Hallam Land Management Ltd.

Oxford Road (Bankside 2), Banbury

ECOLOGICAL APPRAISAL

March 2019

This document contains information on the location of badger setts and activity. Due to the sensitive nature of these records and the current public awareness, this document should remain confidential for the use of the planning application, and should not be made publicly available.

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Rev	Issue Status	Prepared / Date	Approved/Date
-	Draft 1	ABS / 03.01.19	JD / 19.03.19

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1.0 INTRODUCTION

1.1 This report has been produced by FPCR Environment and Design Ltd on behalf of Hallam Land Management Ltd. and details the results of an ecological appraisal of a site off Oxford Road, Banbury. The survey comprised an Extended Phase 1 Habitat Survey including initial observations of any suitable habitats for, or evidence of, protected species, as well as a preliminary ground level bat survey of buildings and trees.

1.2 Surveys have previously been carried out on site including an initial survey in September 2013 and updated surveys carried out in mid-November 2014 and mid-July 2016. This revised report details results of a re-survey conducted in July 2018. The results of this document supersede the previous assessment.

1.3 The survey was undertaken on an area of the site currently proposed for development, indicated by the red line in Figure 1, referred to herein as the "site" and for which detailed assessment has been undertaken against the proposals.

Site Location and Context

1.4 The site is located on land on the south-eastern edge of Banbury, to the east of the consented Bankside scheme. Oxford Road lies to the west and forms a proportion of the western boundary. The remaining boundaries are formed by hedgerows and agricultural land with the exception of recreational facilities associated with a health spa and Banbury Rugby Club to the west.

1.5 The site comprises intensively managed farmland, boundary hedgerows, small areas of planted woodland copse and track-ways. Adjacent land use is primarily agricultural although some established recreational and residential land use occurs to the west.

Site Proposals

1.6 The plans for the site include the construction of up to 850 residential units, a school, sports area, associated infrastructure and proposed greenspace.

2.0 METHODOLOGY

Desktop Study

2.1 In order to compile existing baseline information relevant ecological information was requested from both statutory and non-statutory nature conservation organisations including:

- Thames Valley Environment Records Centre (TVERC);
- Oxfordshire Bat Group;
- Oxfordshire Badger Group;
- Multi Agency Geographic Information for the Countryside (MAGIC) website (www.magic.gov.uk)

2.2 Further inspection of colour 1:25,000 OS base maps (www.ordnancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk) was also undertaken in order to

provide additional context and identify any features of potential importance for nature conservation in the wider countryside.

2.3 The search area for biodiversity information was related to the significance of sites and species and potential zones of influence, as follows:

- 5km around the application area for sites of International Importance (e.g. Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites).
- 2km around the application area for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSIs)).
- 1km around the application site for sites of County Importance (e.g. Sites of Importance for Nature Conservation (SINC)/Local Wildlife Sites (LWS) and species records (e.g. protected, Species of Principal Importance under the NERC Act (2006) or notable species).

Flora/Habitats

2.4 The site was surveyed on 30th July 2018 using standard Extended Phase 1 Survey methodology[1], as recommended by Natural England, to identify specific habitats and features of ecological interest. Habitats were marked on a base plan and where appropriate, target notes were made.

Hedgerows

2.5 Hedgerows were surveyed using the wildlife and landscape criteria of the Hedgerow Evaluation and Grading System (HEGS)[2]. This method of assessment includes noting down canopy species composition, associated ground flora and climbers, structure of the hedgerow including height, width and gaps, associated features including number and species of mature trees, banks, ditches and grass verges.

2.6 Each hedgerow is given a grade using HEGS with the suffixes '+' and '-', representing the upper and lower limits of each grade respectively. These grades represent a continuum on a scale from 1+ (the highest score and denoting hedges of the greatest nature conservation priority) to 4- (representing the lowest score and hedges of the least nature conservation priority) as follows:

Grade 1 – High to very high value
Grade 2 – Moderately high to high value
Grade 3 – Moderate value
Grade 4 – Low value

Hedgerows graded 1 or 2 are considered to be a priority for nature conservation.

