



LIZARD

Landscape Design and Ecology

PRELIMINARY ECOLOGICAL APPRAISAL

Watermill, Halfway Bridge, Petworth

Prepared by	CO
Checked by	GS
Date	03rd March 2021
Project Reference	LLD2240
Revision	00

Contents

	Page No.
SUMMARY	01
1.0 Introduction	02
2.0 Scope of the Survey	03
3.0 Methodology	03
4.0 Results	06
5.0 Evaluation, Constraints and Recommendations	14
6.0 Ecological Enhancements / Opportunities	19
7.0 Conclusions	20
8.0 References	21

FIGURES

Figure No. 01 – Site Habitat Plan

TABLES

Table No. 01 - Categorisation Criteria

Table No. 02 – Statutory Protected Sites

Table No. 03 – Non-Statutory Protected Sites

Table No. 04 – Trees with Potential Roost Features

Table No. 05 – Species Lists for Habitat Parcels

Table No. 06 – Target Notes

APPENDICES

Appendix A – Site Photographs



SUMMARY

Lizard Landscape Design and Ecology has been commissioned to undertake a Preliminary Ecological Appraisal of Watermill, Halfway Bridge, nr Petworth (*Grid Reference: SU 931 219– hereafter referred to as 'the site'*).

The main body of the site is dominated by buildings, hard / bare ground and amenity grassland with areas of tall ruderal species, habitats of low ecological value. Areas of invasive Japanese knotweed were also identified on site; these areas should be treated by a specialist company to prevent its further spread.

A very small number of pipistrelle sp. droppings were found within the loft void of the northern section of building B1. An external assessment of the building found areas of lifted flashing and gaps between fascia and brickwork which could be exploited by crevice dwelling bats. The current proposals involve the conversion of the first floor only. These works would not trigger the need for bat emergence / re-entry surveys however should any other works be proposed which affect the external fabric of the building then further surveys would be required to allow impacts to be assessed.

The site is within the 6.5km Key Conservation Area of Ebernoe Common SAC. As current proposals are limited to internal re-configuration only; no impacts are predicted upon bat foraging habitat or commuting routes therefore no further bat activity surveys are required.

The site offers no suitable habitat for amphibians, dormice, badgers or notable invertebrates. The small area of tall ruderal vegetation to the southern section of the site may provide a limited amount of habitat for common reptile species such as slow worm. Clearance works to this area should be undertaken in accordance with a mitigation method statement to avoid any potential harm to this species.

Surrounding scrub, hedges and trees are likely to provide suitable nesting habitat for common bird species. Any removal of these areas should be completed outside the nesting season or following inspection by a suitably qualified ecologist to ensure no active nests are present.

Recommendations for enhancement which should be included within the scheme to achieve Biodiversity Net Gain are detailed in section 6.0 below.

1.0 INTRODUCTION

- 1.1 Lizard Landscape Design and Ecology has been commissioned to undertake a Preliminary Ecological Appraisal of Watermill, Halfway Bridge (*Grid Reference: SU 931 219– hereafter referred to as 'the site'*).
- 1.2 A preliminary ecological appraisal (*PEA*) was undertaken on 19th February 2021, to appraise the existing ecological resource within the land and the surrounding area. The *PEA* comprised a baseline survey conforming broadly to the *JNCC Ecology Phase 1 Habitat Survey* protocol, to identify the existing habitats. In addition, a protected species assessment was undertaken to identify the potential for European and nationally protected species within and adjacent to the land.
- 1.3 The field survey data and analysis contained in this report was undertaken and prepared by Catherine O'Reilly (*MCIEEM, Senior Ecologist; Lizard Landscape Design and Ecology*). The report has been reviewed by George Sayer (*MCIEEM, Senior Ecologist; Lizard Landscape Design and Ecology*).

Site Information

- 1.4 The survey area covers c. 0.2 hectares (ha) of former office space and parking located within the small hamlet of Halfway Bridge, west of Petworth. The site is enclosed by hedges and fence lines and is bordered by a tributary of the River Rother to the east, a public house to the west, the A272 to the south and residential property to the north.

Surrounding Landscape

- 1.5 The surrounding landscape is rural, formed of arable land and woodland. The town of Petworth lies 4.0km east, with small villages of Lodsworth, River and Selham located within 2.0km.
- 1.6 A tributary of the River Rother forms the eastern boundary of the site. There are no other waterbodies located within 500.0m of the site.

Development Proposals

- 1.7 It is understood that the development proposals involve the part-conversion of the building for residential usage.

