NashEcology

Birchwood, Cadbury Camp Lane, Clapton-in-Gordano

Preliminary Ecological Appraisal Report

Prepared for: Mr Martin Day

Date: January 2024

This report has been prepared and provided in accordance with the Code of Professional Conduct of the Chartered Institute of Ecology and Environmental Management.

Limitations

Nash Ecology Ltd has prepared this Report for the sole use of Martin Day ("Client") in accordance with the Agreement under which our services were performed.

The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate.

The methodology adopted and the sources of information used by Nash Ecology Ltd in providing its services are outlined in this Report. The work described in this Report was undertaken in November 2023 and is based on the conditions encountered and the information available during the said period of time.

Nash Ecology Ltd disclaim any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to Nash Ecology Ltd attention after the date of the Report.

This report is considered 'valid' for up to two years from the date the walkover survey was conducted. If an application is made after this, then it is advisable to undertake an updated survey. In addition, any significant change to the project should result in consultation with an ecologist as reassessment of the ecological constraints may be required.

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1 INTRODUCTION

1.1 Background and Scope

Nash Ecology Ltd was instructed to carry out a Preliminary Ecological Appraisal (PEA) of a parcel of land located within the grounds of 'Birchwood, Cadbury Camp Lane, Clapton-in-Gordano, BS20 7SA' (Figure 1). The survey was commissioned in relation to proposals to demolish and replace the main residence (Figure 2). The scheme will utilise an existing access track. To assess the impacts of the proposed project, a PEA was carried out.

The remainder of this report provides methods, results and a discussion of potential impacts including, where necessary, a suitable mitigation strategy.

Figure 1: Site Location

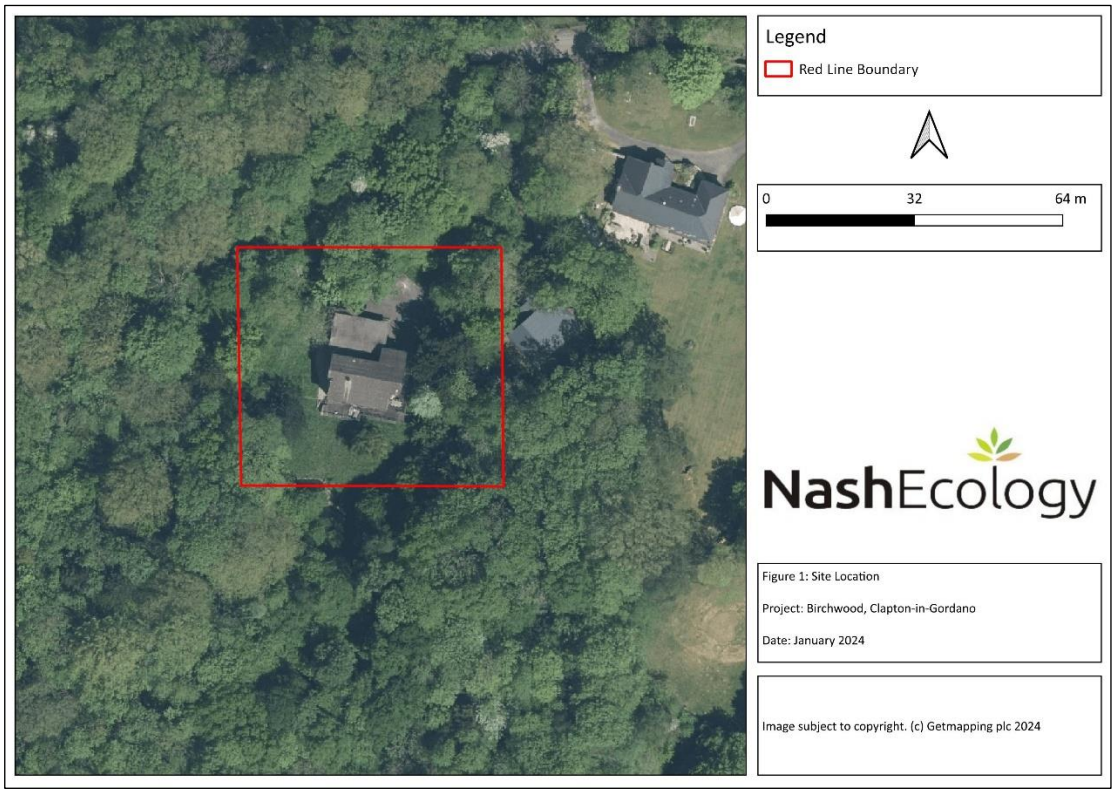


Figure 2: Proposed Development (adapted from Orme Architecture, 2023)