2.7 The hedgerows were also assessed against the Wildlife and Landscape criteria contained within Statutory Instrument No: 1160 – The Hedgerow Regulations 1997[3] to determine whether they qualified as 'Important Hedgerows' under the Regulations. This was achieved using a methodology in accordance with both the Regulations and DEFRA guidance[4].

[1] Handbook for Phase 1 habitat survey, a technique for environmental audit, JNCC, 2010
[2] Clements, D.K., & Tofts, R.J.(1992). *Hedgerow Evaluation and Grading System (HEGS): A methodology for the ecological survey, evaluation and grading of hedgerows.* Countryside Planning and Management
[3] http://www.legislation.gov.uk/uksi/1997/1160/contents/made
[4] DEFRA. (1997). *The Hedgerow Regulations 1997. A Guide to the Law and Good Practice.* London: HMSO

Fauna

2.8 Throughout the Extended Phase 1 survey, consideration was given to the actual or potential presence of protected species, such as, although not limited to, those protected under the Wildlife and Countryside Act 1981 (as amended)[5], the Protection of Badgers Act 1992[6] and the Conservation of Habitats and Species Regulations 2017 (as amended)[7]. Consideration was also given to the existence and use of the site by other notable fauna such as Species of Principal Importance NERC (2006), or Red Data Book (RDB) species. Given the habitats recorded and past knowledge of the site, the following more detailed assessments were also undertaken.

Badgers

2.9 Land within the development area was surveyed following the methodology outlined by Harris *et al* (1989)[8]. This involves a walkover of the site searching for field signs which would indicate the presence of badgers as follows:

- Setts: including earth mounds and evidence of bedding and or runways between identified setts.
- Latrines: often located close to setts, at territory boundaries or adjacent to favoured feeding areas.
- Prints and established track or runways.
- Hairs caught on rough wood or fencing.
- Other evidence: including snuffle holes, feeding and playing areas and scratching posts.

2.10 The identification of these latter signs on their own does not necessarily provide conclusive evidence of the presence of badgers. A number of such signs need to be seen in conjunction before badgers can be confirmed as being present.

Bats

<u>Tree Assessments</u>

2.11 Tree assessments were undertaken from ground level, with the aid of a torch and binoculars (where appropriate). During the survey Potential Roosting Features (PRF) for bats such as the following were sought (Based on P16, British Standard 8596:2015 *Surveying for bats in trees and woodland*, October 2015[9]):

- Natural holes (e.g. knot holes) arising from naturally shed branches or branches previously pruned back to a branch collar.
- Man-made holes (e.g. cavities that have developed from flush cuts or cavities created by branches tearing out from parent stems).

[5] The Wildlife and Countryside Act 1981 (as amended). [Online]. London:HMSO Available at http://www.legislation.gov.uk/ukpga/1981/69 [Accessed 02/12/2014]

[6] The Protection of Badgers Act 1992 (as amended). [Online]. London:HMSO Available at: http://www.legislation.gov.uk/ukpga/1992/51/contents [Accessed 02/12/2014].

[7] The Conservation of Habitats and Species Regulations 2017 – Statutory Instrument 2017 No.1012. [Online]. London: HMSO. Available at: http:// http://www.legislation.gov.uk/uksi/2017/1012/pdfs/uksiem_20171012_en.pdf [Accessed 23/01/2018].

[8] Harris, S., Cresswell, P. & Jefferies, D. 1989. Surveying for badgers. Occasional Publication of the Mammal Society No. 9. Mammal Society, Bristol.

[9] British Standard 8596:2015 *Surveying for bats in trees and woodland*, October 2015

- Woodpecker holes.
- Cracks/splits in stems or branches (horizontal and vertical).
- Partially detached, loose or bark plates.
- Cankers (caused by localised bark death) in which cavities have developed.
- Other hollows or cavities, including butt rots.
- Compression of forks with occluded bark, forming potential cavities.
- Crossing stems or branches with suitable roosting space between.
- Ivy stems with diameters in excess of 50mm with suitable roosting space behind (or where roosting space can be seen where a mat of thinner stems has left a gap between the mat and the trunk).
- Bat or bird boxes.
- Other suitable places of rest or shelter.

