

Habitat	Evaluation	Rationale
Tall ruderal	Site	Small area of common and widespread species. Value mainly lies in potential to support protected and notable species, including amphibians and reptiles.
Amenity grassland	Site	Mostly common and widespread species.
Wet and dry ditch	Site	Relatively short length with little water or vegetation.
Running water	Site	Short sections of branch of river with largely hard engineered banks and no in-channel vegetation.
Buildings	Site/Local	Value lies largely in potential to support protected and notable species, including roosting bats and nesting birds. Evaluation to be confirmed and is dependent on the importance
Bare ground	Negligible	Supports little of ecological value.

Priority habitats

4.3.2 Priority habitats present within the survey area or at its boundaries include:

- ▶ Lowland Mixed Deciduous Woodland
- ▶ Wet Woodland

4.3.3 There are very small areas of both woodland types. Species poor Lowland Mixed Deciduous Woodland is present where neither the canopy or shrub layers are dominated by non-native species. Most of the woodland Priority Habitat will be retained as part of the development, although there may be impacts on the area of Wet Woodland arising from the construction of a pond on the site of the historic pond at TN1. Given the very small size of the Wet Woodland (c.250m²) these impacts are not expected to be significant.

Other habitats

4.3.4 The proposed development would result in permanent losses of c.200m² of scattered scrub, tall ruderal and dense ivy, depending on the extent and layout of the final development proposals. These areas are of relatively low ecological value and of importance at the site level only but provide habitats suitable for a number of protected species (e.g. nesting birds, [REDACTED] and reptiles).

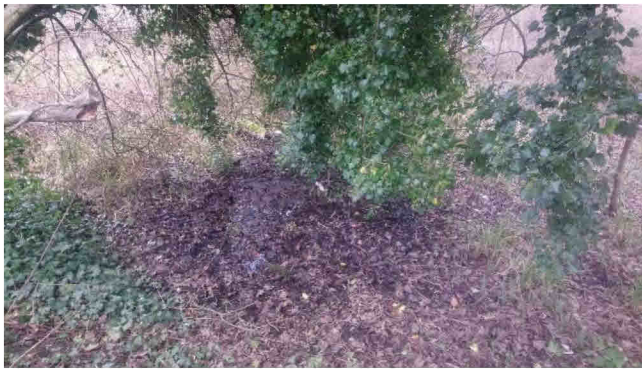
4.4 Species

Amphibians (excluding great crested newt)

4.4.1 TVERC returned 41 records of widespread amphibian species, common frog, common toad and smooth newt. The woodland, scrub, tall ruderal, dense ivy and ditch provide suitable terrestrial and aquatic habitats for amphibians, but most of these will be retained and habitats of similar suitability are widely available in the surrounding area. Common amphibians are not considered to present a constraint to the development proposals.

Great crested newt

- 4.4.2 TVERC returned three records of great crested newt (GCN) *Triturus cristatus* from within the desk-study search zone, from 2003 and 2017. Two of the records were from the other side of the River Thames/Isis and the third was from c.530m to the south.
- 4.4.3 Woodland, scrub, tall ruderal and dense ivy represent suitable terrestrial habitats for GCN. Log, brash and rubble piles provide additional shelter and hibernation habitats.
- 4.4.4 A pond map is provided at Appendix III. One pond (P1) is identified on OS maps within the survey area. However, although this appears likely to have been a pond historically, based on the survey, which was carried out at a time of year when one would normally expect water levels to be near their height, it now appears likely that it holds only a very little water, very ephemerally. The Hogacre Ditch (P2) held a little more water at the time of the survey but also appears likely to do so only ephemerally. Both P1 and P2 are considered likely to be of only poor or below average suitability for breeding GCN.



P1

- 4.4.5 Inspection of OS maps and aerial images identified that one further pond (P3) is present within 500m of the site. This is located c.490m to the south, close to the GCN record returned by TVERC. Suitable terrestrial habitat is present close to this pond and the pond is separated from the survey area by a large block of residential development and the Abingdon Road/A4144. Research undertaken by Natural England (Cresswell & Whitworth, 2004) suggests GCN will rarely move further than 200-250m from a breeding pond, with much reduced distances recorded where adjacent habitats are of good quality. Jehle (2000) also determined a terrestrial zone of 63m, within which 95% of summer GCN refuges were located. In addition, following the breeding season, Jehle and Arntzen (2000) recorded 64% of newts within 20m of the pond edge.
- 4.4.6 In conclusion, although suitable terrestrial habitat is present within the survey area, due to the poor quality of the aquatic habitats also present within the survey area, and the distance to the nearest alternative pond, the probability of GCN using the survey area is considered to be very low and no further surveys for this species are required.

