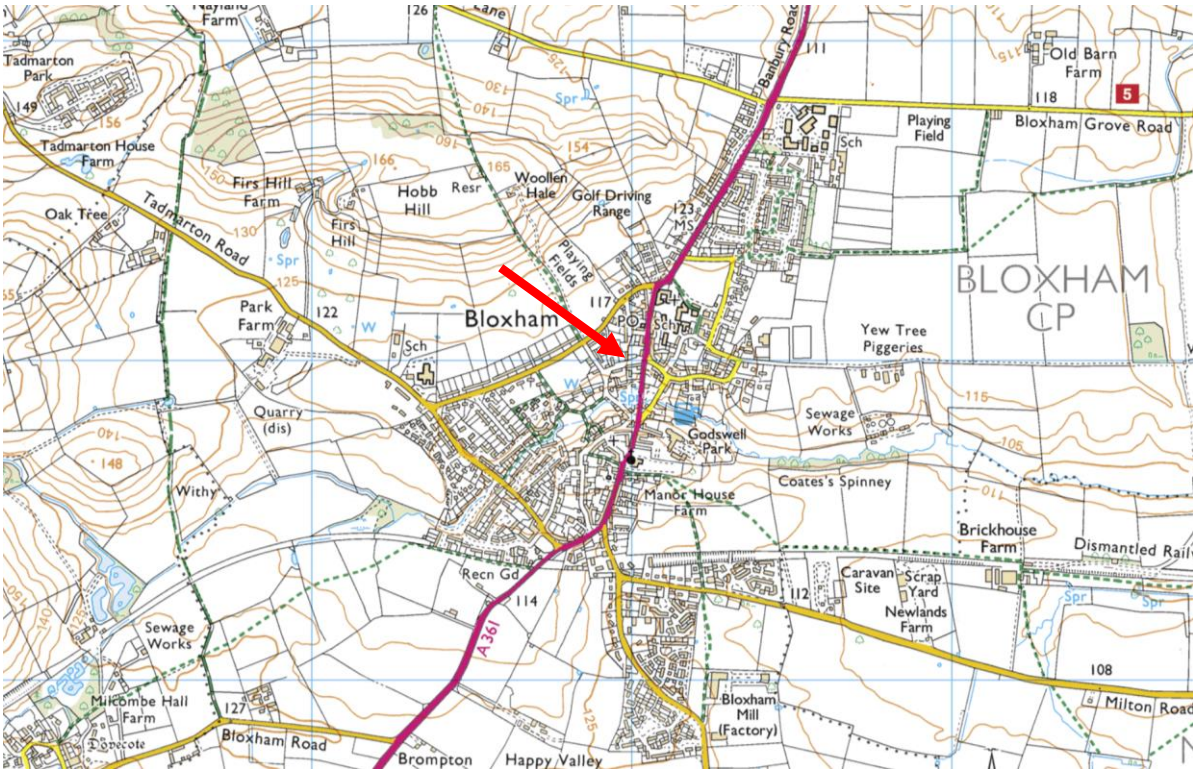
Photograph 9. Ornamental planting in the north of the garden.

Photograph 9. Brick hard-standing typical of the site.