2.12 Certain factors such as orientation of the feature, its height from the ground, the direct surroundings and its location in respect to other features may enhance or reduce the potential value.

2.13 Trees were classified into general bat roost potential groups based upon the presence of these features. Table 1 broadly classifies the potential categories as accurately as possible as well as discussing the relevance of the features. This table is based upon Table 4.1 and Chapter 6 in *Bat Surveys for Professional Ecologists: Good Practice Guidelines*.

2.14 Although the British Standard 8596:2015 document groups trees with moderate and high potential, these have been separated below (as per Table 4.1 in The Bat Conservation Trust Guidelines) to allow more specific survey criteria to be applied.

Table 1: Classification and Survey Requirements for Bats in Trees

Classification of Tree	Description of Category and Associated Features (based on Potential Roosting Features listed above)	Likely Further Survey work
Confirmed Roost	Evidence of roosting bats in the form of live bats, droppings, urine staining, mammalian fur oil staining, etc.	A Natural England derogation licence application will be undertaken. This will require a combination of aerial assessment by roped access bat workers **and** nocturnal survey during appropriate period (May to August). Replacement roost sites commensurate with status of roost to be provided. Works to be undertaken under supervision using a good practice method statement.
High Potential	A tree with one or more Potential Roosting Features that are obviously suitable for larger numbers of bats on a more regular basis and potentially for longer periods of time	A combination of aerial assessment by roped access bat workers **and** nocturnal survey during appropriate period (May to August). Following additional assessments, a

Classification of Tree	Description of Category and Associated Features (based on Potential Roosting Features listed above)	Likely Further Survey work
	due to their size, shelter protection, conditions (height above ground level, light levels, etc) and surrounding habitat but unlikely to support a roost of high conservation status (i.e. larger roost, irrespective of wider conservation status). Examples include (but are not limited to); woodpecker holes, larger cavities, hollow trunks, hazard beams, etc.	tree may be upgraded or downgraded based on findings. After completion of survey work, some good practice removal operations **likely** to be required.
Moderate Potential	A tree with Potential Roosting Features which could support one or more potential roost sites due to their size, shelter protection, conditions (height above ground level, light levels, etc) and surrounding habitat but unlikely to support a roost of high conservation status (i.e. larger roost, irrespective of wider conservation status). Examples include (but are not limited to); woodpecker holes, rot cavities, branch socket cavities, etc.	A combination of aerial assessment by roped access bat workers **and /or** nocturnal survey during appropriate period (May to August). Following additional assessments, a tree may be upgraded or downgraded based on findings. After completion of survey work, some good practice removal operations likely to be required.
Low Potential	A tree of sufficient size and age to contain Potential Roosting Features but with none seen from ground or features seen only very limited potential. Examples include (but are not limited to); loose/lifted bark, shallow splits exposed to elements or upward facing holes.	No further survey required but some good practice removal operations may be required
Negligible/No potential	Negligible/no habitat features likely to be used by roosting bats	None.

* The Conservation of Habitats & Species Regulations 2017 (as amended) affords protection to "breeding sites" and "resting places" of bats. The EU Commission's Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC, February 2007 states that these are places "where there is a reasonably high probability that the species concerned will return".

Other species

2.15 Throughout the survey consideration was also given to the existence and use of the site by other protected species or locally notable fauna such as Biodiversity Action Plan (BAP) or Red Data Book (RDB) species.

3.0 RESULTS

Desk Study

3.1 The locations of designated sites and faunal records discussed in the following section are illustrated in Figure 1-Site Location and Desk Study Results.

Statutory Designated Sites

3.2 There are no sites of international nature conservation importance within 5km of the site boundary.

3.3 There are no sites of national nature conservation importance within 2km of the site boundary.

Non-statutory Designated Sites

3.4 Records from the ecological records centre identified nine Section 41 Habitats of Principal Importance within 1km of the site boundary, these are habitats considered threatened and are areas of conservation priorities in the Post-2010 Biodiversity Framework.