2 LEGISLATION AND PLANNING POLICY SUMMARY

2.1 Wildlife Legislation

The following wildlife legislation is potentially relevant to the proposed development and has been considered when planning and undertaking this survey:

- The Wildlife and Countryside Act (WCA) 1981 (as amended);
- The Countryside and Rights of Way (CRoW) Act 2000;
- The Natural Environment and Rural Communities (NERC) Act 2006;
- The Conservation of Habitats & Species (Amendment) (EU Exit) Regulations 2019;
- The Protection of Badgers Act 1992; and
- The Hedgerow Regulations 1997.

2.1.1 Planning Policy Summary

The National Planning Policy Framework (NPPF) 2021 was considered in the preparation of this report. The NPPF specifies the obligations that the Local Authorities and the UK Government have regarding statutory designated sites and protected species under UK and international legislation and how this is to be delivered in the planning system. Protected or notable habitats and species should be considered as a material consideration in planning decisions and may therefore make some sites unsuitable for particular types of development. If the development is permitted, mitigation measures may be required to avoid or minimise impacts on certain habitats and species, or where impact is unavoidable, compensation may be required.

3 METHODS

3.1 Desk-based Study

A desk-based study was carried out to identify nature conservation designations and protected and notable habitats and species potentially relevant to the proposed development. In all cases, ST 476 729 was used as the search point.

The desk-based study was carried out using the data sources detailed in Table 1.

Table 1: Desk-based Study Data Sources

Data Source	Data Obtained
Multi-Agency Geographic Information for the Countryside (MAGIC) website	• International statutory designations within 2 km of the Study Area boundary • Other statutory designations within 1 km of the Study Area boundary • Information on habitats and habitat connections (based on aerial photography) relevant to interpretation of planning policy and assessment of potential protected and notable species constraints
Bristol Regional Environmental Records Centre	• Non-statutory designations within 1 km of the Study Area boundary • Protected and notable species records within 1 km (records for the last 10 years only)

3.2 Field Survey

3.2.1 Phase 1 Habitat Survey

A walkover survey of the Site was undertaken on the 23rd November 2023. Features of interest situated near to, but outside of, the Site were noted but not subject to full survey.

During the walkover survey, habitat types were recorded, classified and mapped according to the standard Phase 1 Habitat survey methodology (JNCC, 2010). Broad species lists were compiled for each habitat type; however, these lists were not meant to be exhaustive. Rather, botanical species listed were compiled to provide support for the classification and an indication of habitat quality.

This survey was 'extended' to include an assessment of the likelihood of protected / notable species occurring within the Site. This assessment was based on the project's geographic location, the habitat types present, field survey and aerial imagery. A search for invasive weeds was included in the Phase 1 walkover.

3.2.2 Preliminary Bat Roost Appraisal

A Natural England (Class 2) licensed bat ecologist undertook an inspection of Birchwood on 6th April 2022 and again on 23rd November 2023 following published guidance (BCT, 2023). During the surveys, the surveyor inspected the property for exterior roosting locations and possible access points to the building's interior. Such features were accessed and inspected for signs of use using an endoscope. An internal inspection for suitable roost locations and evidence of bat occupancy (such as droppings, urine spots, an absence of cobwebs and bats themselves) was then undertaken.

As bats are a cryptic group and often move between roosts, both within and between years, their presence is not always easy to detect. The buildings were assessed for their Bat Roost Potential (BRP), following published guidance (BCT, 2016). The BRP categories are provided in Table 2 below.

Table 2: Bat Roost Potential Categories (BCT, 2016)

Roost Potential	Description
Known or Confirmed	Confirmed signs of bat presence/ occupation (droppings, oily staining around entry points, insect remains, odour, scratching) and actual bat presence.
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.
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 status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
Low	A structure 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). A tree of sufficient size and age to contain PRFs but with none seen form the ground or features seen with only very limited roosting potential.
Negligible	No features suitable for roosting bats. Includes structures constructed from unsuitable materials e.g. prefabricated with steel and sheet material. Structure is draughty, light and cool buildings with no roosting opportunities. High levels of regular disturbance including external lighting. Building is isolated for areas of foraging habitat. In the case of trees, no potential roosting features are present, or features have no potential to support roosting bats.

