

Ecological Appraisal

Report for:

***Hampshire County Council –
Property Services***

**Richfield Avenue, Reading, RG1
8JS**

*New 6FE Secondary School and associated
external facilities*

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**Draft not suitable for planning until
approved by project manager**

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SUMMARY

This report constitutes an assessment of the potential impacts arising from the proposal and site set out below and provides recommendations to ensure that this proposal can reasonably avoid or mitigate such effects identified. If the proposal differs from that set out below, then this assessment and recommendations may not be applicable. Furthermore, the assessment and recommendations are based on surveys which may only be considered valid for up to two years following the date of this report.

- An Extended Phase 1 Ecological Survey was undertaken on 16 April 2018 at Richfield Avenue, Reading, RG1 8JS. The proposals for the site comprise the development of a new 6FE school and associated external facilities.
- The Extended Phase 1 Ecological Survey comprised a desk-based study and field survey to assess the potential for the site to support protected habitats and species.
- Habitats to be impacted by the proposed works are amenity grassland, defunct native hedge, bare ground, hardstanding, intact species poor hedge, running water, earth bank and tall ruderal. The site is considered to be of low ecological value overall.
- As a precautionary measure, during construction, all excavations should be covered overnight or fitted with ramps to prevent individual badgers becoming trapped.
- No development works will take place in the hours of darkness and under artificial lighting. Lighting installed within the development should avoid spillage of greater than 1 lux onto any adjacent vegetation. The use of non-UV LED lighting (preferably using warm spectrum wavelengths) is strongly recommended so as to avoid the most deleterious impacts of lighting on biodiversity.
- Clearance of scrub and woody vegetation should be undertaken outside of the bird nesting season, (March to the end of August). If there is no alternative to doing the work during this period, then a pre-works survey should be undertaken
- Pollution prevention should be put in place to avoid material entering the watercourse via a Construction Environment Management Plan (CEMP).
- A precautionary approach to the clearance of scrub must be undertaken to minimise the risk of killing or injuring common amphibians and reptiles should they be present.
- Recommendations for ecological enhancements include the use of native plant species.

1 INTRODUCTION

1.1 Project Description

Hampshire County Council Ecology Team (HCCET) has been commissioned to carry out an Extended Phase 1 Ecological Survey at Richfield Avenue, Reading, RG1 8JS to support a planning application with Reading Borough Council for a new school.

1.1.1 Proposal

The Education and Skills Funding Agency (ESFA) proposes demolition of the existing buildings and hardstanding at the site and construction a new 6FE Secondary School and associated facilities.

1.1.2 Requirement for Ecological Survey/Assessment

Consultation with HCCET has identified the potential for the development to have a reasonable likelihood of affecting legally-protected species and therefore it is considered necessary to carry out ecological survey and assessment work to support the forthcoming planning application.

1.1.3 Limitations to Report

There were no access or weather constraints during the survey.

1.2 Site Description

The proposed site is centred of grid reference SU 7040 7454. It is located off Richfield Avenue in the town of Reading, to the west of the main town centre and close to the River Thames that flows west-east through Reading. The site can be viewed as two distinct areas.

The majority of the site (the northern portion) comprises a grass field previously used as a driving range and laser clay pigeon range. This is bounded by lines of scrub/hedges to the north, east and west. A small stream flows along the southern and western boundaries of the old driving range section. The southern part of the driving range field has a range of small buildings / structures and hardstanding used by the previous ranges.

To the south of this grass field is a roughly triangular parcel of land bounded to the south by Richfield Avenue. This area comprises a patchwork of hardstanding and taller vegetation / scrub, and a small garden centre.

There is extensive light industrial and commercial type development to the south and some distance to the east, while open pasture lies to the west. There is a large public park and leisure centre to the immediate east and north of the site, while the River Thames lies approximately 125m to the north.

Figure 1 shows an aerial view of the proposal site.



Figure 1 Aerial view of site and surrounding area (from Google.co.uk/maps)

2 METHODS

2.1 Desk-based Assessment

A desk-based assessment was carried out by HCCET on 07 June 2018. records of protected species and habitats within a 1000 metre (m) radius of the site were obtained from the Thames Valley Environmental Records Centre (TVERC). Given the localised nature of the proposals this search radius was considered sufficient for assessing risk to all ecological features. In addition, records were obtained of all statutory and non-statutory designated nature conservation sites within the search area.

2.2 Phase 1 Field-based Assessment

An Extended Phase 1 Ecological Survey was carried out on 16 April 2018. The survey entailed a single surveyor undertaking a methodical investigation of all areas of the site in order to identify the presence of, or habitat considered suitable for supporting, legally-protected species. The survey was carried out by Frances Morris of HCCET, an experienced ecologist.

A brief description of the survey methods used is provided below.

2.2.1 *Vegetation*

All broad habitat types were identified, and a list was compiled of characteristic plant species within each habitat type. Where necessary, habitat types of particular botanical interest were subject to more detailed survey using methods developed for the National Vegetation Classification (NVC) (Rodwell, 1992).

2.2.2 *Badger*

All areas of the site were inspected for field signs of badger activity. This includes badger setts, latrine sites, dung piles, well-used trails, prints and hairs.

2.2.3 *Bats – Built Structures*

Built structures within the site were, where necessary, subject to detailed internal and external investigation to identify evidence of bat activity. Where accessible, all internal voids and similar spaces were inspected for evidence of bat presence such as live bats, corpses, droppings, feeding remains and urine- and fur-staining. Where necessary, samples of bat droppings were collected for analysis.

All external areas of each building were inspected visually to identify potential bat access, egress and roosting features. Such features include: missing, slipped, broken or bowed roof materials; gaps within soffits; gaps behind fascias; gaps/holes within brickwork; louvers; lifted lead flashing and gaps around window and door casements. Features were inspected using binoculars and, where possible, a ladder in order to locate unambiguous field signs such as droppings or urine/fur-staining. Surveyors were equipped with a high-

powered torch and a video endoscope. Survey methods used were those described within Collins (2016).