3.5 Table 2 below describes the sites in more detail.

Table 2: Non-statutory Designated Sites within 1km of Site Boundary

Site	Location (distance from site)	Description
1	45m East	Broadleaved woodland-not yet assessed
2	75m north	Lowland mixed deciduous woodland
3	100m west	Lowland mixed deciduous woodland
4	130m north-east	Lowland mixed deciduous woodland
5	190m east	Lowland mixed deciduous woodland
6	360m west	Lowland mixed deciduous woodland
7	430m east	Coastal and floodplain grazing marsh
8	860m north-west	Traditional orchids
9	865m west	Possible priority grassland

Protected and Notable Species

3.6 A number of records were returned within 1km of the site, no records were returned for within the site boundary. Table 3 below details the results from the records centre.

Table 3: Protected and Notable Species within 1km of Site Boundary

Species	Number of records	Closest record from site
Bats		
Common pipistrelle *Pipistrellus pipistrellus*	2	392m north-west

Species	Number of records	Closest record from site
Brown long-eared *Plecotus auritus*	2	470m west
Soprano pipistrelle *Pipistrellus pygmaeus*	1	470m west
Unidentified bat species	1	470m west
Noctule *Nyctalus noctula*	1	470m west
Myotis species *Myotis* sp.	1	470m west
Amphibians and Reptiles		
Grass snake *Natrix helvetica*	4	540m west
Common toad *Bufo bufo*	1	700m west
Mammals		
Western European Hedgehog *Erinaceus europaeus*	2	750m west
Badger *Meles meles*		Can be made available upon request

3.7 MAGIC mapping indicated one previous European Protected Species licence application to disturb a non-maternity roost (ref: EPSM2011-2868)for common pipistrelle and brown long-eared bats 870m south-west of the site,

Field Surveys-Habitats

3.8 The locations of habitats are shown in Figure 2-Phase 1 Habitat Plan. A full botanical list is available in Appendix A and site photographs in Appendix B.

Trees

3.9 A cluster of trees were present in the centre of the site in the middle of H4, largely comprising broadleaved trees such as sycamore *Acer pseudoplatanus*, elder *Sambucus nigra*, a species of elm *Ulmus* sp. and a species of pine *Pinus* sp. Immature to semi-immature hawthorn *Crataegus monogyna* was present in the understorey with ground flora limited to false oat-grass *Arrhenatherum elatius*, nettle *Urtica dioica* and a willowherb species *Epilobium* sp. Further planted trees were present outside of the west boundary in the grounds of the off-site rugby club. A mature pedunculate oak *Quercus robur* was located along the track on the east boundary of the site.

Poor semi-improved grassland

3.10 A small area of species poor semi-improved grassland was present to the south of H4 and comprised a tall sward approx. 100cm in height. Cock's-foot *Dactylis glomeratus* and false oat-

grass were recorded as frequent with rough meadow grass *Poa trivialis* recorded as occasional. Herb species comprised common nettle, spear thistle *Cirsium vulgare* and field bindweed *Convolvulus arvensis* recorded as abundant, St-John's-wort *Hypericum* sp. was recorded as locally frequent and broadleaved dock *Rumex obtusifolius* recorded as occasional.

Arable

3.11 The majority of the site comprised arable fields planted with oilseed rape *Brassica napus* with vegetation limited to the field margins. These strips were 1-2m in width and were dominated by coarse grasses and common forbs. False oat-grass was recorded as the dominant grass species with cock's-foot, wild oat *Avena fatua* and common couch *Elytriga repens* recorded as locally frequent. Common forbs included locally abundant yarrow *Achillea millefolium*, common nettle and field bindweed were recorded as abundant with curled dock *Rumex crispus* and hoary willowherb *Epilobium parviflorum* recorded as occasional.

3.12 An area in the south of the site (north of the rugby club area) had been planted with a wildflower mix and comprised species such as sunflower *Helianthus annus*, lacy phacelia *Phacelia tanacetifolia*, common poppy *Papaver rhoeas*, nipplewort *Lapsana communis* and germander speedwell *Veronica chamaedrys*.