2.0 SCOPE OF THE SURVEY

2.1 The aim of the preliminary ecological appraisal survey has been:

- To identify the main habitat types present on site;
- To assess the likely importance of the habitats present;
- To assess the likely presence of protected species;
- To provide recommendations for surveys of protected species where necessary;
- To list ecological constraints present on the site;
- To highlight any ecological opportunities and list potential enhancements for inclusion within the scheme.

3.0 METHODOLOGY

3.1 Desk Study

3.1.1 The Multi-Agency Geographical Information Centre (*MAGIC*) was consulted for information regarding priority habitats and statutory designated sites within 2.0km of the proposed construction site. Due to the small size of the site, protected species records were not considered necessary; an approach in accordance with CIEEM advice (*Guidelines for Preliminary Ecological Appraisal, December 2018*).

3.2 Site Visit

3.2.1 A preliminary ecological appraisal was undertaken on 19th February 2021, and the site subjected to an ecology survey using guidelines set out in the *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit (JNCC, 2003)*. This has resulted in a Site Habitat Plan (*Figure No. 01*) and Species Lists for Habitat Parcels (*Table No. 07*).

3.2.2 Habitats within the land were classified and the presence, or potential presence, of certain protected and / or notable species of flora and fauna were identified. This involved identifying features that may be used by protected species, potential foraging areas and other signs of use.

3.2.3 The results are summarised and accompanied in large part by photographic evidence contained in *Appendix A – Site Photographs*.

3.3 Preliminary Bat Roost Assessment

3.3.1 A Preliminary Bat Roost Assessment was undertaken on 19th February 2021 by Catherine O'Reilly (2016-20460-CLS-CLS). The surveyor undertook an internal and external assessment of all buildings and a ground-level assessment of trees within and adjacent to the proposed construction zone.

3.3.2 The bat surveyor assessed the existing buildings visually and searched for evidence such as:

- Grease Marks;
- Urine Stains;
- Bat Droppings;
- Feeding Remains;
- Dead or Live Bats.

3.3.3 Trees were visually identified from the ground, using binoculars where necessary, for features that could be used by bats such as:

- Woodpecker Holes;
- Knot Holes;
- Tear-outs;
- Flush Cuts;
- Double Leaders.

3.3.4 Once features had been assessed the trees were then categorised in accordance with *Table 4.1 of the Bat Conservation Trust's Good Survey Guidelines (2016)*:

Table No. 01 – Categorisation Criteria

Category	Buildings	Trees
`Negligible`	No suitable features identified.	No suitable features identified.
`Low`	A structure which could be used opportunistically, however, are not likely to be used on a regular basis / by a large number of bats.	Tree of sufficient size / age to support bat roost features; but with none identified from the ground.
`Moderate`	A building with features which, could be used regularly by a small number of bats.	Tree with features which, may support a bat roost of low conservation status.
`High`	A building with features suitable for use by a large number of bats on a regular basis.	A tree with several potential bat roost sites that are suitable for use by a large number of bats.
`Confirmed`	Signs of bats present such as dead or live bats or droppings.	Signs of bats present such as dead or live bats or droppings.

3.4 Badger Survey

3.4.1 The site was systematically searched on 19th February 2021 for any evidence of badger such as:

- Setts
- Latrines
- Snuffle Holes
- 'Push-unders' through boundary fencing
- Hair
- Prints
- Mammal tracks

3.4.2 All areas within the site, and within a 30m radius (*where access allowed*) were examined. Any evidence was then mapped to allow the status and distribution of badger activity to be assessed.

4.0 RESULTS

4.1 Desk Study – Designated Sites

4.1.1 The following designated sites are not necessarily representative of the existing site's ecology but are indicative of the ecological context of the surrounding area; a factor that may be important when assessing the presence / absence potential of certain species groups.

Statutory Protected Sites

4.1.2 The following potential zones of influence have been utilised when identifying designated sites in the local area: Local Nature Reserves and Sites of Special Scientific Interest within 2.0km of the site and European Designated sites including SAC's and SPA's within 10km of the site. Statutory protected areas in the vicinity of the site include:

Table No. 02 – Statutory Protected Sites

Site	Description	Location
Ebernoe Common SAC	Ebernoe Common has an extensive block of beech <i>Fagus sylvatica</i> high forest and former wood-pasture over dense holly <i>Ilex aquifolium</i> , and has a very rich epiphytic lichen flora, including <i>Agonimia octospora</i> and <i>Catillaria atropurpurea</i> . The site is of importance to Bechsteins and Barbastelle bats.	4.9km NE
Duncton to Bignor Escarpment SAC	<i>Asperulo-Fagetum</i> beech forests occur here on steep scarp slopes and on more gently-sloping hillsides in mosaic with ash <i>Fraxinus excelsior</i> woodland, scrub and grassland. Much of the beech woodland is high forest but with some old pollards. Rare plants present include the white helleborine <i>Cephalanthera damasonium</i> , yellow bird's nest <i>Monotropa hypopitys</i> and green hellebore <i>Helleborus viridis</i> .	6.5km SE
Cocking and Singleton Tunnels SAC	Singleton and Cocking Tunnels constitute the most important sites for hibernating bats in southeast England, in particular Barbastelle and Bechstein's bats. The site also supports the only know greater mouse eared bat in the UK.	7.6km SW