Birds (nesting)

- 4.4.7 TVERC returned over one thousand records of more than 50 notable bird species from within the desk-study search zone. The survey area's woodland, trees and scrub are suitable for nesting birds such as wren *Troglodytes troglodytes*, dunnock *Prunella modularis* (an Amber-listed bird of

conservation concern (BoCC5); Stanbury *et al.*, 2021), robin *Erithacus rubecula* and chaffinch *Fringilla coelebs*, while the buildings provide some limited suitability for species such as house sparrow *Passer domesticus* (BoCC5 Red-listed). Precautionary measures for nesting birds are recommended at section 5.3.

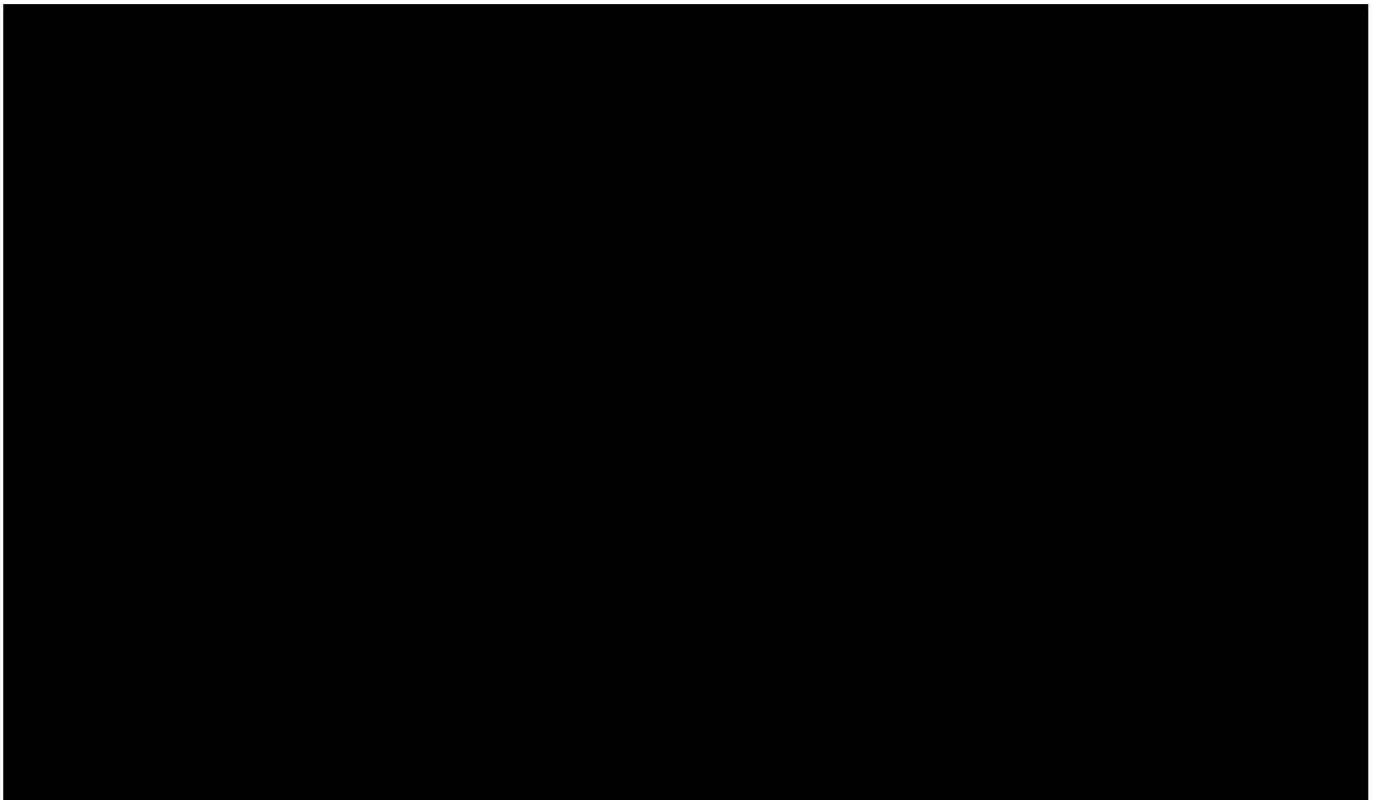
Fish

- 4.4.8 TVERC returned two records of two notable fish species. The branch of the Thames/Isis that flows through the survey area provides suitable habitat for fish species. However, it is understood that this will not be directly affected by the proposed development and no further surveys are required.

Invertebrates

- 4.4.9 TVERC returned 44 records of more than 25 species of protected invertebrate from within the desk-study search zone, principally of Lepidoptera (moths).
- 4.4.10 The mosaic of habitats in the survey area, including woodland, scrub and tall ruderalis likely to be of moderate value for a range of mostly common and widespread invertebrates. Any deadwood within the woodland on site also provides potential habitat for saproxylic species such as stag beetle *Lucanus cervus*. Most of these habitats will be retained and invertebrates are not considered to present a constraint to the development proposals and no further surveys for this group are required.

Mammals (terrestrial)

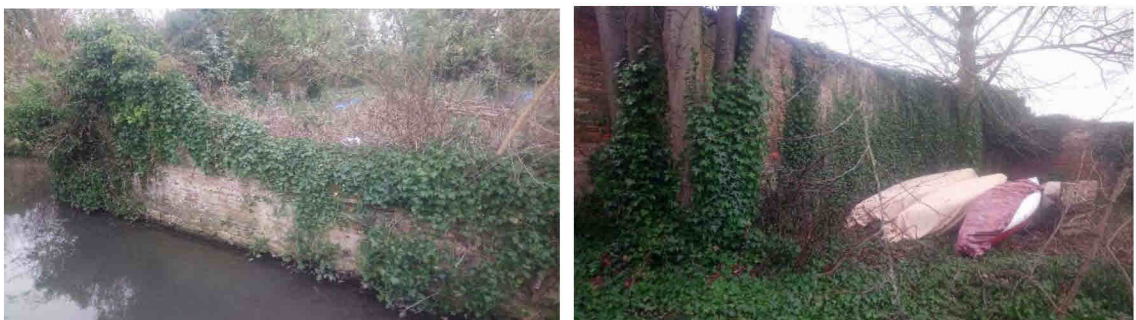


Bats