Hedgerows

3.13 Five hedgerows were recorded on site along the field boundaries, no hedgerows were identified as being important under The Hedgerow Regulations 1997 due to containing too few species and insufficient associated features. A garden boundary hedgerow was present in the south-west of the site and was not assessed under HEGS or the Hedgerow Regulations.

3.14 None of the hedgerows qualified as important under The Hedgerow Regulations Table 4 below describes the hedgerows in more detail.

Table 4: Hedgerow Survey Summary Results

Hedge	Canopy Species	HEGS Grade	Species rich*	Important Under Regs	Contains >80% Native Species
H1	*Ap, Cm, Ps, Fe, Sc, Sn, Ug, Rc, Ac, Md*	2+	N	N	Y
H2	*Fe, Qr, Msp, Sa, Ap*	-3	N	N	Y
H3	*Fe, Qr, Rc, Ps, Cm, Ca, Sn, Usp, Pa, Ac*	2	N	N	Y
H4	*Pa, Cm, Sn, Ug, Qr, Fe, Qp, Psp, Ap*	-2	N	N	Y
H5	*Cm, Ps, Sn, Fe, Ap*	3	N	N	Y

Ap Acer pseudoplatanus sycamore, *Ug Ulmus glabra* wych elm, *Ca Corylus avellana* hazel, *Fe Fraxinus excelsior* ash, *Cm Crataegus monogyna* hawthorn, *Sn Sambucus nigra* elder, *Ps Prunus spinosa* blackthorn, *Rc Rosa canina* dog-rose, *Qr Quercus robur* English oak, *Ac Acer campestre* field maple, *Msp Mauls sp* apple Sp., *Sc Salix caprea*. Goat willow, *Md Malus domestica* Orchard apple, *Sa Sorbus aria* common whitebeam *Usp Ulm* sp elm sp., *Pa Prunus avium* wild cherry, *Qp Quercus petraea* sessile oak, *Psp Pinus* sp pine sp.

* Species rich – greater than 5 canopy species in total

Ditches

3.15 Two dry ditches were present along the north boundary and H2 they were approx. 2m in depth and 1m wide they were colonised by vegetation found along the arable field margins.

Bare Ground

3.16 A bare ground track was present along the east and south boundary and formed farm tracks for the off-site farm buildings

Hardstanding

3.17 Tarmac roads were present to the north-west of the site providing access into the adjacent housing development and provide further access roads to develop into the site.

Field Survey-Fauna

Amphibians

3.18 No records of great crested newts (GCN) *Triturus cristatus* were returned for within 1km of the site boundary and no ponds were recorded on site or within 500m of the site. The site and surrounding built up residential area and intensively managed arable areas did not provide suitable foraging or breeding habitat for GCN.

Badgers-CONFIDENTIAL

3.19 Records for badger setts and signs were returned for within the site boundary, previous surveys in 2014 and 2016 indicated badger activity within the site comprising outlier setts of varying activity and active latrines, evidence was mainly located along H4 and H5 in the south-west, no main setts were recorded on site or within 30m.

3.20 During the 2018 survey four setts were located on-site along H3, H4 and in the tree cluster along H4 with two small active latrines located along H3 and H4. No signs of recent use such as fresh prints, excavations, hair or bedding material was recorded, Table 5 below describes the setts in more detail.

Table 5: Badger Survey Summary Results

Evidence ref #	Sett Type	Details
S1	Outlier	One partially used hole and one disused hole located along H3 and dry ditch, TN1 on Fig.2
S2	Outlier	Two disused holes along H4, TN2 on Fig.2
S3	Subsidiary	Six partially used holes and seven disused holes within tree cluster in H4, TN3 on Fig.2
S4	Outlier	Two partially used holes and one disused hole, TN4 on Fig.2

3.21 The habitats within the site offer some limited seasonal foraging due to the arable nature of the site with the hedgerows and ditches providing some limited sett building and commuting habitat into the wider area.

Bats

3.22 No buildings were present on site, the nearest roost record was located 470m west of the site and comprised a brown long-eared and unidentified bat species roost from 2017. Further records of bat activity were returned further west of the site.