3.3 Survey Limitations

The aim of a desk-based study is to help characterise the baseline context of a proposed development and provide valuable background information that would not be captured by a single site survey alone. Information obtained during a desk-based study is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a particular species does not necessarily mean that the species does not occur in the study area. Likewise, the presence of records for particular species does not automatically mean that these still occur within the area of interest or are relevant in the context of the project.

The survey was undertaken late in the year and outside of the approved window for habitat surveys. As such, flowering species might not have been evident at the time of survey. Given that the Site was managed as a residential garden, it was highly unlikely to support rare plant species. However, vigilance for invasive species is recommended.

4 RESULTS

4.1 Desk-based Study

4.1.1 Statutory Designations

No statutory designated sites were identified within the respective search areas.

Birchwood house is located within Band C of the North Somerset and Mendips Bat Consultation Zone (BCZ), which was created to assess and control development within close proximity to the North Somerset and Mendips Bat SAC. Listed as an Annex II species (primary reason for citation) for North Somerset and Mendips SAC are the greater (*Rhinolophus ferrumequinum*) and lesser (*R. hipposideros*) horseshoe bats; accordingly, special attention was paid to identifying potential impacts on these species. The SAC comprised multiple discrete sites, the nearest of which was located c. 6 km to the south.

4.1.2 Non-statutory Designations

Seven non-statutory designated sites were identified within 1 km:

- Tickenham Hill, Cadbury Camp and Chummock Wood Complex Site of Nature Conservation Interest (SNCI): areas of ancient semi-natural and semi-natural broad-leaved woodland, unimproved and semi-improved calcareous grassland, semi-improved neutral grassland, dense scrub ancient semi-natural broadleaved woodland. The SNCI was located immediately adjacent to the Site;
- Cockheap Wood, Dunhill Wood and Parsonage Wood Complex SNCI: an area of ancient semi-natural broadleaved woodland located c. 0.24 km to the northwest;
- Abbots Horn SNCI: a diverse, semi-natural broadleaved woodland located c. 0.75 km to the southwest;
- Towerhouse Wood and Adjacent Fields SNCI: a species-rich damp woodland located c. 0.84 km to the south;
- Nicholas Wood SNCI: a semi-natural broadleaved woodland located c. 0.9 km to the north;
- Summer House Wood, Hails Wood and A369 Road Verge SNCI: an ancient semi-natural broadleaved woodland located c. 0.93 km to the southwest; and
- Black Horse SNCI: an area of semi-improved acidic grassland with scattered scrub located c. 0.95 km to the north.

Given the highly localised nature of the work, the only SNCI within the zone of influence is Tickenham Hill, Cadbury Camp and Chummock Wood Complex, which is located immediately adjacent to the Site. Despite the non-statutory designation, the aforementioned SNCI had not been assessed (indeed, six of the seven identified SNCIs had not been assessed). Without the underpinning assessment, it is not possible to fully establish impacts. In this instance, the proposed works are located within (and entirely restricted to) a residential garden enclosed by wooden fencing; impacts are expected to be highly localised and not extend beyond the Site boundaries. As such, there are no impact pathways between the Site and the SNCI.

4.2 Field Survey

4.2.1 Site Setting

The Site occupied a rural location alongside a private road. The residential property was set within a garden that was enclosed by wooden fencing. Beyond the fence, woodland enclosed the Site. Cadbury Camp Lane ran parallel with the northern boundary and provided vehicle access to the Site. Land included within the Red Line Boundary measured 0.289 ha; however, the footprint of the scheme is expected to be considerably smaller than this.