Each surveyed built structure has been assessed for its potential to support roosting bats based upon the presence of direct evidence or the presence of features suitable access, egress or roosting features. Each structure has been graded using the criteria detailed in **Table 1**.

Table 1 Bat Roost Building Grading Criteria

Grading Criteria	Reason
Confirmed Bat Roost	Presence of unambiguous evidence: live bats, corpses, droppings, feeding remains, urine- and fur-staining. Bats heard within roost. Known roost based on desk-based assessment.
High Suitability	Structure exhibits numerous or high-quality features for roosting bats. Examples may include older/historic buildings with traditional roof materials, roof voids etc. Potential often higher when structure is in a non-urban setting.
Moderate Suitability	Structure exhibits moderate number or moderate-quality features for roosting bats. Examples may include structures of more-modern construction exhibiting gaps within roof materials.
Low Suitability	Structure exhibits low number or low-quality features for roosting bats. Examples may include otherwise-suitable structures exhibiting a very small number of potential features.
Negligible Suitability	Structure exhibits no features for roosting bats. Examples may include modern structures in sound condition exhibiting no suitable features. Such structures are often within an urban setting.

2.2.4 *Bats – Trees*

All trees within the site likely to be impacted were subject to detailed visual inspection from ground level in order to identify features which may offer suitable roosting opportunities for bats. These features include: dense ivy cladding; woodpecker holes; rot holes; limb stubs; cavities; flaking bark; cracks and splits. The methods used were those described within Collins (2016).

Each tree has been graded for its potential to support bats based on criteria within the Bat Conservation Trust's 'Bat Surveys Good Practice Guidelines 3rd Edition (Collins, 2016) and are detailed in **Table 2**.

Table 2 Bat Roost Tree Grading Criteria

Grading Criteria	Reason
Confirmed Bat Roost	Unambiguous evidence of roost: bats seen emerging/entering, bats audible, droppings/urine-/fur-staining visible. Known roost based on desk-based assessment. Further survey required.
High Suitability	Trees with obviously-suitable PRFs which are considered capable of supporting larger, established roosts of high conservation significance.
Moderate Suitability	Trees with potentially-suitable PRFs but which are not likely to support roosts of high conservation status.
Low Suitability	Trees of sufficient size/age to exhibit PRFs but none visible from ground-level or features seen appear to offer limited potential.
Negligible Suitability	Trees with no potential to support bats.

2.2.5 *Bats – Foraging and Commuting Habitat*

An assessment was made of the suitability of the site and the surrounding landscape to support foraging/commuting/flying bats. These activities cover the varied range of behaviours exhibited by bats when they are not roosting and will include feeding, travelling between sites and other social behaviours. The assessment was based on the presence of key habitat features such as woodland, scrub, hedgerows, grassland and open water which are highly attractive to bat species for those activities. Of importance is the presence of unlit semi-natural vegetation and habitat linkage between the site and the surrounding landscape.

The quality of bat foraging/commuting/flying habitat has been assessed using the criteria detailed in **Table 3**.

Table 3 Bat Foraging/Commuting Habitat Grading Criteria

Grading Criteria	Reason
Optimal Quality	Presence of optimal habitat features such as unlit woodland, scrub, hedgerows, grassland and open water with excellent linkage to similar habitats within the wider landscape. Presence of high potential buildings/trees and/or known roosts within immediate landscape. Sites are generally rural in character.
Moderate Quality	Presence of optimal habitat features such as woodland, scrub, hedgerows, grassland and open water with reasonable linkage to similar habitats within the wider landscape. Limiting factors may include size of site.
Low Quality	Presence of some limited habitat features such as scrub or hedgerows, with minimal linkage to suitable habitats within the wider landscape.
Poor Quality	No suitable habitat present or, if present, highly degraded/fragmented. Minimal unlit areas with no linkage to suitable habitat beyond site. Generally urban in character.

2.2.6 Hazel dormouse

An assessment was made of the suitability of habitat on site to support hazel dormice. Key habitats are woodland, scrub and hedgerows, particularly where these offer dense vegetation within which to nest/hibernate and key resources such as hazel nuts, fruiting/nectar-rich plants (e.g. hawthorn, bramble) and honeysuckle (for nesting material). Of key importance is the presence of landscape-scale habitat linkages such as hedgerows.

2.2.7 Water Vole

All watercourses were carefully inspected for evidence of water vole activity. The survey involved a careful visual inspection of the channel, banks and riparian zone to look for signs of water vole presence such as droppings/latrine sites, feeding remains, burrow entrances and prints.

2.2.8 Otter

All watercourses were carefully inspected for evidence of otter activity. The survey involved a careful visual inspection of the channel, banks and riparian zone to look for signs of otter presence such as tracks, spraints, anal jelly, feeding remains, resting places and holts. Particular attention was given to examinations of typical otter sprainting sites such as in-channel and bankside logs and rocks, as well as searches of bankside mud to identify tracks.

2.2.9 Birds

An assessment was made of the site's suitability to support breeding and wintering bird species. Nesting birds will utilise a broad range of habitats, including: built structures; trees; scrub; isolated shrubs; dense herbaceous vegetation (terrestrial and aquatic) and open grassland. All bird species observed on site were recorded.

2.2.10 Reptiles

An assessment was made of the site's suitability to support reptile populations. Key habitat features include: tussocky/patchy grassland; scrub edge; linear watercourses; ponds; compost heaps; brash piles and rubble/soil heaps. Linkage to suitable habitat within the surrounding landscape will increase the potential for reptiles to occur, although populations can occur within isolated/fragmented habitats even within urban areas.