3.23 Three trees were identified within the site boundary which had features that could potentially support roosting bats, these trees were also identified during previous surveys. All three trees were oak trees with moderate potential to support roosting bats. T1 comprised two knot holes on the south-east and east aspect, T2 comprised a knot hole on the south aspect (previous surveys identified a branch split on the south aspect however due to the tree being in full leaf this feature could not be assessed from the ground), T3 comprised a knot hole on the west aspect and two splits/cracks on the south-west and north-west aspect.

3.24 The site provided very little foraging habitat due to the large areas of arable land, the hedgerows provide commuting routes into the wider area however suitable foraging habitat is limited in the wider area due to further agricultural land and residential areas.

Birds

3.25 The hedgerows and trees provide potential suitable habitat to a range of common bird species for nesting and foraging.

Reptiles

3.26 Three grass snake records were returned west of the site the closest of which was 540m from site. The habitats on site were considered unsuitable for use by reptiles due to the structurally homogenous vegetation with a lack of suitable basking, foraging and feeding areas.

4.0 DISCUSSION AND RECOMMENDATIONS

Site Proposals

4.1 The proposed development is for up to 850 residential units, a secondary school, sports pitch, associated infrastructure and landscaping which includes a detention basin in the north-east of the site.

Designated Sites

Statutory Designated Sites

4.2 There were no internationally designated sites of nature conservation importance within 5km of the site and no nationally designated sites of nature conservation importance within 2km of the site.

Non-Statutory Designated Sites

4.3 Non-statutory designated sites do not receive statutory protection. They do however receive policy protection (as “Local Sites”), as reflected in the National Policy Planning Framework (NPPF). NPPF suggests that Local Sites can have a fundamental role to play in meeting overall

national biodiversity targets and that appropriate weight should be attached to designated sites when making planning decisions.

4.4 Nine non-statutory designated sites are located within 1km of the site. Habitats under section 41 of the Habitats of Principal Importance are considered threatened and are areas of conservation priorities in the Post-2010 Biodiversity Framework which aims to halt overall biodiversity loss, none of these sites are located within the site boundary.

4.5 Due to the distance of the site from these habitats it is considered that there will be no direct impacts upon these sites. There is the potential of indirect impacts through pollution therefore it is recommended that standard best practice should be implemented including via the adoption of a Construction Code of Conduct, Environmental Management Plan, or similar in order to minimise the risk of any potential impacts during the construction.

Habitats

4.1 Embedded within the NPPF is the premise of '*presumption in favour of sustainable development*' and within the NPPF there are clear objectives for conserving and enhancing the natural environment:

"*Planning policies and decisions should contribute to and enhance the natural and local environment by:*

- *protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- *recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*
- *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate".*

4.2 The site comprises arable fields with a small section of species poor semi-improved grassland, trees, hedgerows and ditches all of which comprised common and widespread species and as such the loss of these habitats will not affect the overall conservation status of the local area and their loss does not provide a constraint to development.

4.3 Two small breaches are to be made in H4 for road access with the remaining hedgerows, trees and semi-improved grassland being retained. The hedgerows and trees being retained within the development should be protected from damage. In order to ensure that the trees are protected from inadvertent damage during construction it is recommended that they be protected from damage and from soil compaction during works by maintaining fenced Root Protection Areas (RPA).

4.4 Green landscaping is proposed in the centre of the site surrounding the cluster of trees within H4 with further planting adjacent to existing hedgerows and alongside the east and south boundary. A detention basin and further green space and tree planting surrounding this feature are also proposed in the north-east of the site.

Fauna

4.5 Principal pieces of legislation protecting wild species are Part 1 of the Wildlife and Countryside Act 1981 (as amended) (WCA) and the Conservation of Habitats and Species Regulations 2017 (as amended). Some species, for example badgers, also have their own protective legislation (Protection of Badger Act 1992). The impact that this legislation has on the Planning system is outlined in ODPM 06/2005 Government Circular: Biodiversity and Geological Conservation – Statutory obligations and their Impact within the Planning System.