The Mens SAC	The Mens is an extensive area of mature beech <i>Fagus sylvatica</i> woodland rich in lichens, bryophytes, fungi and saproxylic invertebrates, and is one of the largest tracts of Atlantic acidophilous beech forests in the south-eastern part of the habitat's UK range. The site also supports important numbers of Barbastelle bats.	8.3km E
--------------	---	---------

- 4.1.3 The site is located within the *Impact Risk Zone* of *Ambersham Common SSSI* and *Ebernoe Common SSSI* whereby all planning applications (except householder) outside or extending outside existing settlements/urban areas affecting greenspace, farmland, semi natural habitats or landscape features such as trees, hedges, streams, rural buildings/structures will require the LPA to consult with Natural England regarding potential impacts.
- 4.1.4 The site is within the Key Conservation Area of Ebernoe Common SAC, and also within the Wider Conservation Area of The Mens SAC and Singleton and Cocking Tunnels SAC. Given the sites proximity to these protected areas as well as Petworth Park, which is recognised as an important area for Bechstein's bats, all impacts upon bats must be considered as part of the planning process.

Non-Statutory Protected Areas

- 4.1.5 *Sites of Nature Conservation Importance (SNCIs) / Local Wildlife Sites (LWS's)* are designations applied to the most important non-statutory nature conservation sites. They are recognised by the *National Planning Policy Framework (2019)* and as such are material considerations when assessing planning applications. The following SNCIs were identified within 2.0km of the site:

Table No. 03 – Non-Statutory Protected Sites

Site	Location
Pasture near Salmonsbridge Farm	1.9km NE

4.2 Habitats

4.2.1 Within 2.0 km of the site there are *Priority Habitats* of *Ancient Woodland*, *Deciduous Woodland*, *Floodplain* and *Coastal Grazing Marsh* and *Traditional Orchard*.

4.2.2 Habitats within and adjacent to the land include:

- Existing Building
- Hard / Bare Ground
- Amenity Grassland
- Tall Ruderal
- Scattered Trees
- Intact Species-poor Hedge
- Flowing Water

Existing Building

4.2.3 A single building is present within the site. The northern section of the building is of two-storey construction with slate mansard roof, while the southern section is single-storey with flat roof.

Hard / Bare Ground

4.2.4 2no. tarmac parking areas are situated to the north of the site, with access pathways also running around the building. A raised deck is present to the east of the single-storey section of building. This habitat is of negligible value.

Amenity Grassland

4.2.5 A small area of amenity grassland forms the southern end of the site. Species composition was typical of the habitat type with grasses including bent *Agrostis* sp. and rye-grass *Lolium perenne* dominating with abundant areas of creeping buttercup *Ranunculus repens*. Fleabane, sedges and willowherb are locally abundant, with mosses dominant in shaded areas. This habitat is of low value.

Tall Ruderal

- 4.2.6 A 1.8m closed board fence separates the amenity grassland from an area of sloping land which is dominated by tall ruderal; formed of common nettle *Urtica dioica* with large areas of Japanese knotweed *Fallopia japonica* present. This area is of low ecological value.
- 4.2.7 The banks of the adjacent watercourse are dominated by tall ruderal species including nettle, thistle *Cirsium sp.*, sedge *Carex sp.* and burdock *Arctium minus* with areas of speedwell *Veronica sp.*, snowdrops *Galanthus nivalis*, ground ivy *Glechoma hederacea* and primrose *Primula vulgaris* beneath. Areas of Japanese knotweed are also present. This area is of moderate ecological value as supporting habitat for the river corridor.

Scattered Trees

- 4.2.8 A large cypress is growing to the southern part of the site, with a cypress treeline forming part of the western site boundary. Scattered goat willow and alder trees grow along side the watercourse. These trees are of moderate ecological value.

Intact Species-Poor Hedge

- 4.2.9 A cherry laurel *Prunus laurocerasus* hedge bounds the eastern boundary of the amenity grassland and separates it from the river corridor. This short section of hedge is of low ecological value.