- 4.4.13 TVERC returned 304 records of 12 species of bat from within 2km of the survey area, during a date range of 1983 to 2017, including Alcatthoe *Myotis alcathoe*, serotine *Eptesicus serotinus*, Daubenton's *Myotis daubentonii*, whiskered *M. mystacinus*, Natterer's *M. nattereri*, Leisler's *Nyctalus leisleri*, noctule *N. noctula*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P. pygmaeus*, Nathusius's Pipistrelle *Pipistrellus nathusii*, brown long-eared *Plecotus auratus*, lesser horseshoe *Rhinolophus hipposideros* and Western Barbastelle *Barbastella barbastellus* bats. Most were records of bats in flight but they also included one roost site.
- 4.4.14 The Preliminary Roost Assessment provisionally concluded that buildings B1, B2, and B4 B3 were of low suitability and that building B4 was of high suitability for roosting bats based on an external inspection only, and their possible use by roosting bats cannot be ruled out. Indeed, it was reported that building B5 is used as a roost by bats.
- 4.4.15 In addition, there were other structures within the survey area that have some potential to be used by roosting bats. A culvert that carries the branch of the Thames/Isis under the Abingdon Road (TN9) is reported to be used by roosting bats. Walls carrying dense ivy, or with cracks and gaps in the brickwork, were also present nearby, beside the branch of the Thames/Isis and on the boundary with Abingdon Road. Another culvert is present under Grandpont House/B5. Significant alteration or demolition of these buildings and structures could result in destruction of a bat roost or present a risk of killing, injury or disturbance if bats are present during the works. Further surveys for bats roosting in buildings and structures are recommended at section 5.2.