2.2.11 Amphibians

An assessment was made of all waterbodies and terrestrial habitat within the site for their suitability to support populations of amphibians. Suitable waterbodies will generally be characterised by the presence of good quality water, diverse macrophyte cover and an absence of fish.

For the European-protected great crested newt *Triturus cristatus* each waterbody was assessed using the Habitat Suitability Index (HSI) system (Oldham *et al.*, 2000) and assigned a grading score between zero (poor suitability) and 1 (excellent suitability).

2.2.12 Invertebrates

The presence of important invertebrate species or assemblages is generally dependant upon distinct micro-habitats such as dead wood (standing, fallen, of all decay stages), sap runs, damp/wet soils, mixed sun/shade, bare/friable soils (e.g. exposed sand banks) and a diversity of plant species. For aquatic invertebrates, important species/assemblages will generally be associated with high-quality aquatic habitats such as ponds, rivers, streams and ditches. Key factors will include water quality, substrate, waterbody morphology and plant diversity.

An assessment of the site's potential to support a diverse invertebrate assemblage and/or specialist species is based loosely on the presence of habitat features described in Kirby (2001). Where possible, a list of all invertebrate species encountered has been made.

2.2.13 Protected Species Assessment

The surveyed site has been assessed for its potential to support the above-named protected species based upon the criteria in **Table 4**.

Table 4 Protected Species Grading Criteria

Grading Criteria	Justification
Confirmed Presence	Species confirmed on site through direct sighting, presence of field signs (e.g. scat, hair, prints, nest, eggs, habitation etc.) or through desk-based assessment.
High Potential	Presence of optimal habitat features for species. Surveyed site within known range/close to known occurrence. Excellent connectivity to optimal habitat. No justification for discounting presence of species.
Moderate Potential	Presence of some suitable habitat features for species. Surveyed site within/close to known range or known occurrence but factors such as isolation/fragmentation may reduce potential. Presence of species is more likely than not.
Low Potential	Minimal suitable habitat present or, if present, highly degraded/fragmented. Minimal linkage to suitable habitat beyond site. Presence of species unlikely.
Negligible Potential	Site is entirely unsuitable for species. Presence of species highly unlikely.

3 RESULTS

3.1 Desk-based Assessment

The following sections summarise the data obtained from TVERC, while a map showing these is shown in Appendix

3.1.1 Designated Sites

There are no statutory designated sites such as Site of Special Scientific Interest (SSSI), Special Protection Area (SPA), or Special Area of Conservation (SAC) within the search area.

Table 5 sets out the details of nearby non-statutory, locally-designated wildlife sites.

Table 5 Designated sites located within 1000m of the site

Site Name	Distance and Direction from Site (km)	Reason for Designation
The Warren Woodlands Complex Local Wildlife Site	200m North	The Warren Woodland Complex consists of six sites. These are Warren Woods Chalkpit, Chalkpit Wood (SU692753), Chazney Wood (SU707764), Grass Hill and Warren Court Wood (SU706749), Woodrow Court Woods (SU709750) and Long Drain (SU693752). The sites are situated on the chalk scarp of The Warren in Caversham, Reading. <u>Section 41 Habitat(s) of Principal Importance:</u> Lowland mixed deciduous woodland, Lowland beech and yew woodland, Wet woodland, Fen <u>Protected Species:</u> Badger, Bluebell <u>Section 41 Species of Principal Importance:</u> White helleborine <u>Red Data Book (RDB) Species Recorded:</u> White helleborine <u>Nationally Scarce (NsSC) Species Recorded:</u> Loddon lily

Site Name	Distance and Direction from Site (km)	Reason for Designation
Cow Lane Depot Local Wildlife Site	300m South	A small isolated, triangular site bounded by a railway track, situated towards the centre of Reading. The site forms a mosaic of habitats ranging from willow scrub with mature trees, to open standing water with swamp to ruderal and tall herb grassland. The site has a varied topography with a steep north facing slope colonized by buddleia, hazel and goat willow. Cow Lane Depot provides a wildlife corridor in an urban landscape. <u>Section 41 Habitat(s) of Principal Importance:</u> None <u>Protected Species:</u> None recorded <u>Section 41 Species of Principal Importance:</u> Reed bunting (1986) <u>Red Data Book (RDB) Species:</u> None recorded <u>Nationally Scarce (NSC) Species:</u> None recorded <u>Birds Of Conservation Concern (BoCC):</u> – <i>Red List Species:</i> Reed bunting (1985) – <i>Amber List Species:</i> Kestrel (2004) <u>Typical Species Of The Habitat Type(s)</u> – <i>Typical wetland species:</i> hemp agrimony (1986), common reed (1986), greater and lesser pond sedge (2004), soft and hard rush (2004), bulrush (2004), fool's water-cress (1986), great willow herb (2004), marsh horsetail (1986), meadowsweet (1986), branched bur-reed (1986), purple-loosestrife (1986) – <i>Typical grassland species:</i> common sedge (1986), sneezewort (1986)

3.1.2 Protected Species

The data request from TVERC identified the presence of a number of protected and notable species within a 500m radius of the site. Relevant records are shown in **Table 6**.