Flowing Water

- 4.2.10 A tributary of the River Rother flows north to south along the eastern boundary of the site. The watercourse was c. 3m wide at the time of the survey with a moderate / fast flow. The watercourse passes under a bridge to the north of the site, before entering a culvert which flows beneath the A272 to the south.

4.3 Protected Species Assessment

Amphibians

Desk Study

- 4.3.1 There are a small number of records of common toad, common frog and smooth newt within 2.0km of the site. No records of GCN are present in the local area.

Terrestrial Habitat Assessment

- 4.3.2 Tall ruderal on site provides small areas of optimal terrestrial habitat for amphibians, should they be present in the local area.

Pond Assessment

- 4.3.3 There are no ponds within 500.0m of the site. The watercourse which flows to the east of the site is too fast-flowing to offer a suitable breeding site for amphibians.

Overall Site Assessment

- 4.3.4 Given the lack of GCN records locally, large distance to suitable ponds, and the small size of suitable terrestrial habitat on site; the proposed construction zone is considered to be of negligible value to GCN and other amphibians.

Reptiles

Desk Study

- 4.3.5 There are low numbers of records of slow worm and common lizard within 2.0km of the site.

Site Assessment

- 4.3.6 The amenity grassland, buildings and bare ground which form the main body of the development site are of negligible value to reptiles. The tall ruderal vegetation to the southern section of the site may support low numbers of common reptiles such as slow worm; the value of the area is reduced however by its small size and shade cast by surrounding trees.

Bats

Desk Study

- 4.3.7 Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), Long-eared bat (*Plecotus* sp.), Noctule (*Nyctalus noctula*), Serotine (*Eptesicus serotinus*), Natterer's (*Myotis nattererii*) and Whiskered / Brandt's (*Myotis mystacinus / brandtii*) bats have been recorded within 2.0km of the site area.

Preliminary Roost Assessment - Buildings

- 4.3.8 An external assessment of the building on site found it to be in good condition with no gaps or holes noted to the brickwork, around lintels or windows. Soffit boxes to the northern section of the building were intact, with a small gap recorded between the fascia and wall along the eastern and south-western corner of the single-storey section of building. The mansard roof is in good condition with tightly fitting slates. Sections of lifted flashing were recorded, particularly around the existing southern dormer window. No direct evidence of bats such as droppings or urine marks were recorded during the external assessment.
- 4.3.9 An internal inspection found a small loft void which extended around all aspects of the two-storey section of the building. The loft void was well sealed with BRM and Celotex insulation. 2no. suspected pipistrelle sp. droppings were recorded within the southern section of the loft void. DNA analysis of these droppings has not been possible due to the very small number present. The roof fabric of this building supports a confirmed bat roost of pipistrelle sp. with potential for other species to also be present in small numbers.

Preliminary Roost Assessment - Trees

- 4.3.10 The majority of trees on site are semi-mature specimens which contained no discernible potential roost features. A summary of those trees which contain suitable features is shown below:

Table no. 04 – Trees with potential roost features

Ref.	Description	Category
T01	Alder with large old tear-out which has resulted in an upwards extending cavity at 2-4m height. Splits and cracks at pruning wounds also present.	High

T02	Semi-mature willow with bark damage and heartwood exposure.	Moderate
T03	Large willow with small bark cavities. No other discernible features could be identified from the ground.	Low

Foraging Suitability

- 4.3.11 The buildings, amenity grassland and hardstanding which dominate the site are of negligible value to foraging and commuting bats. The river corridor is of high value to bat species and should be retained and protected in any proposals for the site.

Dormouse

Desk Study

- 4.3.12 There are no records of dormice in the vicinity of the site, although they are highly likely to be present in suitable habitat.

Site Assessment

- 4.3.13 The wider landscape contains an abundance of ancient woodland and mature hedgerows which provide suitable habitat for dormice. The site however is isolated from these areas by roads and the river corridor. The coniferous treeline and laurel hedgerow which form western and south-eastern boundaries of the site are isolated from other areas of hedgerow and offer poor dormouse habitat. The site is therefore of negligible value to dormice.

Badger

Desk Study

- 4.3.14 Badger records are confidential and were therefore not included within the data search, however they are likely to be present in suitable habitat in the wider environment.

Site Assessment

- 4.3.15 No evidence of badger such as setts, tracks, snuffle holes or latrines were recorded on site. The site is of negligible value to badgers.

Water Vole / Otter*Desk Study*

- 4.3.16 No records of these species exist within 2.0km of the site, however they are known to be present on the River Rother.

Site Assessment

- 4.3.17 The river corridor was examined with no evidence of otter or water vole recorded at the time of the survey. The water course does however provide optimal habitat for both species and any works which impact the river corridor / banks will require further assessment.