4.6 This guidance states that as the presence of protected species is a material consideration in any planning decision, it is essential that the presence or otherwise of protected species, and the extent to which they are affected by proposals is established prior to planning permission being granted. Furthermore, where protected species are present and proposals may result in harm to the species or its habitat, steps should be taken to ensure the long-term protection of the species, such as through attaching appropriate planning conditions for example.

4.7 In addition to protected species, there are those that are otherwise of conservation merit, such as those listed on S41 of the NERC act and LBAP priority species. These are recognised in the NPPF which advises that when determining planning applications, LPAs should aim to conserve and enhance biodiversity by applying a set of principles including:

- *If significant harm resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.*
- *Development proposals where the primary objective is to conserve or enhance biodiversity in and around the development and minimise impacts.*

4.8 The implications that various identified species or those that are thought reasonably likely to occur may have for developmental design and programming considerations are outlined below.

Amphibians

4.9 No records of GCN or other amphibians were returned within 1km of the site, no ponds were located on site or within 500m of the site. The site provided very little suitability for GCN it is considered that GCN and other amphibians are highly unlikely to be present on site and are unlikely to be present within the immediate area and as such do not pose a constraint to development.

Badgers

4.10 No main sett or signs of recent activity associated with S1-S4 were recorded and it is considered that badgers use the site on an occasional basis as part of a wider territory. As works are to be undertaken within 30m of the setts identified on site it is recommended that an update badger survey is undertaken closer to the time of proposed works to assess the status of the setts as further mitigation may be required. This mitigation may include the closure of active badger setts. Sett closure is required prior to any works that directly affect any sett or where levels of disturbance are likely to be greater than badgers may normally tolerate, e.g. the use of heavy construction machinery within 30m of the sett entrance or temporarily severing the access from the sett to a suitable foraging area.

4.11 Sett closure may only be carried out under a badger Licence from Natural England. Closure involves a licenced ecologist to fit gates to the entrances of active badger setts and to monitor activity at the setts for a minimum period of 21 days prior to sett destruction. In order to avoid the most sensitive periods in the badger's life cycle, sett closure may only be carried outside the period December – June, inclusive. Badger licences usually require full planning permission to be in place and Natural England have a 30 day determination period for the application.

As badgers are likely to make use of the site's wider habitats, the following precautionary measures would also be recommended as a minimum prior to and during the construction phase of works to ensure that badgers are not harmed:

- Badger activity within the site and an area of 30m around the site should be reassessed at least 6 weeks prior to commencement of any on-site works;
- During construction any pipes greater than 250mm in diameter will be capped if they are left open overnight, thereby preventing badgers from becoming trapped; and
- Any pits or trenches will be similarly covered overnight, or left with a suitable means of escape, e.g. wooden plank.

4.12 Design of the site layout and green infrastructure should seek to retain the linkages across the site for badgers, including between setts and to the wider countryside. The planting of fruit-bearing trees and/or creation of grassland habitats is also recommended, which once established would be expected to maintain a foraging resource for badger.

Bats

4.13 During the ground inspection three trees (T1-T3) were recorded with moderate potential to support roosting bats, as proposals are in close proximity to the trees the impact upon roosting bats cannot be discounted and further aerial assessment is recommended to further assess the potential of the trees to support roosting bats.

4.14 The habitats present are sub-optimal with only the hedges and trees of value for bats. These features are not only likely to provide useful foraging and commuting habitat within the site but link the site to the surrounding area. As such impacts to these hedges could harm the conservation status of bats in the wider area. However at this stage, all the features are to be retained and in some cases enhanced with provision of buffer (structural) planting and attenuation waterbodies. The only impacts will be through H4 to facilitate site access roads.

4.15 Given the width of these severances and the other enhancements on site, impacts are considered to be minimal, therefore at this stage it is considered that the site falls below the requirement for nocturnal activity surveys for bats (transects). Therefore no further survey is required at this stage, however it is recommended that where possible hedgerow H4 will be reinforced with native species planting. Further planting along this hedgerow alongside planting either side of the proposed road access should also be incorporated. The implementation of standard trees adjacent to the road will grow to be above the level of vehicle movement, the tree standards to be used shall be of an appropriate size and will be planted early in the development cycle.