Table 6 Protected and Notable species located within 1000m of the site

Species	Details	Distance and Direction from Site
Mammals – bats		
Serotine <i>Eptesicus serotinus</i>	Single field record from 2013	700m NW
Daubenton's Bat <i>Myotis daubentonii</i>	Various field records from 1998 - 2005	0 – 300m (no direction)
Noctule <i>Nyctalus noctula</i>	Multiple field records between 1991 and 2015	600m NE – 800m NW
Pipistrelle sp. <i>Pipistrellus</i>	Multiple field records from 1987 – 2013	500m NW - 700m SE
Common pipistrelle <i>Pipistrellus pipistrellus</i>	Multiple field records between 2013 and 2015	670m N – 700m NW
Soprano Pipistrelle <i>Pipistrellus pygmaeus</i>	Multiple field records between 2013 and 2015	670m N - 700m NE
Brown Long-eared Bat <i>Plecotus auritus</i>	Multiple field records between 1998 and 2014	670m N -800m NE
Mammals – non-bats		
West European hedgehog <i>Erinaceus europaeus</i>	Various field records from 2006 - 2014	900m SW and NE
European otter <i>Lutra lutra</i>	One male recorded 2015	River Thames W of Reading
Eurasian badger <i>Meles meles</i>	On-site 1997 and various records surrounding the site 2012 - 2016	Directly surrounding and 400m N
European water vole <i>Arvicola amphibius</i>	Field record	Recorded on the lower Thames 1998
Reptiles		
Common Lizard <i>Zootoca vivipara</i>	Field record from 2010	400m SW
Slow-worm <i>Anguis fragilis</i>	Adults recorded in 1999	800m NE
Birds		
Honey-buzzard <i>Pernis apivorus</i>	Single juvenile recorded 2000	600m NE
Red Kite <i>Milvus milvus</i>	Single field record 2005	500m W
Lapwing <i>Vanellus vanellus</i>	Recorded in April 1994 on Little Johns Farm	600m W

Species	Details	Distance and Direction from Site
Swift <i>Apus apus</i>	Various records directly adjacent to site and within surrounding area from 1994 - 2012	Adjacent to site
Kingfisher <i>Alcedo atthis</i>	Field records from Little Johns Farm and Cow Lane verges from 1986 and 1998	Adjacent to site
Willow Warbler <i>Phylloscopus trochilus</i>	Field records within Cow Lane verges 1985 and 1994	Adjacent to site
Skylark <i>Alauda arvensis</i>	Recorded within Cow Lane verges 1994	Adjacent to site
House Martin <i>Delichon urbicum</i>	Recorded within Grass Hill Woodland 1994	400m N
Dunnock <i>Prunella modularis</i>	Field record within Cow Lane Verges and surrounding area in 1994	Adjacent to site
Song Thrush <i>Turdus philomelos</i>	Multiple recordings within Cow Lane Verges and surrounding area from 1985 - 2005	Adjacent to site
Mistle Thrush <i>Turdus viscivorus</i>	Field record from 1994 in Little Johns Farm	600m E
Reed Bunting <i>Emberiza schoeniclus</i>	Fields records from Cow Lane verges and Little Johns Farm 1994 and 1999	Adjacent to site
Amphibians		
Smooth newt <i>Lissotriton vulgaris</i>	Field records of 20 adults and one juvenile within Caversham Court from 2004 and 2008	550m NE
Common frog <i>Rana temporaria</i>	Fields records of adults from 1996	550m NE
Invertebrates		
Stag beetle <i>Lucanus cervus</i>	Various records from private gardens within the surrounding area	100m E – 900m SW
Small Heath butterfly <i>Coenonympha pamphilus</i>	Field record from Caversham S Of Thames Flood Meadow (Unknown) in 1992	Unknown
Common Club-tail dragonfly <i>Gomphus vulgatissimus</i>	Field record from Caversham, Thames Promenade 2012 and 2013	Unknown

3.2 Field Survey

3.2.1 Habitats/Vegetation

In general, the site is characterised by an area of largely bare ground to the south and largely rougher amenity grassland with hardstanding and open fronted buildings bounded by hedgerows to the north. A small stream runs east to west between these two distinct areas and then north up the western site boundary.

A Phase 1 map showing the general areas of habitat present at the site is shown in Appendix 1.

Bare ground

The large (approximately 15,500m²) area of bare ground to the south of the stream consists of compacted hardcore and soil. This area is becoming colonised by species such as dandelion *Taraxacum officinale* agg and other common and widespread by ephemeral / perennial plant species (**Figure 2**).



Figure 2 Bare ground / compacted hardcore and emergent ephemeral / perennial vegetation

Running water

A ditch with standing water approximately 2m deep runs through the site from east to west (**Figure 8**). This joins to a ditch system outside the boundary to the west and ultimately flows into the River Thames to the north of the site. The water quality at time of survey appeared poor and the ditch was not flowing at the time of the survey. The ditch is fringed with tall ruderal vegetation with typical species including of bramble *Rubus fruticosus* agg., broadleaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, and willowherb, *Epilobium* sp. Emergent flag iris *Iris pseudacorus* was present within the ditch to the west.



Figure 3 Ditch network located outside the survey area to the west (left) and through the site (right).

Amenity grassland

Amenity grassland is situated to the north of the site. This land is currently used for recreational activities and is a former driving range (**Figure 3**). Representative species include perennial rye grass *Lolium perenne*, daisy *Bellis perennis* and white clover *Trifolium repens*. The area is approximately 32,250m² in size and is bordered by hedgerow described in more detail below.



Figure 4 Amenity grassland at the site showing current recreational use

Hardstanding

A car park is situated to the south of the building (**Figure 4**) which extends out to Cow Lane to the west of the site. A further area of hardstanding is present to the west of the existing building where a building has been demolished.



Figure 5 Car parking to the south of the building (left) and area of hardstanding on site of demolished building (right)

Buildings

The existing building on site is of brick and timber framed construction, with an unlined corrugated metal roof (Figure 5). The building is approximately 5m tall and 880m² in area. The western part of the building is open-fronted and a smaller area to the east and is not open-fronted. The building is currently used for recreational activities and is associated with the former driving range.



Figure 6 Building to the north of the stream at Richfield Avenue

Intact species-poor hedge

Intact species-poor hedge borders the former golf driving range (**Figure 7**) and species consist of clematis *Clematis vitalba*, cypress sp., *Cupressaceae* sp., field maple *Acer campestre*, *Acer* sp., and pine, *Pinus* sp. The hedge borders the northern part of the site to the north, east south and west.