Birds*Desk Study*

- 4.3.18 A total of 72no. bird species have been returned within 2.0km of the site, including 9no. species listed on the BoCC Red List.

Site Assessment

- 4.3.19 Optimal nesting habitat is limited to the river corridor and surrounding hedge / tree lines. No evidence of nesting was recorded within the building on site. The hard / bare ground and amenity grassland is of negligible value to nesting and foraging birds.

Invertebrates*Desk Study*

- 4.3.20 The data search returned records of numerous species of invertebrates within 2.0km of the site, including numerous species of dragonfly, damselfly, butterfly and beetle.

Site Assessment

- 4.3.21 Suitable habitat for invertebrates is limited to the trees, tall ruderal and river corridor which border the site. The proposed construction zone is dominated by buildings and hard / bare ground; habitats which are of negligible value to invertebrates.

Others

- 4.3.22 No suitable habitat for any other protected species was recorded on site.

4.4 Survey Constraints / Considerations

- 4.4.1 No major constraints which would cast doubt on these results were encountered, full access was available to all areas of the site. The survey was undertaken in February when many flowering plants may have been inconspicuous; however, this is an accepted constraint of PEA.

5.0 EVALUATION, CONSTRAINTS AND RECOMMENDATIONS

5.1 Protected Sites

- 5.1.1 The site is located within the 6.5km Key Conservation Area of Ebernoe Common SAC, whereby all potential impacts upon bats must be assessed as part of the planning process. The current proposals for conversion of the first floor of the existing buildings would have no impact upon bats in the local area. Any works involving demolition, additional lighting, removal of hedgerows or alteration of any habitat along the riparian corridor would require further assessment to allow the potential impacts to be avoided or mitigated.

5.2 Habitats

- 5.2.1 The main body of the site is dominated by grassland, buildings, and hard / bare ground; the plant species on site were common and widespread species with no rare or unusual species recorded. The habitats which are to be directly affected by the development proposals are of low ecological value.
- 5.2.2 The surrounding riparian corridor and associated trees have been identified as being of moderate / high value and should be retained and protected within the scheme proposals.

5.3 Invasive Species

- 5.3.1 2no. large areas and 2no. smaller stands of Japanese knotweed were recorded to the south and east of the site. This species is listed under Schedule 9 of The Wildlife and Countryside Act 1981 (as amended), which makes it illegal to cause this species to spread into the wild.

- 5.3.2 It is recommended that a specialist company is contacted to begin an eradication programme, to prevent its further spread and safeguard the building from any future damage.

5.4 Protected Species

Amphibians

- 5.4.1 The site has been assessed as being of negligible value to amphibians; no further survey work or mitigation measures with regards this species group is required. In the highly unlikely event that GCN are found on site during works, all works shall cease while a suitably qualified ecologist (SQE) is contacted for advice.

Reptiles

- 5.4.2 The small area of tall ruderal to the southern section of the site may support very low numbers of common reptiles such as slow worm. Any clearance of these areas should be undertaken in accordance with a Mitigation Method Statement to ensure no contravention of The Wildlife and Countryside Act 1981. Mitigation measures would include:

- Clearance of all vegetation and spoil / rubble / compost piles to be carried out during the reptile active season (March – October) to avoid disturbing any hibernating reptiles.
- Vegetation within the southern portion of the site is to be cut in stages, first to a height no lower than 150mm after which all arisings shall be removed and the area subject to a fingertip search by a SQE.
- Once the SQE is assured that no reptiles are present, the vegetation shall be cut to <5cm and maintained at this height prior to and during construction works on site.
- All compost, rubble, debris etc piles shall be carefully gone through by hand to ensure no reptiles are seeking shelter within these areas.
- Any reptiles found shall be safely released into the field margins of adjacent land to the east of the site.

Bats

- 5.4.3 All trees with bat roost suitability as detailed in table 06 above should be retained and protected within the scheme. Should removal, disturbance or extensive surgery works be absolutely necessary, these trees will require further survey work in the form of dusk emergence and dawn re-entry bat surveys completed during the optimal survey season of May to September (at least 50% of visits must be undertaken between May and August).
- 5.4.4 Building B1 contained a very small number of pipistrelle droppings, thought to have fallen through a small gap in the membrane rather than using the loft void itself. Any works to alter the roof fabric of the building, or any works which may block access points or disturb the roost (such as scaffolding at roof level) will require further bat surveys to ascertain how, and in what numbers, bats are utilising the current building.
- 5.4.5 The current conversion proposals will have a negligible impact upon surrounding bat foraging habitat or flight lines. Any additional works which may cause disturbance, removal or alteration of suitable bat foraging habitat (such as the river corridor, trees or hedging) will require further assessment in the form of bat activity surveys to assess the scale of any potential impacts and allow suitable mitigation to be formulated.
- 5.4.6 A sensitive lighting scheme must be employed with all light spill upon the river corridor and treelines avoided through the use of louvres and cowls. Lighting should be designed in accordance with ILP Guidance Note 08 – Bats and Artificial Lighting in the UK and should be timed to include periods of total darkness.