Culvert under Abingdon Rd reported used by roosting bats & adjoining walls with dense ivy/holes



Ivy clad walls beside branch of Thames/Isis and on boundary wall beside Abingdon Road

- 4.4.16 Two trees, T5 and T9, contained potential roost features and were assessed as of moderate suitability for roosting bats. Felling or arboricultural works to these trees, if required to facilitate the proposals, could result in destruction of a bat roost or present a risk of killing, injury or disturbance if bats are present during the works. Further surveys for bats roosting in moderate suitability trees are recommended at section 5.2.
- 4.4.17 Nine trees were assessed as of low suitability for roosting bats; T1, T2, T3, T4 T6, T7, T8, T10 and T11. Felling or arboricultural works to these trees, if required to facilitate the proposals, could result in destruction of a bat roost or present a risk of killing, injury or disturbance if bats are present during the works. Low suitability trees are not required to undergo further surveys, instead tree works should be undertaken in accordance with a Non-Licensed Method Statement to reduce the risk of killing/injury to bats, as recommended at section 5.3.
- 4.4.18 The mosaic of woodland, trees, scrub, tall ruderal and aquatic habitats is assessed as of moderate suitability for foraging/commuting bats. The majority of these habitats will be retained as part of the proposals. However, it is possible that at least some of the retained habitats will experience an increase in artificial lighting following development, which may render them less suitable for foraging/commuting in future. Further bat activity surveys are not required but ecological protection measures in relation to the control of artificial light are recommended at section 5.4.

Hazel dormouse

- 4.4.19 TVERC returned no records of hazel dormouse *Muscardinus avellanarius* within the desk study search area.
- 4.4.20 The woodland and scrub habitats within the survey area represent poor quality habitat for hazel dormouse, due to their structure, the scarcity of suitable food species and lack of connectivity with off-site woodland or hedgerow. The lack of records and the location of the survey area within the urban area means that it is considered very unlikely that hazel dormouse is present within the survey area and no further surveys for this species are required.

Water vole and otter

- 4.4.21 TVERC returned 18 records of otter *Lutra lutra* (2017-19) and two records of European water vole *Arvicola amphibius* (2003 and 2010) from within the desk study search area.
- 4.4.22 There is some potential for otter to use the branch of the Thames/Isis that flows through the survey area for foraging and commuting. However, the mostly hard engineered nature of the banks and the relatively high level of disturbance means that the probability of holts being present is considered to be very low.
- 4.4.23 The mostly hard engineered nature of the banks of the branch of the Thames/Isis that flows through the survey area, as well as the lack of suitable vegetation for cover and food means that it is of poor suitability for water vole. The probability of water vole being present is therefore considered to be low.
- 4.4.24 Neither species is therefore considered to present a constraint to development proposals and further surveys are not required.

Plants, native

- 4.4.25 TVERC returned records of four protected or notable plant species from within the desk-study search zone.
- 4.4.26 No rare or protected species of flora were recorded within the survey area and, based on the habitat types present, it is considered unlikely that these are present. Plant species are not considered to present a constraint to the development proposals and no further surveys for this group are required.

Plants – invasive non-native species and injurious weeds

- 4.4.27 No invasive plant species (i.e. species listed on Schedule 9 of the Wildlife and Countryside Act) were located during this survey. No significant stands of injurious weed species were noted (ragwort *Senecio jacobea*, spear thistle *Cirsium vulgare*, creeping thistle *Cirsium arvense*, curled dock *Rumex crispus*, and broad-leaved dock *Rumex obtusifolius*). Invasive plant species and injurious weeds are not considered to present a constraint to the development proposals and no further action for this group is required.

Reptiles (terrestrial)

- 4.4.28 TVERC returned 16 records of one terrestrial reptile species, grass snake *Natrix natrix*. Records were from several sites to the east, on the other side of the Thames/Isis, but also from Grandpont Nature Park c.600m to the west.
- 4.4.29 The survey area contains some suitable habitat for reptiles, for example in the west of the survey area where there is a mosaic of dense ivy, scattered scrub and tall ruderal, with log, brash and rubble piles (at and close to TN2) which would be removed to make way for the proposed new accommodation building and new pond (at or close to TN1). The footprint of proposals around TN2 is approximately 350m². There is also suitable habitat in the open areas within and adjacent to the woodland in the south east of the survey area, although it is currently understood that these are expected to be retained.
- 4.4.30 Works in and around TN2 should be undertaken in accordance with a Precautionary Working Method Statement to reduce the risk of killing/injury to reptiles, as recommended at section 5.3.