Figure 7 Intact species poor hedge facing south bounding the west of the site

Defunct native species hedge

A defunct semi-mature native species hedge runs in an east/west direction across the middle of the southern section of the surveyed area (**Figure 8**). The hedge is largely unmanaged and is approximately 10m tall. This hedge comprises hawthorn *Crataegus monogyna* and ivy *Hedera helix*. Understory includes nettle *Urtica dioica*, bramble *Rubus fruticosus*, doc sp., *Rumex* sp and cow parsley *Anthriscus sylvestris*.



Figure 8 Defunct species-poor hedge to southern boundary

Earth bank

An earth bank was present within the amenity grassland field (**Figure 9**). This has become colonised by perennial rye grass indicating this bank has been in place for some time. A rabbit *Oryctolagus cuniculus* burrow was present within the northern face of the bank.



Figure 9 Earth banks present within the amenity grassland (right) to the south of the site (left)

Tall ruderal

An area (approximately 16m²) of tall ruderal vegetation was present to the north west of the amenity grassland area (**Figure 10**). This area is dominated by cow parsley *Anthriscus sylvestris*, broadleaved dock and common nettle.



Figure 10 Tall ruderal vegetation in the north-west corner of the site

3.2.2 *Badger*

Evidence of mammal activity was present on the site during the survey. Mammal tracks were noted passing through the site, and a push-under to the east of the site (target note (TN) 1 in the plan in Appendix 1) was noted as well as mammal burrows in earth piles (Figure 7 above and TN3 in Appendix 1).

An active rabbit warren was found to be located outside the northern field boundary of the survey area (**Figure 11**). It is therefore concluded that the evidence of mammal activity on the site can be attributed to rabbits rather than badger. No evidence of badger setts was present, though given the habitats present on site, and the suitable habitat in the wider landscape it is likely that badgers would occasionally use the site for foraging. Overall, the site is considered to offer **moderate potential for supporting foraging badger**, although **badger setts are considered to be absent**.



Figure 11 Rabbit warren located outside the northern boundary

3.2.3 *Bats – Built Structures*

The building within the survey site is of simple brick and timber construction with an unlined corrugated metal roof (**Figure 12**). No suitable roost locations were noted; the buildings are therefore concluded to be of **negligible suitability** for supporting bats in line with the criteria set out in Section 2.2.3, above.



Figure 12 Building present within the survey area at Richfield Avenue

3.2.4 *Bats – Trees*

A mature field maple *Acer campestre* and cypress tree were present at the north west of the survey site however both were outside the survey area boundary and were not surveyed (**Figure 13**).

A row of approximately seven hawthorn trees were noted within the defunct native hedge to the south of the site. These had heavy ivy growth to the stems and branches; therefore, the status of the trees could not be fully assessed. The general character of the trees and dense ivy growth is such that there are unlikely to be significant bat-accessible cavities, but the presence of potential roost features cannot entirely be discounted.

As described below, although higher-quality foraging habitat lies further afield, the surrounding habitat is generally poor. Overall, it is concluded the trees on site are concluded to offer **low suitability** for supporting roosting bats in line with the criteria set out in Section 2.2.4, above.



Figure 13 Trees with low bat potential within defunct hedge

3.2.5 *Bats – Foraging and Commuting*

The surveyed area comprises predominantly amenity grassland and hard standing and is therefore of low suitability for attracting foraging/commuting bats. Overall, the site is considered to offer **low quality habitat** for supporting commuting/foraging bats in line with the criteria set out in Section 2.2.5, above.

There are however some areas of higher-quality foraging habitat in the surrounding area along the main River Thames. The extensive areas of commercial / light industrial development that dominate much of the wider area are of very low or negligible foraging quality.

3.2.6 *Hazel Dormouse*

Whilst the site does contain areas of woody vegetation, this is gappy and isolated from any similar habitat in the wider landscape. As such the site is considered to offer **negligible potential** for supporting dormice.

3.2.7 *Water vole*

A watercourse is present to the south and west of the survey area however this watercourse and surrounding vegetation are not considered suitable to support water voles. The banks are sparsely vegetated, and the water quality is very poor. No signs of water vole activity were noted. It is therefore considered that the site offers **negligible potential** for supporting water vole.

3.2.8 *Otter*

A watercourse is present to the south and west of the survey area however this watercourse and surrounding vegetation are not considered suitable to support otters. The banks are sparsely vegetated, and the water quality is very poor. No signs of otter activity were noted. It is therefore considered that the site offers **negligible potential** for supporting otter.

3.2.9 *Birds*

The hedgerow vegetation on site provides opportunities for nesting birds and it is inevitable that small numbers of common and widespread garden bird species will occur and possibly nest. Canada geese *Branta canadensis* were observed flying over the site from east to west however did not land.

The habitat on site is considered unsuitable to support wetland birds. Skylarks *Alauda arvensis* have been recorded in surrounding habitat. Although more likely to be utilising the open pasture land to the west of the site, the grassland on site has some suitability to support this species. However, the high degree of disturbance from its recreational use would prevent successful breeding and territory establishment.

Potential for nesting birds such as swift *Apus apus* and swallow *Hirundo rustica* within the open-faced building is present, although no evidence of past nesting

activity was noted. Overall, the site is considered to exhibit **high potential** for supporting small numbers of common and widespread breeding birds.