Dormice

- 5.4.7 The site has been assessed as being of negligible value to dormice; no further survey work or mitigation measures with regards this species is required. In the highly unlikely event that dormice are found on site during works, all works shall cease while a suitably qualified ecologist (SQE) is contacted for advice.

Badgers

- 5.4.8 The site has been assessed as being of negligible value to badgers; no further survey work or mitigation measures with regards this species is required. In the highly unlikely event that dormice be found on site during clearance or construction works, all works shall cease while a suitably qualified ecologist (SQE) is contacted for advice.

Otter / Water Vole

- 5.4.9 No evidence of these species was recorded on site. Any works should ensure protection of the river corridor and maintain vegetation at least 2m from the toe of the bank. Any works along the watercourse (other than Japanese knotweed removal) will require further otter / water vole surveys to allow potential impacts to be assessed. Surveys involve 2no. survey visits across the summer season (1no. visit April – June and 1no. visit July – September spaced at least 2 months apart).

Other Mammals

- 5.4.10 All wild mammals are protected against intentional crushing or asphyxiation under the Wild Mammals (Protection) Act 1996. Care should be taken when excavating around any rabbit holes etc to ensure no wild mammal is intentionally harmed.

Breeding Birds

- 5.4.11 Removal of suitable nesting habitat (*trees/dense scrub*) should be undertaken outside the nesting season (*avoiding March-August*) or following inspection by a suitably qualified ecologist to ensure no active nests are present.

Invertebrates

- 5.4.12 All mature native trees should be retained where possible. Loss of areas of more diverse habitat to the southern section of the site should be compensated through the utilisation of plants listed as RHS Plants for Pollinators within the soft landscape scheme.

Summary of Recommendations

5.4.13 A summary of recommendations is as follows:

- Retain all trees identified as offering Bat Roost Suitability with a suitable buffer to avoid disturbance, or survey where this is not possible;
- Complete bat emergence / re-entry surveys if any impacts upon the mansard roof or single-storey section of the building are proposed.
- Complete bat activity surveys should proposals require the removal of any suitable bat habitat
- Undertake otter / water vole surveys should any alteration of the watercourse or removal of any vegetation within 2 metres be proposed.
- Remove any areas of hedging, trees or scrub outside the bird nesting season (Nesting season: March – August inclusive) or following inspection to ensure no active nests are present.
- Clear vegetation to the southern section of the site in stages to ensure the protection of any reptiles which may be present.
- Employ a sensitive lighting scheme across the site with all light spill onto the river corridor and native trees avoided. Lighting should be designed in accordance with ILP Guidance Note 08 – Bats and Artificial Lighting in the UK.
- Engage a suitable contractor to ensure the treatment and removal of all Japanese knotweed on site in accordance with The Wildlife and Countryside Act 1981 (as amended).

6.0 ECOLOGICAL ENHANCEMENTS / OPPORTUNITIES

6.1 The design of the proposed development should consider ecological enhancements for the benefit of wildlife in line with the *National Planning Policy Framework* and *Local Planning Policy*. Recommendations for ecological enhancements that should be considered as part of development proposals include:

- The use of flowering plants as listed within the RHS 'Plants for Pollinators' plant list within the soft landscape scheme to provide year-round interest for invertebrates.
- The use of seed and fruit bearing species such as cherry, rowan, birch and crab apple within the scheme to provide a foraging resource for birds and invertebrates.
- Plant new species-rich hedging to the western and southern boundaries of the site. Species should include hazel, blackthorn, crab apple, dogwood, oak, spindle, and guelder rose.
- Overseeding the existing area of tall ruderal along the river corridor with a suitable wildflower mix.
- The use of log piles to the eastern and southern sections of the site to provide refugia for reptiles and amphibians.
- Bat boxes suitable for a range of species to be incorporated into the southern aspect of mature trees.
- The provision of nesting boxes for a variety of bird species within trees / the northern aspects of the buildings.
- Installation of invertebrate boxes to a south-facing wall, tree or fence to provide habitat for solitary bees.
- The use of flowering lawn in areas which require regular mowing rather than a standard amenity mix.
- New closed board fencing should incorporate 'hedgehog friendly' gravel boards which include a 13x13cm gap to allow movement of hedgehogs between the site and the wider environment.