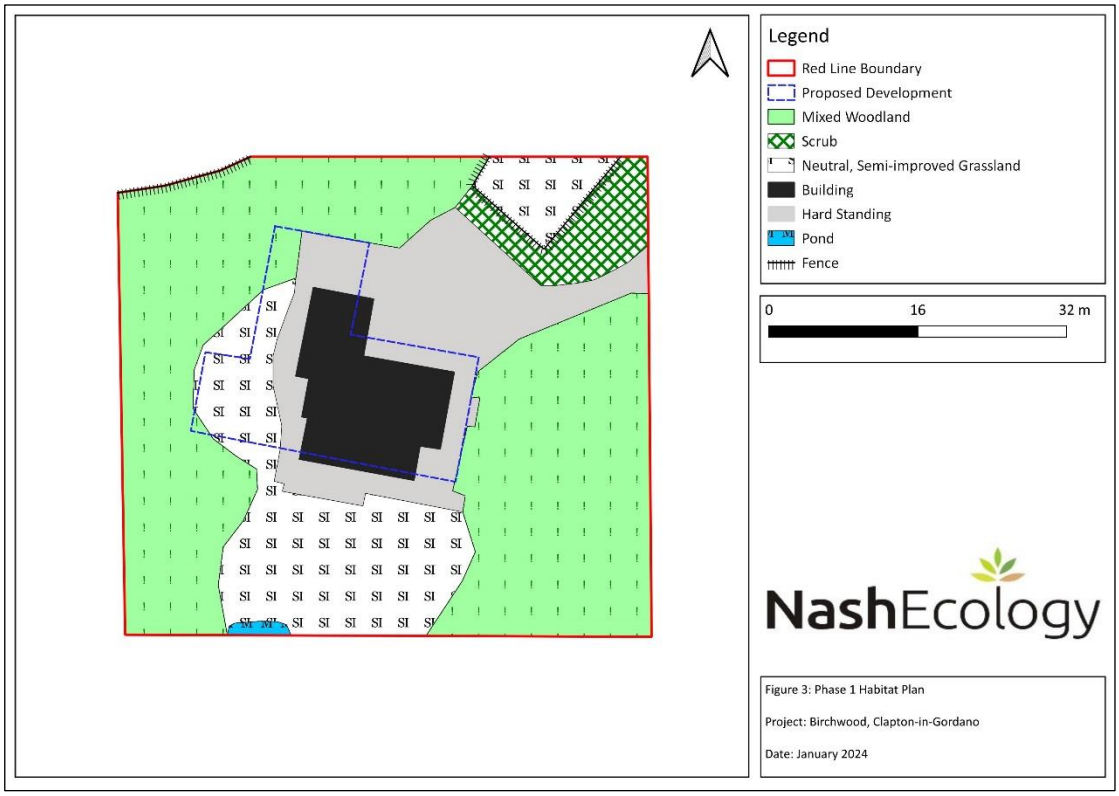
4.2.2 Habitats

The habitats recorded and their distribution within the Site are shown in Table 3 and on Figure 3. Illustrative photographs are provided throughout the text where appropriate. The habitats are then described in greater detail below.

Table 3: Habitats Present on Site in Descending Order of Spatial Occupancy

Habitat	Brief description	Area (ha)	% of Site
Mixed woodland	The Site was largely enclosed by mature, mixed woodland.	0.147	50.9
Neutral, semi-improved grassland	Lawns were located to the south and west of the house.	0.058	20.1
Hard standing	The Site included existing access tracks and patios.	0.047	16.3
Building	The Site included a house.	0.022	7.6
Scrub	Scrub bordered the access track in the north; it also formed the understorey of the mixed woodland.	0.014	4.8
Open water (pond)	An ornamental pond was located in the south of the Site.	0.001	0.3

Figure 3: Phase 1 Habitat Plan



Mixed Woodland

The Site was located within mature mixed woodland albeit enclosed by closed-panel fencing (Plates 1 – 4). The woodland was dominated by sycamore (*Acer pseudoplatanus*) and oak (*Quercus robur*) to the north and west and yew (*Taxus baccata*) to the south and east. Holly (*Ilex aquifolium*) was also present albeit to a lesser extent. A dense understorey of scrub was present in the north and west comprising hazel (*Corylus avellana*), hawthorn (*Crataegus monogyna*), *Cotoneaster* and bramble (*Rubus fruticosus* agg.). Ground flora comprised dogs' mercury (*Mercurialis perennis*) and ivy (*Hedera helix*).