3.2.10 Reptiles

The site is characterised by amenity grassland and hardstanding which are considered to be wholly unsuitable for supporting reptiles. However, the boundary vegetation surrounding the site as well as habitats associated with the earth bank may provide shelter for common species of reptile such as slow worm *Anguis fragilis* and grass snake *Natrix natrix* and therefore the site is considered to offer **low potential** for supporting small numbers of more widespread reptiles

3.2.11 Amphibians

There are no ponds on the site and examination of Ordnance Survey maps shows no ponds within 500m of the site. The ditch at the site does not appear to offer suitable breeding habitat for most amphibians (including the protected great crested newts (GCN), although its use by more common species such as common frog *Rana temporaria* or common toad *Bufo bufo* cannot be completely ruled out if the ditch has areas of limited or no flow.

The boundary vegetation surrounding the site offers some low-suitability habitat for amphibians in their terrestrial phase. Therefore, the site is considered to offer **low potential** for supporting more common species of amphibian in their terrestrial phase.

4 ASSESSMENT OF IMPACTS AND RECOMMENDATIONS

4.1 Introduction

This section is supported by the results of the Extended Phase 1 Ecological Survey and presents the likely impacts, in the absence of any mitigating actions, on protected and notable habitats and species associated with the proposed development. Only those features confirmed as present on site or considered to have from low to high potential occurrence on site have been taken forward for further assessment. In addition, all designated sites located within 500m of the site have been taken forward for further assessment.

4.2 Impacts

4.2.1 *Designated Sites*

Two locally designated Local Wildlife Sites are located within the search area. Cow Lane depot is situated 300m south from the site. The main railway line lies between Cow Lane Depot and the proposed development site. The Warren Woodland Complex is located 200m north from the site and the River Thames lies between this Local Wildlife Site and the development site.

Therefore, in view of the distance of the Local Wildlife Sites from the work area, and the nature and scale of the proposed development, it is considered that there will be no impacts to these Local Wildlife Sites.

4.2.2 *Habitats*

The habitats which will be directly impacted are bare ground, hardstanding, buildings, intact species poor hedgerow, defunct native species hedgerow, earth bank and tall ruderal vegetation. These are all of lower ecological value and are of negligible ecological value beyond the site level.

The ditch / watercourse through the site has the potential to offer some higher ecological value as small watercourses are often functional parts of ecological networks, and as habitats in their own right. There is some risk that construction activity could adversely affect this ditch. No plans have been developed for the proposed school layout; however, the ditch crosses the site and there is a risk that this would need to be diverted or culverted, which would represent a negative impact to biodiversity.

In terms of terrestrial habitats, the development also has the potential to result in a slight net loss of overall biodiversity; however, the scale of this is unknown as detailed landscaping plans for the school are not yet available.

4.2.3 *Badgers*

Although badger setts are absent from the site, there is some potential for badger to occasionally forage across the site. Thus, there is some potential for

individual badgers to enter the works area and become trapped within any deep excavations.

The loss of amenity grassland from the site, in relation to the habitats present in the surrounding area is not considered significant given the extensive higher-quality badger foraging habitat in the parkland to the north and the pastures to the west.

4.2.4 *Bats – Trees*

The survey identified that there is a low potential for some of the ivy-clad trees to support bat roosts. If present, works to fell these would result in the destruction of any roosts and potentially direct harm (killing or injury) to any bats that may be present at the time of the works.

4.2.5 *Bats – Foraging and Commuting*

The habitat at the site offers low quality foraging and commuting habitat for bats. The area of the site is relatively small and there are more extensive areas of higher quality habitat nearby along the River Thames itself and the more open network of pastures and hedges to the west. The loss of this area to the development would not represent a significant loss of bat foraging habitat.

New lighting (either during construction or during occupation) can have an adverse impact on bat foraging behaviour. The impacts of this at this site would be considered to be low due to the general low quality of the habitat; nevertheless, measures should be implemented to minimise this as far as possible (see following Section 5)

4.2.6 *Birds*

Boundary vegetation, the building and native hedgerow within the south of the site have the potential to support common and widespread species of birds during the breeding season. As such it is considered that there is potential for impacts to nesting birds during site clearance, through the destruction of active nests.

4.2.7 *Reptiles and amphibians*

Some of the boundary vegetation and earth bank have been identified as offering some low suitability to support small numbers of more widespread reptile and amphibian species. Clearance of these areas would potentially result in direct harm (killing or injury) to these. The scale of any habitat loss would however not be significant given the availability of more extensive habitat in the wider environment, particularly the parkland to the north and the open pastures / hedgerows to the west.

5 RECOMMENDATIONS FOR MITIGATION AND ENHANCEMENT

5.1 Introduction

This section provides details of recommendations considered necessary in order to ensure that potential ecological constraints are considered fully. This includes recommendations for additional survey works and for mitigation, compensation or enhancement measures to avoid, lessen or offset the identified impacts to ecological features arising from the proposed works.

5.2 Mitigation measures

5.2.1 *Habitats*

Potential construction-phase impacts to the ditch / stream from possible pollution sources should be addressed through ensuring construction follows standard industry best practice. These can be detailed in a Construction Environmental Management Plan (CEMP).

The key likely impact to habitats would potentially be the loss (though culverting) of the ditch / watercourse that flows east-west across the site. Culverting watercourses should be seen as a last resort and it is advised that if possible, this is avoided. Instead, it is recommended that the design of the school as far as possible seeks to retain this. This ditch provides many opportunities for habitat enhancement to provide benefits to the environment of the new school and may have the potential to be an integral part of any SuDS that the project requires.

It is recommended that the design team maintains contact with the ecology team as designs progress so further input and advice can be provided on this issue.

Net loss of habitats can be further addressed through a carefully-considered landscaping scheme – potentially incorporating enhancements centred around the retention and enhancement of the ditch. This should be supplemented by additional biodiversity enhancement detailed in the following section.

5.2.2 *Badgers*

Although impacts are considered unlikely, it is advised that any deep excavations (1m depth or greater) are either covered entirely during non-working hours or are each fitted with a ramp (such as scaffold board) to prevent animals becoming trapped. If any evidence of badger activity is noted during construction, further professional advice must be sought.