7.0 CONCLUSIONS

- 7.1 No evidence was recorded on site which would suggest that the current development proposals are likely to have a major adverse effect upon biodiversity. The main body of the site is formed of hard / bare ground and building with limited species diversity; this habitat is of limited ecological value.
- 7.2 Should development proposals change, further survey work with regards bats and water vole / otter may be required, however the results are unlikely to be of any major constraint to development of the site. With appropriate mitigation, any proposed future development could have a negligible impact upon biodiversity in the local area while the proposed enhancements above may result in biodiversity gains in accordance with national and local planning policy.

8.0 REFERENCES

JNCC: Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit; (2003);

Collins J (ed): Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed.) The Bat Conservation Trust (2016);

Mitchell-Jones and McLeish: Bat Workers Manual; JNCC, 3rd Edition (2004);

Streeter, D.: The Most Complete Guide to the Flowers of Britain and Ireland; Harper Collins, London (2010);

www.magic.gov.uk.

Table No. 05 – Species List for Habitat Parcels

Amenity Grassland

Common Name	Scientific Name	DAFOR
Broadleaf Plantain	<i>Plantago major</i>	R
Broadleaf Willowherb	<i>Epilobium montanum</i>	LA
Cats-ear	<i>Hypochaeris radicata</i>	R
Chickweed	<i>Stellaria media</i>	LO
Cocks-foot	<i>Dactylis glomerata</i>	LD
Common Nettle	<i>Urtica dioica</i>	O
Creeping Buttercup	<i>Ranunculus repens</i>	LD
Curly Dock	<i>Rumex crispus</i>	O
Dandelion	<i>Taraxacum officinale agg.</i>	O
Fescue	<i>Festuca sp.</i>	LD
Fleabane	<i>Pulicaria dysenterica</i>	LA
Mosses	<i>Mosses sp.</i>	LD
Perennial Ryegrass	<i>Lolium perenne</i>	LD
Ragwort	<i>Jacobaea vulgaris</i>	R
Sedge	<i>Carex sp.</i>	O
Smooth Sowthistle	<i>Sonchus oleraceus</i>	R
Thistle	<i>Cirsium sp.</i>	O
Wood avens	<i>Geum urbanum</i>	O

Tall Ruderal

Common Name	Scientific Name	DAFOR
Bramble	<i>Rubus fruticosus agg.</i>	O
Broadleaf Willowherb	<i>Epilobium montanum</i>	O
Burdock	<i>Arctium minus</i>	R
Cleavers	<i>Galium aparine</i>	LA
Comfrey	<i>Symphytum officinale</i>	R
Common Nettle	<i>Urtica dioica</i>	LD
Cow Parsley	<i>Anthriscus sylvestris</i>	R
Creeping Thistle	<i>Cirsium arvense</i>	O
Ground Ivy	<i>Glechoma hederacea</i>	LF
Harts-tongue Fern	<i>Asplenium scolopendrium</i>	LF
Hemlock Water Dropwort	<i>Oenanthe crocata</i>	LA
Hogweed	<i>Heracleum sphondylium</i>	O
Japanese Knotweed	<i>Fallopia japonica</i>	LD
Liverwort	<i>Marchantiophyta sp.</i>	LA
Male Fern	<i>Dryopteris filix-mas</i>	LF
Primrose	<i>Primula vulgaris</i>	O
Sedge	<i>Carex sp.</i>	O
Snowdrops	<i>Galanthus sp.</i>	LA
Speedwell sp.	<i>Veronica sp.</i>	O

Scattered Trees

Common Name	Scientific Name	DAFOR
Alder	<i>Alnus glutinosa</i>	LD
Cypress	<i>Cupressus sp.</i>	LD
Goat Willow	<i>Salix caprea</i>	LA