Plate 1: Mixed Woodland (North)

Plate 2: Mixed Woodland (Southwest)

Plate 3: Mixed Woodland (Northwest)

Plate 4: Mixed Woodland (Southeast)

Neutral, Semi-improved Grassland

Areas of lawn were located to the west (Plate 5) and south (Plate 6) of the house. Both areas were mowed short, homogenous and forb-rich. Grass species included perennial rye grass (*Lolium perenne*), false oat-grass (*Arrhenatherum elatius*), cocksfoot (*Dactylis glomerata*) and red fescue (*Festuca rubra*). Forbs dominated the lawns and included wild strawberry (*Fragaria vesca*), dandelion (*Taraxacum officinale* agg.), daisy (*Bellis perennis*), primrose (*Primula vulgaris*), ground ivy (*Glechoma hederacea*), groundsel (*Senecio vulgaris*) and creeping buttercup (*Ranunculus repens*). In addition to the above, a small area of grassland was located to the north within a fenced enclosure containing a variety of acers.

Plate 5: Neutral Grassland – West

Plate 6: Neutral Grassland – South

Buildings

The Site was dominated by a large residential property. Birchwood was a two-storey property constructed in the 1960's (Plates 7 – 10). To the north of the main house was an attached single-storey garage and porch. The building's walls were constructed from brick and were in a good condition. Intact double-glazed doors and windows were present throughout. Small, discrete areas were clad in wooden hanging tiles; these were all flush against the walls and lacked any gaps. Wooden soffit boxes were present at the wall tops and were all intact. The single-storey section contained a wooden fascia board, which was flush against the wall.

The roof was pitched and clad in clay tiles; an additional sloping section was present in the south. Wire mesh was present at the eaves. The single-storey garage / porch had a flat roof clad in bitumen felt.

Plate 7: Birchwood Viewed from the Northeast

Plate 8: Birchwood Viewed from the South

Plate 9: Birchwood Viewed from the Southeast

Plate 10: Birchwood Viewed from the West

The property contained a single loft space, which measured c. 15 m (L) x 7 m (W) x 3 m (H) (Plate 11). The roof was lined with bitumen felt and supported by sealed wooden beams. Cobwebs were present along the apex (Plate 12). The floor had been boarded centrally with exposed fibreglass insulation on either side. The gable walls were constructed from block.

Plate 11: Birchwood Loft Space

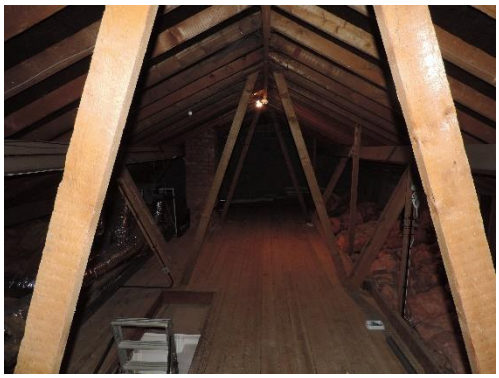


Plate 12: Cobwebs were Present at the Apex

Scrub

A line of immature sycamores bordered the access driveway.

Open Water

A pond was located to the south of the southern lawn (Plate 13). The pond measured c. 6 m x 3 m x 1 m (depth). The pond was lined and lacked true aquatic plants. No fish were observed but a range of invertebrates were noted. A second pond was located immediately to the south of this pond (Plate 14). Its size and construction were comparable to that of the first. Again, no fish were recorded.

Plate 13: Pond 1

Plate 2: Pond 2

4.2.3 Notable Habitats

The Site included two Priority Habitats (S41, NERC Act 2006): lowland mixed woodland and ponds. Approximately 21 sqm of mixed woodland will be lost to the scheme. The pond will not be directly affected by the scheme.

4.3 Protected and Notable Species

The following provides a summary of potentially relevant species identified through a combination of desk-based study and field survey. Requirements for further survey or mitigation strategies where deemed necessary are provided in Section 5 of this report.

Plants

No historical records of protected or otherwise notable plant species were received.

Cotoneaster horizontalis was recorded in the mixed woodland. The plant was located outside of the proposed footprint; however, care should be taken to prevent its inadvertent spread.

The habitats recorded (woodland and grassland) were managed (i.e. disturbed) as part of a residential garden. No protected species of plant were encountered and no further botanical surveys are recommended.

Invertebrates

No historical records of protected or notable invertebrates were received.