Other protected, rare or notable species

- 4.4.31 TVERC returned 12 records of hedgehog *Erinaceus europaeus* from within the desk-study search zone. The survey area contains habitats suitable for this species, including woodland, scrub, tall ruderal and grassland. Hedgehog is listed as a species of principal importance under the NERC Act 2006 and is undergoing a significant population decline. Measures should be taken to continue accommodating this species on the site post-development (see section 5.4).

5 Recommendations

5.1 Introduction

5.1.1 With regard to the objectives of this Preliminary Ecological Appraisal, recommendations are made below for further protected species survey where necessary. Preliminary recommendations are also made for the protection of important ecological features, and/or to avoid or mitigate ecological impacts, and to enhance the ecology of the site post-construction. It is intended that these recommendations should be considered during future changes to the design of development proposals so that protection of important ecological features is secured and opportunities for ecological enhancement are realised. The recommendations should be reviewed following the completion of further ecological surveys.

5.2 Protected Species Surveys

5.2.1 The following species / groups (Table 5.1) will require additional surveys prior to refining development designs and formulating a suitable avoidance and mitigation strategy (if required).

Table 5.1: Recommendations for further ecological surveys

#	Recommendations for further ecological survey
R2	Presence / absence surveys for roosting bats within buildings B1, B2, B3, B4 and B5 and other suitable structures, if they are affected by proposals for the site, undertaken between May and August.
R3	Presence / absence surveys for roosting bats within trees T5 and T9 if they are affected by proposals for the site, undertaken between May and August.

Roosting bats

5.2.3 If the proposed development will require the demolition or alteration of buildings B1, B2, B3, B4 or B5 or of other structures suitable for roosting bats, or the felling or arboricultural works to trees T5 or T9, these works could result in destruction of a bat roost or killing, injury or disturbance to roosting bats. Further surveys are recommended to determine their presence or likely absence with these features. The surveys should follow current guidelines (Collins, 2016), comprising dusk emergence and/or dawn re-entry surveys, and can be carried out between May and September (May to August is the optimal period). Surveys should begin at least quarter of an hour before dusk and continue for up to 2 hours after sunset, or begin 1.5 to 2 hours before dawn and continue until at least 15mins after sunrise. The level of survey effort required is dependent on each feature's suitability for roosting bats, as follows:

- ▶ Confirmed roost / High suitability: At least three surveys visits in total, including at least one dusk emergence and at least one separate dawn re-entry survey;
- ▶ Moderate suitability: At least one dusk emergence and a separate dawn re-entry survey;
- ▶ Low suitability: At least one dusk emergence or dawn re-entry survey.

5.3 Precautionary Measures

5.3.1 The following species/groups (Table 5.2) require specific precautionary measures to be adhered to prior to and during construction to ensure that an offence under the relevant legislation is avoided. These measures may need to be added to or amended following completion of the protected species surveys described above.

Table 5.2: Recommended precautionary measures

#	Recommended precautionary measures
R4	<p>Removal of nesting bird habitats (including vegetation and buildings) will be undertaken outside of the bird nesting season, which runs from 1 March to 31 August. It will therefore be carried out between September and February, but should be planned and implemented in accordance with the findings of the further ecological surveys recommended above, as other protected species may still be present outside of the bird breeding season.</p> <p>Any construction works undertaken within the bird breeding season where suitable bird breeding habitat exists will require a site check for nesting birds by a suitably qualified ecologist. This will take place no more than two days prior to works commencing. This is to ensure that no disturbance to active bird nests occurs. If a nest is found it must be cordoned off and works adjacent to the nest must be delayed until such time that the chicks have fledged from the nest. This will be supervised by a suitably qualified ecologist.</p>