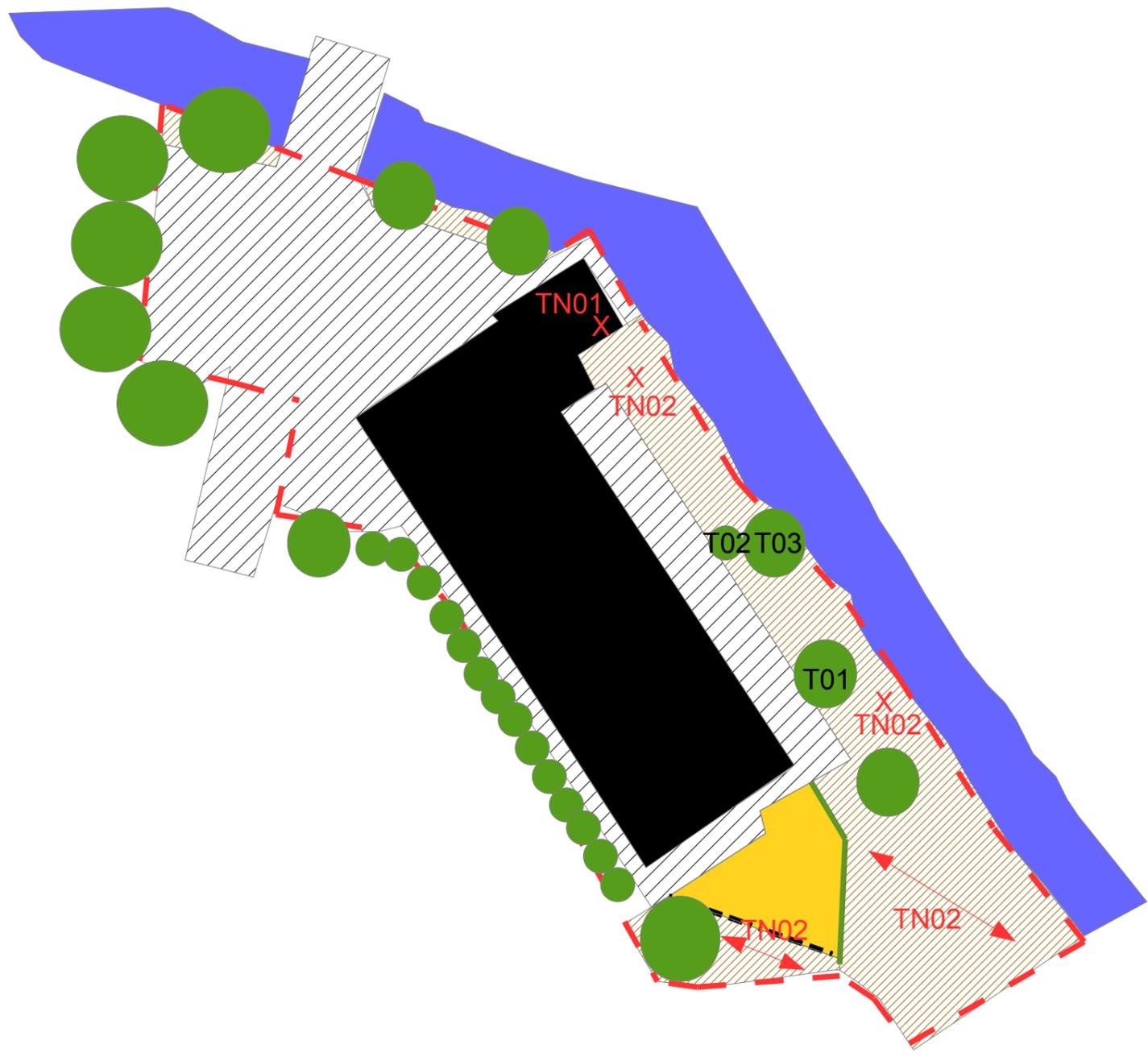
Species-poor Hedge

Common Name	Scientific Name	DAFOR
Cherry Laurel	<i>Prunus laurocerasus</i>	D

D – Dominant; A – Abundant; F – Frequent; O – Occasional; R – Rare; L – Locally

Table No. 06 – Target Notes

Target Note	Description
TN01	Location of 2no. of bat droppings (suspected pipistrelle sp.).
TN02	Japanese Knotweed locations.



- Key:**
- = Amenity Grass
 - = Hard Ground
 - = Tall Ruderal
 - = Scattered Trees
 - = Building
 - = Flowing Water
 - = Intact Hedge
 - = Fence
 - TN01 = Target Notes
 - = Survey Area
 - T01 = Trees with bat roost suitability



10m

**Figure No. 01 – Site Habitat Plan
Watermill, Halfway Bridge**



Appendix A – Site Photographs



Image 01 – View across the northern section of the site.



Image 02 – Amenity grassland, cypress treeline and single-storey section of the building found within the southern section of the site.



Image 03 – View along the eastern site boundary, showing tall ruderal, scattered trees and river corridor.



Image 04 – Loft void within the mansard roof of building B1.



Image 05 – Example of raised flashing which could provide roosting space for crevice dwelling species of bat.



Image 06 – Tree T01 (left) and T02 (right), both of which contain potential bat roosting features.



Image 07 – Areas of suspected Japanese knotweed identified on site.