5.2.3 *Bats – Foraging and Commuting*

Although impacts are considered unlikely, it is advised that no development works take place in the hours of darkness and under artificial lighting. Similarly, any lighting installed within the new school site should avoid spillage of greater

than 1 lux onto any adjacent vegetation. The use of non-UV LED lighting (preferably using warm spectrum wavelengths) is strongly recommended so as to avoid the most deleterious impacts of lighting on biodiversity. Philips Clearsky and Clearfield are examples of suitable lamp types.

5.2.4 *Birds*

It is highly advisable to undertake clearance of potential bird nesting habitat (such as any dense woody vegetation, grassland and the open building) outside the bird nesting season, which is generally seen as extending from March to the end of August, although may extend longer depending on local conditions. If there is absolutely no alternative to doing the work during this period then a thorough, careful and quiet examination of the affected area must be carried out before clearance starts. If occupied nests are present then work must stop in that area, a suitable (approximately 5m) stand-off maintained, and clearance can only recommence once the nest becomes unoccupied of its own accord.

5.2.5 *Reptiles and Amphibians*

The site is considered to have a low potential to support reptiles and terrestrial amphibians, mainly in association with the boundary habitats and earth bank.

A precautionary method of works should therefore be employed when clearing these habitats. This should include the following measures:

- Contractors undertaking the habitat clearance should be briefed regarding the possible presence of reptiles and amphibians.
- Where clearance is carried out when reptiles could be active (indicatively March-October inclusive, weather dependent), it is recommended that the grassland is reduced down to meet a sward height of no less than 150mm, working from the centre of the site towards the retained boundary / adjacent habitat in order to encourage reptiles to disperse of their own accord away from the area impacted by the proposed works.
- Following this, the area should be left for a minimum of 24 hours before reducing down to ground level. These conditions should be maintained at low / ground level until building commences or the area is suitably fenced/scalped or top-soiled to make it unsuitable for reptiles to re-colonise the area.

5.3 Enhancements

Local and national planning policy require authorities to ensure that opportunities for enhancement should be taken where possible through development. Providing features which encourage greater biodiversity within development sites can be straightforward, but further advice on this should be

sought once detailed design stage has been reached. The following are examples of some potential options for enhancing the site ecologically.

5.3.1 *Vegetation Planting*

It is recommended that any proposed landscaping for the site utilises native, locally sourced species where possible, as these have a far higher ecological value than non-native species. Species recommended for planting based on those present within the wider local area would include the following native woody species:

- | | |
|-------------------|---------------------------|
| • Field Maple | <i>Acer campestre</i> |
| • Hazel | <i>Corylus avellana</i> |
| • Hawthorn | <i>Crataegus monogyna</i> |
| • Pedunculate oak | <i>Quercus robur</i> |
| • Wild Cherry | <i>Prunus avium</i> |

In addition, the incorporation of native herbaceous species (including within areas of new grassland), especially those providing nectar and pollen for insect pollinators, would benefit the ecological value of the site and local area.

5.3.2 *Bat and Bird Boxes*

The installation of bat or bird nesting boxes, such as the swift box illustrated in **Figure 14** and the 2F Schwegler bat box **Figure 15** (NHBS 2018), on the new school buildings would be a simple and effective way of enhancing the site ecologically.



Figure 14 Swift nest box (triple cavity)
(NHBS, 2018)



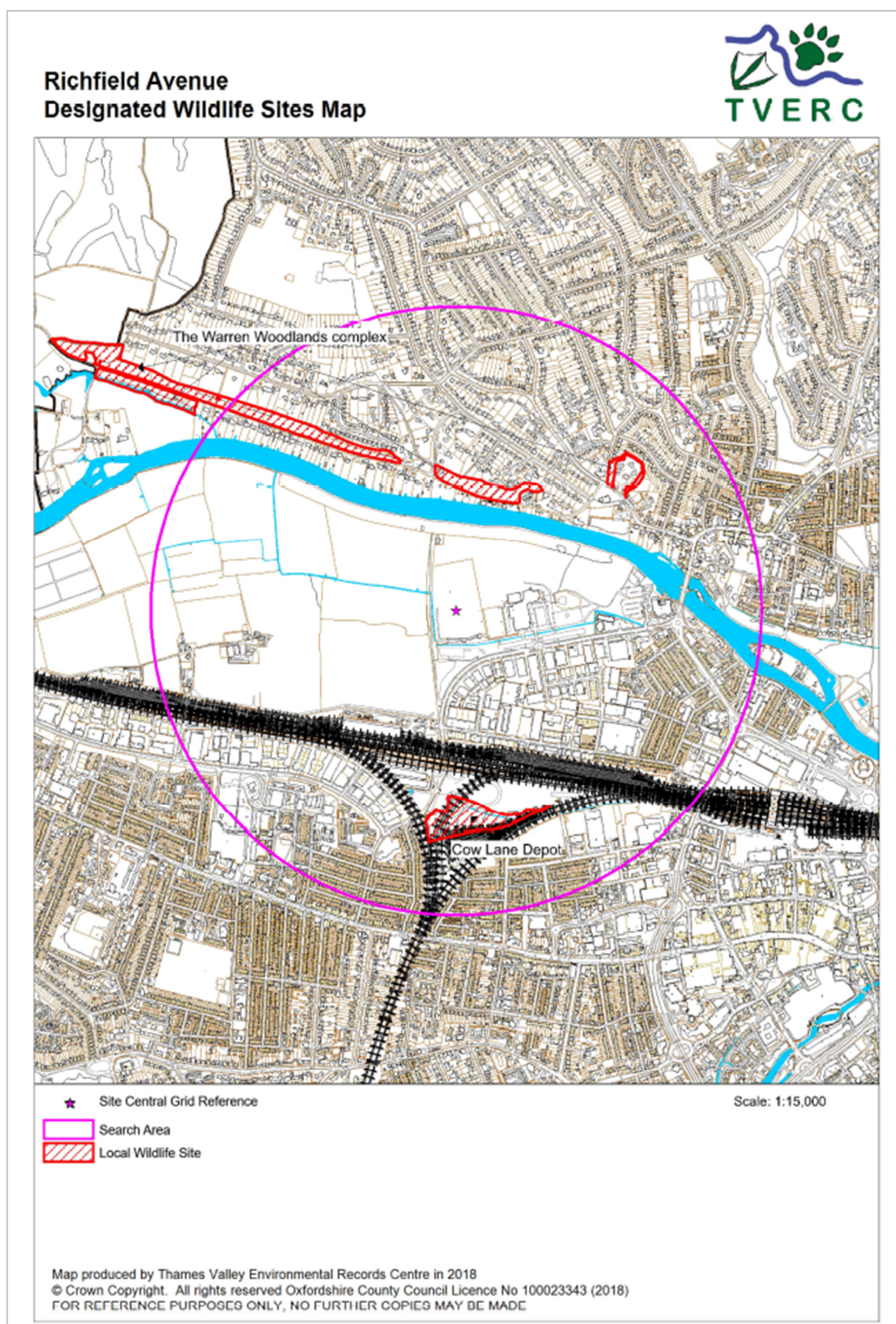
Figure 15 Schwegler bat box (NHBS,
2018)