The species depauperate nature of the Site meant that it was unlikely to support important assemblages of invertebrates; as such, no further surveys are recommended.

Amphibians

Historical records of smooth (*Lissotriton vulgaris*) and palmate (*L. helvetica*) were received. All of the records originated from Tinkenham Hill, some c. 885 m to the southwest.

One pond was present within the Site and a further pond located immediately to the south. Given their proximity to the Site and nature of the affected habitats, further survey will be required.

A review of OS Mapping identified four ponds within 500 m (excluding the aforementioned ponds). All four of these ponds were located between 350 m and 430 m from the Site. The Great Crested Newt Mitigation Guidelines (English Nature, 2001) state that great crested newts (*Triturus cristatus*; GCN) are capable of mitigating up to 500 m from their ponds; however, in reality such migrations are dangerous, energetically expensive and are only likely to be used where there is a paucity of suitable habitat locally. Indeed, a later publication by English Nature (English Nature, 2004) suggested that most individuals remain within 100 m and very few (if any) migrate beyond 200 m. In this case, all four ponds were located in close proximity to high quality habitat (i.e. woodland). It is unlikely that amphibians would undertake the long-distance migration to the Site given the proximity of such habitat.

Reptiles

No historical records of reptiles were received from BRERC.

Suitable terrestrial habitat for reptiles was restricted to the mixed woodland. The grassland was mowed short and lacked a litter layer, which reptiles (particularly slow-worms (*Anguis fragilis*)) use to move around without exposing themselves to predators. Viviparous lizards (*Zootoca vivipara*) are typically found within more structurally complex habitats and could occur within the more open sections of woodland. Both adders (*Vipera berus*) and grass snakes (*Natrix helvetica*) have large home ranges. Given the small areas of woodland being affected (c. 21 sqm), the risk of encountering either species is low.

Given the small size of the Site coupled with limited suitable habitat, no targeted surveys for reptiles have been recommended.

Birds

No historical records of notable birds were received from BRERC.

Birchwood did not contain any evidence of nesting birds.

In the wider Site, nesting opportunities the Site were restricted to the woodland and scrub. The grass was unsuitable for ground nesting birds. No targeted surveys are recommended; however, a precautionary method of working has been recommended.

Hedgehog

One historical record of hedgehog (*Erinaceus europaeus*) was received. No field signs of the species were recorded during the walkover; however, the woodland and grassland are likely to represent suitable habitat for the species. The boundary fence is, however, likely to buffer access to the Site. No targeted surveys for hedgehogs are recommended; however, a precautionary approach to the works will be adopted.

Hazel Dormouse

No historical records of hazel dormice (*Muscardinus avellanarius*) were supplied.

The mixed woodland ostensibly appeared to be suitable for dormice. Indeed, it was extensive, well connected and contained a variety of possible foodplants (including hazel). Impacts on the woodland are expected to be minor comprising the loss of 21 sqm of edge habitat (and likely containing two or fewer stands of hazel). The loss of such an insignificant amount hedgerow is unlikely to adversely affect dormice either individually or as at a population level. Despite this, a precautionary method of working has been recommended.

Badgers

Historical records of badger (*Meles meles*) were received (location deliberately withheld).

No field signs of badger were recorded during the walkover and no setts will be adversely affected by the proposed woodland. The boundary fence is likely to preclude the species from the Site. No targeted surveys for badgers are recommended; however, a precautionary approach to the works will be adopted.

Bats

Historical records of common pipistrelle (*Pipistrellus pipistrellus*, n = 1), soprano pipistrelle (*Pipistrellus pygmaeus*, n = 3), long-eared bat (*Plecotus sp.*, n = 1), serotine (*Eptesicus serotinus*, n = 2), noctule (*Nyctalus noctula*, n = 3), Leislers (n = 1), *Myotis* (n = 2) and lesser horseshoe bat (n = 1) were received. All of the records originated from three sites located between c. 555 m and 925 m to the south.

Birchwood House was assessed as having Negligible BRP. The property lacked any external roost locations, suitable access points to the property's loft space and historical evidence of use by bats. As such, the proposed demolition will not adversely affect roosting bats. Mature trees are present locally and could support roosting bats (though unlikely to horseshoe bats). No mature trees will be lost to the scheme.