9 Appendix 2. Site Location Plans

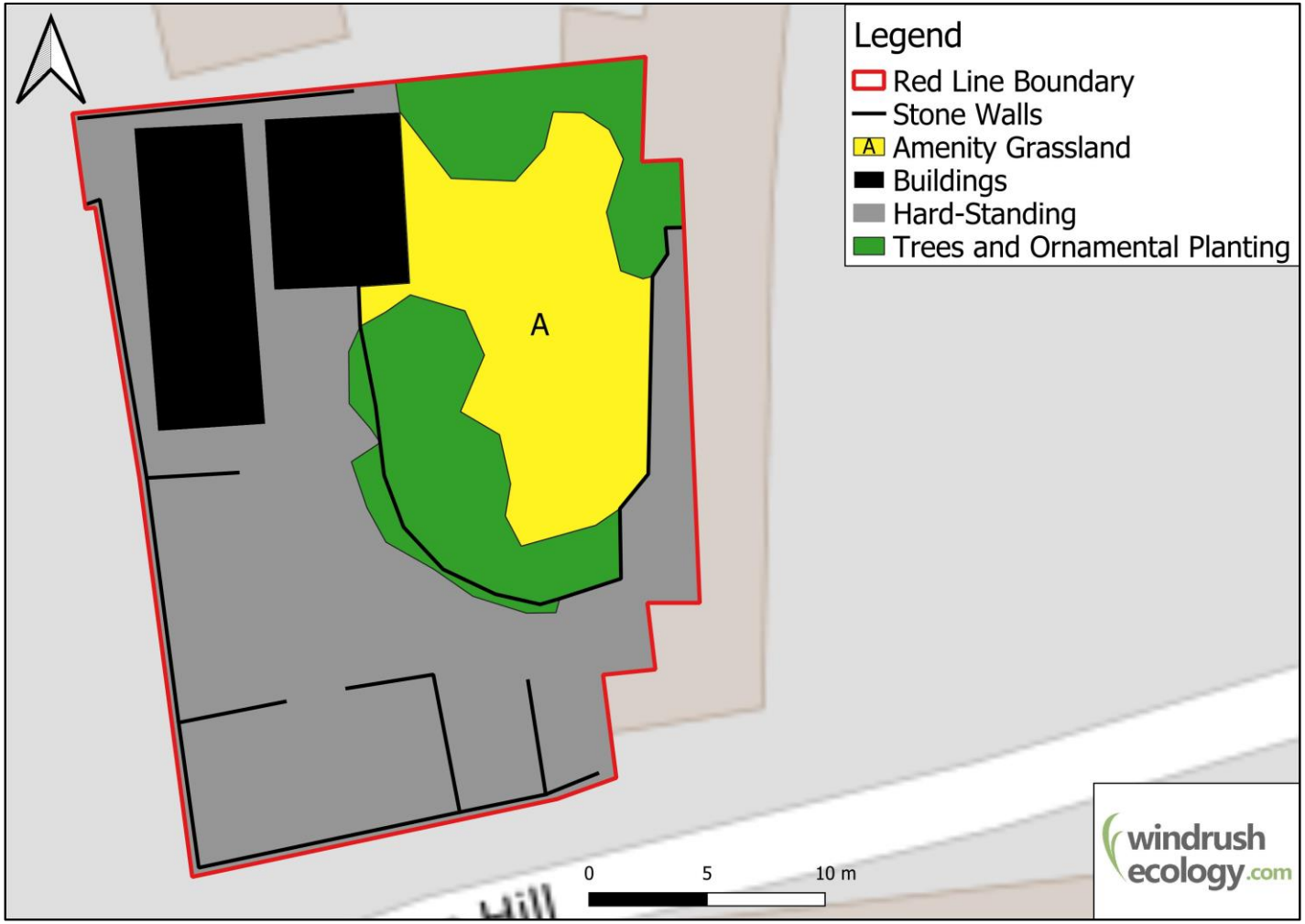


Aerial photograph showing the approximate location of the yard adjacent to Stonehill House (the site), outlined in red.



Ordnance Survey map showing the approximate location of the site (indicated by the red arrow) within the local area.

10 Appendix 3. Phase 1 Habitat Plan



11 Appendix 4. Species for Landscape and Ornamental Planting

Common Name	Botanical Name
Trees	
Field maple*	*Acer campestre*
Beech*	*Fagus sylvatica*
Hornbeam*	*Carpinus betulus*
Willow*	*Salix sp.*
Silver birch*	*Betula pendula*
Rowan*	*Sorbus aucuparia*
Whitebeam*	*Sorbus aria*
Alder*	*Alnus glutinosa*
Wild cherry*	*Prunus avium*
Flowering cherry	*Prunus sp.*
Flowering pear	*Pyrus calleryana*
Crab apple*	*Malus sylvestris*
Fruiting apple	*Malus sp.*
English oak*	*Quercus robur*
Elm*	*Ulmus sp.*
Small-leaved lime*	*Tilia cordata*
Shrubs	
Holly*	*Ilex aquifolium*
Hazel*	*Corylus avellana*
Wayfaring tree*	*Viburnum lantana*
Wild service tree*	*Sorbus torminalis*
Buckthorn*	*Rhamnus cathartica*
Guelder rose*	*Viburnum opulus*
Hawthorn*	*Crataegus monogyna*
Hebe	*Hebe sp.*
Rosemary	*Rosmarinus*
Ceanothus	*Ceanothus sp.*
Weigela	*Weigela sp.*
Dog rose	*Rosa canina*
Dogwood*	*Cornus sanguinea/alba*
Rose (single flowered varieties)	*Rosa sp.*
Wild privet*	*Ligustrum vulgare*
Garden privet	*Ligustrum ovalifolium*
Lilac	*Syringa vulgaris*
Escallonia	*Escallonia sp.*
Lavender	*Lavandula sp.*
Flowering currant	*Ribes sp.*
Honeysuckle*	*Lonicera periclymenum*
Mexican orange blossom	*Choisya sp.*
Spiraea	*Spiraea sp.*
Amelanchier	*Amelanchier lamarckii/canadensis*
Cotoneaster	*Cotoneaster sp.*
Yew*	*Taxus baccata*

Common Name	Botanical Name
Broom	*Cytisus sp.*
Rose of Sharon	*Hypericum calycinum*
Firethorn	*Pyracantha sp.*
Butterfly bush	*Buddleia davidii*
Clematis	*Clematis sp.*
Perennials	
Elephant's ears	*Bergenia cordifolia*
Sage	*Salvia sp.*
Lamb's ears	*Stachys byzantia*
Periwinkle*	*Vinca major & Vinca minor*
Ivy*	*Hedera helix*
Bugle*	*Ajuga reptans*
Lady's mantle	*Alchemilla mollis*
Geraniums	*Geranium sp.*
Globe thistle	*Echinops ritro*
Monk's hood	*Aconitum sp.*
Yarrow*	*Achillea millefolium*
Teasel*	*Dipsacus fullonum*
Oriental poppy	*Papaver orientalis*
Michaelmas daisy	*Aster sp.*
Bear's breeches	*Acanthus spinosus*
Montbretia	*Crocosmia sp.*
Purple coneflower	*Echinacea purpurea*
Ornamental onion	*Allium sp.*
Catmint	*Nepeta sp.*
Verbena	*Verbena sp., Verbena bonariensis*
Marjoram	*Origanum majorana*
Thyme	*Thymus sp.*
Crocus	*Crocus sp.*
Daffodil	*Narcissus sp.*
Snowdrop	*Galanthus nivalis*
Winter aconite	*Eranthis sp.*
Bluebell*	*Hyacinthoides non-scripta*
Primrose*	*Primula veris*
Forget-me-not*	*Myosotis sp.*
Grape hyacinth	*Muscari botryoides*
Hollyhock	*Althaea rosea*
Lenten rose	*Helleborus orientalis*
Foxglove*	*Digitalis purpurea*
Greater knapweed*	*Centaurea scabiosa*
Great mullein*	*Verbascum thapsus*
Toadflax*	*Linaria vulgaris*
Meadow crane's-bill*	*Geranium pratense*
**indicates native species*	