6 REFERENCES

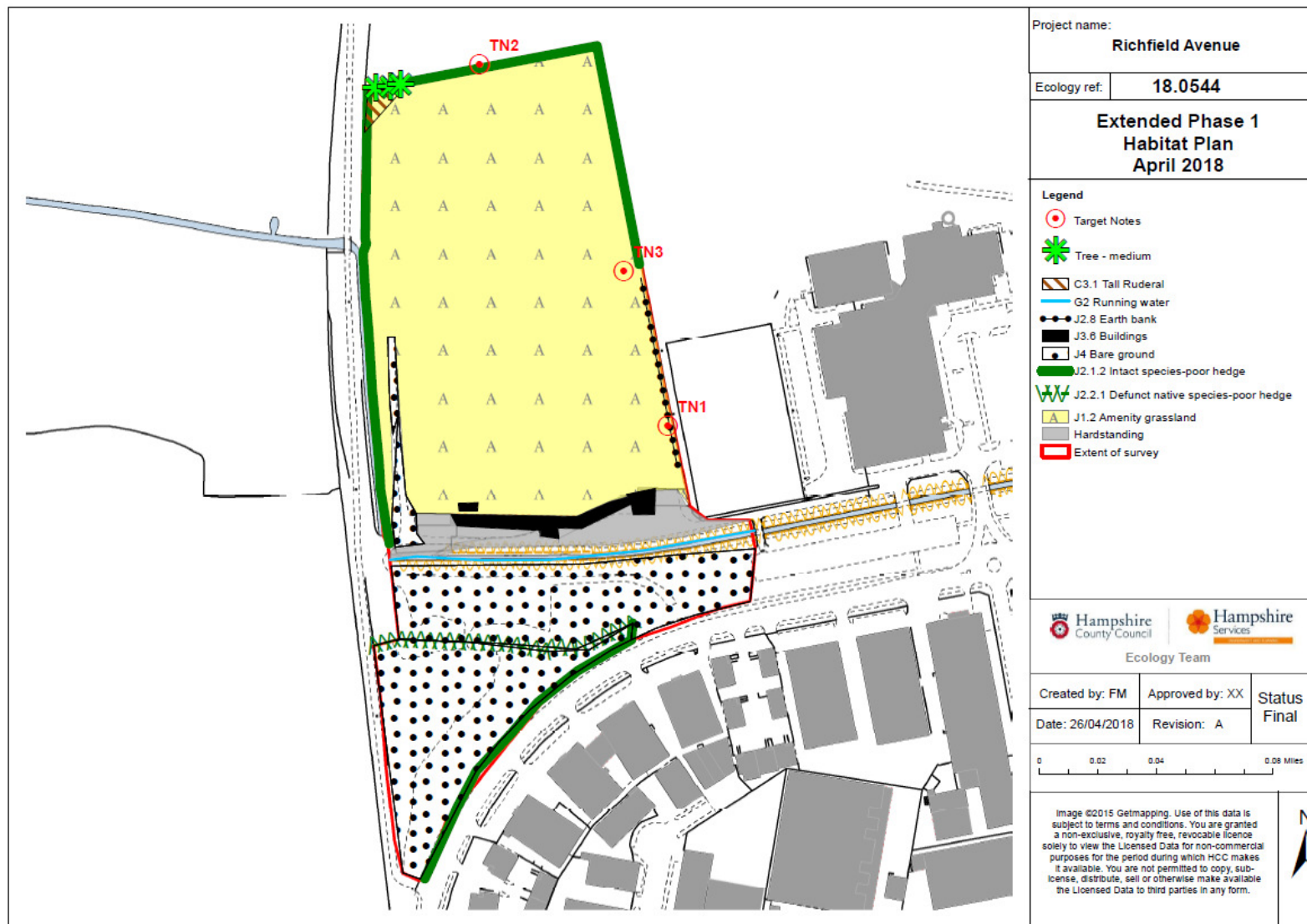
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APPENDIX 1 – TVERC map

Nearby locally-designated sites



APPENDIX 2 – Phase 1 Habitat Map



This map is based on the JNCC Phase 1 habitat mapping methodology (JNCC, 2010). The standard Phase 1 habitat mapping method is designed for larger-scale mapping and is less suited to smaller-scale sites. This map should therefore be seen as indicative only.