Given the minor loss of lawn (c. 99 sqm) and mixed woodland (c. 21 sqm), both of which are situated immediately adjacent to the house, there is no risk of habitat fragmentation.

Birchwood is located within Band C of the North Somerset and Mendips BCZ. Whilst the property did not contain any suitable roosting opportunities for horseshoe bats, the surrounding woodland did appear to be highly suitable for foraging / commuting individuals. To prevent any impacts on the possible corridor, a sensitive lighting strategy is recommended.

5 IDENTIFICATION OF ECOLOGICAL CONSTRAINTS AND RECOMMENDATIONS

5.1 Approach to the Identification of Ecological Constraints

Relevant ecological receptors that may represent constraints to the proposed development, or that provide opportunities to deliver ecological enhancement in accordance with planning policy, are identified in Section 4 of this report.

The NPPF and local planning policy (summarised in Section 2 of this report) specify requirements for the protection of features of importance for biodiversity. Planning policy is a material consideration when determining planning applications.

Compliance with planning policy requires that the proposed development considers and engages the following mitigation hierarchy where there is potential for impacts on relevant ecological receptors:

1. Avoid features where possible;
2. Minimise impact by design, method of working or other measures (mitigation) e.g. by enhancing existing features; and
3. Compensate for significant residual impacts, e.g. by providing suitable habitats elsewhere (whether in the control of the client or otherwise legally enforceable through planning condition or Section 106 agreement).

This hierarchy requires the highest level to be applied where possible. Only where this cannot reasonably be adopted should lower levels be considered. The rationale for the proposed mitigation and/or compensation should be provided with planning applications, including sufficient detail to show that these measures are feasible and would be provided.

In pursuance of the objective within the NPPF of providing net gains in biodiversity where possible, consideration should be given to the scope for enhancement as part of the proposed development. This should represent biodiversity gain over and above that achieved through mitigation and compensation. Enhancement could be achieved on and/or off the Site.

The likelihood of the relevant ecological receptors constraining the proposed development has been assessed with reference to the scale described in Table 4. The higher the importance of the ecological receptor for the conservation of biodiversity at national and local scales, the more likely it is to be a material consideration during determination of the planning application for the proposed development.

Opportunities for ecological enhancement are provided in Section 5.4 of this report.

Table 4: Scale of Constraint to Development

Likelihood	Definition
High	An actual or potential constraint that is subject to relevant legal protection and is likely to be a material consideration in determining the planning application (e.g. statutory nature conservation designations and European/nationally protected species). Further survey likely to be required (as detailed in this report) to support a planning application.
Medium	An actual or potential constraint that is covered by national or local planning policy and, depending on the level of the potential impact as a result of the proposed development, may be a material consideration in determining the planning application. Further survey may be required (as detailed in this report) to support a planning application.

Low	Unlikely to be a constraint to development or require further survey prior to submission of a planning application. Mitigation is likely to be covered under Construction Environmental Management Plan (CEMP) or precautionary working method statement (e.g. generic requirements for the management of nesting bird risks).

5.2 Habitats

No mature trees are expected to be lost to the scheme. A small amount of mixed woodland (likely restricted to two or fewer stands of hazel) will, however, be lost. To compensate for this loss of Priority Habitat, the remaining woodland could be enhanced through the selective removal of *Cotoneaster*. The clearance of *Cotoneaster* will be using hand tools only to prevent damaged to the surrounding woodland.

Root protection zones will be established and demarked for any retained trees following BS:5837:2012. No digging or storage of plant / materials will be permitted within these buffer zones unless approved by an arboricultural consultant.

5.3 Species

The following provides mitigation strategies for species identified as a potential constraint in Section 4.

Amphibians

Two ponds are located either within or immediately adjacent to the Site. Given the terrestrial habitats present, there is a risk of encountering GCN. Both ponds will be subject to an eDNA survey. Where a positive result is returned, a population size class assessment will be undertaken to ascertain possible impacts.

Birds

All wild birds are protected whilst nesting or rearing young under the Wildlife and Countryside Act 1981 (as amended). Demolition / vegetation clearance will be undertaken occur outside of the peak nesting season (i.e. between September and February). If this is not practicable, then the buildings will be checked for active nests by a suitably trained ecologist to ensure they are not present immediately prior to demolition.

The new barn will be fitted with artificial swallow nest cups at the eaves. These nest sites will be located beneath the eaves.