# Recommended precautionary measures	
R6	If works to fell or lop the low suitability trees at T1-T4, T6-T8 and T10-T11 are required, they will be undertaken in accordance with a Non-Licensed Method Statement to reduce the risk of killing/injury to roosting bats. The Method Statement will specify reasonable avoidance measures including timing restrictions (works to be carried out during March-April or September-October to avoid critical maternity and hibernation periods), 'soft felling' techniques to enable bats to disperse, and will be carried out under the supervision of a suitably qualified ecologist.
R7	Vegetation clearance works in the areas of ivy, tall ruderal and wetland vegetation and scattered scrub, log/brush/rubble piles (TN1 & 2) in the west of the survey area will be undertaken in accordance with a Precautionary Working Method Statement to reduce the risk of killing/injury to reptiles. The Method Statement will specify reasonable avoidance measures including timing restrictions (works to be carried out during the reptile active season, broadly March/April to September/October), progressive reduction of vegetation height to displace any reptiles present, and will be carried out under the supervision of a suitably qualified ecologist. Once vegetation removal is complete, the site will be maintained in unsuitable condition to prevent recolonisation.

5.4 Ecological Protection Measures

5.4.1 The following protection measures (Table 5.3) will be carried out as part of the proposed scheme, alongside any specific measures that are recommended following the protected species surveys described above.

Table 5.3: Recommended ecological protection measures

# Recommended ecological protection measures	
R8	Areas of woodland habitat within the survey area are of high intrinsic ecological value and provide habitats suitable for a range of protected species, including amphibians, nesting birds, invertebrates, badger, bats and reptiles. The majority of this habitat will be retained and protected during construction, and will also provide a focus for ecological enhancement measures (see below).
R9	British Standard BS 5837:2012 and/or National Joint Utilities Group Guidelines (NJUG, 1995) will be followed at all times during construction when working in close proximity to trees or shrubs which are to be retained. According to NJUG Guidelines the root protection zone or precautionary area is 4x the circumference of the trunk (circumference is measured around the trunk at a height of 1.5m above ground level). The distance is measured from the centre of the trunk to the nearest part of any excavation or other work. If a separate tree survey is carried out

#	Recommended ecological protection measures
	for the proposed development, works will be undertaken in accordance with the recommendations therein.
R10	Standard site procedures, as recommended by NetRegs GPP5 (<i>Works and Maintenance in or Near Water</i> ; 2017), will be required to ensure that no contaminants or effluent are released into nearby aquatic environments.
R11	The use of external lighting will be avoided or minimised to prevent impacts to nocturnal species such as bats. Lighting will not be directed towards retained trees and woodland The use of external lighting will be avoided or reduced to the minimum required for its intended purpose, during both construction and operation. This will be of benefit to nocturnal species e.g. bats. Where external lighting is to be provided, it will be low-level, directional lighting with minimal spill and glare, and consideration will be given to reduced hours of operation and/or a movement responsive system of control. Use narrow-spectrum bulbs and light sources that emit minimal UV light, avoiding white and blue wavelengths of the spectrum. Use glass lantern covers instead of plastic to filter UV light. Lighting will not be directed towards retained trees, woodland or potential bat roost features.
R12	To enable continued dispersal of hedgehogs (which require large territory sizes) and other small mammals across the site and within the local area following development, small access gaps to measure c.13x13cm are recommended to be provisioned at the base of any new fence boundaries. These will allow easy passage for small mammals to continue foraging in the area while still being small enough to contain pets.
R13	All excavations left overnight will either be covered over, or provided with a ramp to enable easy escape of [REDACTED] hedgehogs, small mammals, amphibians and other fauna, and inspected each morning prior to recommencement. Open pipework greater than 150mm outside diameter will be blanked off at the end of each working day.
R14	Where fox dens or rabbit warrens are to be damaged or destroyed as part of the proposed works, this will be undertaken in accordance with the Mammals Act 1996 by a registered pest control company.

5.5 Recommendations for Ecological Enhancement

5.5.1 The following ecological enhancements (Table 5.4) should be considered for the site, but should be reviewed and specified further following the completion of recommended protected species surveys.

Table 5.4: Preliminary recommendations for ecological enhancement

#	Preliminary recommendations for ecological enhancement
R15	The woodland to be retained around the boundary of the site outside of the developable area will be enhanced through a more active management regime. Coppicing of smaller trees and shrubs and the opening up of small rides and glades will provide increased light penetration, which will benefit the ground flora invertebrates. Reduction in extent of stands of single species non-native shrubs such as snowberry and the planting of appropriate native shrubs will help to further enhance the condition of the woodland.