Hedgehog

There is no evidence that hedgehogs are currently using the Site. Care will be taken during construction and, as a precaution, any excavations or trenches left open overnight will be fitted with a means of escape i.e. planks of wood.

Hazel Dormouse

The affected sections of mixed woodland will be inspected by a Natural England-licensed dormouse ecologist for the presence of nests. If a nest is discovered, the works will stop and Natural England will be consulted. If no nests are discovered, the sections of woodland will be cleared under the supervision of the ecologist. The hazel will be taken down to no less than 10 cm between November and March at which point they should be left undisturbed until April. Alternatively, from April

onwards, the hazel will be taken down to ground-level. This staggered approach would not disturb any hibernating dormice and would provide an opportunity to move back along the retained woodland.

Badger

There is no evidence that badgers are currently using the Site but they could be present in the local area. Care will be taken during construction and, as a precaution, any excavations or trenches left open overnight will be fitted with a means of escape i.e. planks of wood.

Bats

No roosts, or potential roosts, will be affected by the scheme. No linear features are expected to be lost. An insignificant amount of woodland (comprising two or fewer stands of hazel) will be lost. This is highly unlikely to affect bats (including horseshoe bats).

To ensure that the retained habitat is protected, a sensitive lighting strategy will be implemented. The sensitive lighting strategy will comprise the following broad elements (BCT, 2018):

- No excessive lighting - use only the minimum amount required for safety;
- Minimise light spill – use short columns and direct light downwards;
- Use narrow spectrum bulbs that emit minimal ultra-violet light - avoid white and blue wavelengths of the spectrum, which can attract invertebrates;
- Lights should either peak higher than 550 nm or use glass lantern covers to filter UV light;
- Avoid using reflective surfaces under lights; and
- Minimise the amount of light spill from within the dwelling by good design (BCT, 2018).

Table 5: Summary Appraisal of Ecological Constraints and Recommended Further Action

Receptor	Scale of Constraint	Further Requirements, Including Potential Mitigation Requirements	Driver	When is Action Likely to be Required	
				To Inform Design	Pre-construction Onwards
GCN	High	eDNA survey of the two ponds. Further survey as required.	Legislation	✓	
Birds	High	Careful timing of planting outside of peak breeding season.	Legislation		✓
Hedgehog	Medium	Excavations or trenches left open overnight should be fitted with a means of escape i.e. planks of wood. Fingertip search of the woodland vegetation prior to its clearance.	Planning		✓

Hazel dormouse	High	Fingertip search of the woodland vegetation prior to its clearance. Works to stop if a nest is recorded.	Legislation		✓
Badger	High	Excavations or trenches left open overnight should be fitted with a means of escape i.e. planks of wood.	Legislation		✓
Bats	High	Sensitive lighting strategy.	Legislation	✓	

The constraints outlined here will need to be reassessed if there is a significant change to the type or scale of development proposed or if there are any significant changes in the use or management of the land that would affect the habitats and species. If a planning application is made two years or more after a PEA it is advisable to review and update the survey data.

5.4 Opportunities for Ecological Enhancement

The following provides suitable enhancements that could be incorporated within the current scheme:

- It is recommended that the new property is fitted with two sparrow nest boxes. In addition to this, the scheme could include the erection of four bird boxes on mature trees. These boxes should include two with a 32 mm entrance holes and two open-fronted boxes to encourage a range of birds. It is recommended that woodcrete boxes (e.g. provided by Schwegler) are utilised as these provide longer lasting nesting opportunities than wooden boxes which tend to rot quickly. Boxes should be placed between 2 m and 4 m above ground level and not too close to each other to prevent aggressive behaviour between neighbours. The open fronted box should be placed lower at about 2 m and placed within vegetation/cover. Unless there are trees or buildings which shade the box during the day, the boxes should be faced between north and east, thereby avoiding strong sunlight and the wettest winds (www.rsbp.org.uk); and

- Holes (13 cm^2) could be made in the base of the boundary fence (particularly in the west and south) to include permeability for hedgehogs. In addition, two hedgehog boxes could be installed in suitable vegetation. The hedgehog boxes should be in an undisturbed location.

6 REFERENCES

BCT (2016) Bat Surveys: Good Practice Guidelines 3rd Edition. BCT, London

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