4.16 The lower branches of such trees should be regularly pruned back to the trunk in order to ensure that the most suitable flight line is above the maximum traffic height (where applicable low-level lighting columns may also be used in this instance to reduce the likelihood of the bats using the lower tree regions). The implementation of the above measures will allow continued echolocation across the road thereby allowing continued usage of the hedgerow as a foraging/commuting area. It will also reduce the potential for road traffic accidents to bats (and also for birds).

4.17 Illumination, either by external lighting or as light spill from the development, may impact on bats potentially commuting and foraging over and around the site. The lighting and layout of the proposed development should be designed to minimise light-spill onto habitats both within and adjacent to it that are used by the local bat population foraging or commuting. This will be achieved by ensuring that the design of lighting is based upon guidelines presented in the Bat Conservation Trust & Institute of Lighting Engineers 'Bats and Lighting in the UK - Bats and Built Environment Series'. Therefore, the lighting scheme will include the following:

- The strategic use of landscaping and planting to avoid light spill on sensitive habitats. Planting should be considered to buffer the southern boundary to help create a dark corridor.
- The avoidance of direct lighting of existing trees, scrub or proposed areas of habitat creation/landscape planting.
- Unnecessary light spill will be controlled through a combination of directional lighting, low lighting columns, hooded / shielded luminaires or strategic planting.
- All new column mounted luminaires shall be fitted with flat glass where appropriate to aid 0% upward light discharge.
- Where appropriate, luminaires on the site boundary will be fitted with light baffles to prevent light spill.

4.18 With the implementation of the mitigation proposed above, residual effects on the local population of bats are likely to be negligible.

4.19 All habitat loss will ultimately be compensated through the use of replacement habitats such as dense native species hedgerows or other suitable linear habitats as part of any GI/POS agreed in outline consent, and which will be subject to future detailed design proposals. Three bat boxes (per tree) should be placed on suitable semi-mature/mature trees at approx. 3-4m high in sunny locations on an east or south facing orientation. The bat boxes should be a variety of designs to encourage different environmental conditions. However all the boxes should be suitable for both common pipistrelle but also a wide range of British species, both common and uncommon Therefore the following boxes and quantities are suggested:

- Three Schwegler 2DFP boxes, good for smaller British bats such as common pipistrelle.
- Three Schwegler 1FF, good for a wide range of bat species.
- Three Schwegler 2FN boxes, good for both smaller bat species and attracting larger species such as Leisler's.

4.20 If any advice is required in identifying suitable semi-mature or mature trees for placing these boxes, this can be provided by FPCR.

4.21 It is considered that the implementation of these measures would not only be sufficient to ensure that the potential for any indirect impacts upon potential roosting or foraging and commuting habitat used by the local bat population is negligible, but will also greatly enhance the overall suitability of the site for bats. As a result it is considered that the proposals would maintain the Favourable Conservation Status of bats in the local area.

Birds

4.22 The habitats on-site provide some suitable habitat for nesting by a wide range of common bird species. The main interest is in association with the hedgerow habitats. None of the on-site habitats are considered to be particularly scarce within the wider countryside and, as a result, their wider populations are unlikely to be significantly affected by the loss of small sections of hedgerow.

4.23 All nesting birds and their nests are protected under the Wildlife and Countryside Act, 1981 (as amended). Any removal of woody vegetation including trees and scrub should therefore occur outside of the bird breeding season (March to August inclusive) to minimise the risk of disturbance to breeding birds. If this is not possible, such vegetation should be checked prior to removal by a suitably experienced ecologist. If active nests are found, vegetation should be left untouched and suitably buffered from works until all birds have fledged. Specific advice should be sought prior to undertaking the clearance.

Reptiles

4.24 Although records of grass snake were returned within 1km of the site these records are located within the vicinity of the Sor Brook and associated reservoirs, the habitats on-site were considered unsuitable due to the largely arable nature of the site with no ponds or wet ditches typically favoured by grass snake. The overall homogenous nature of the site with a lack of basking and shelter habitats make the site unsuitable for reptiles and it is highly unlikely that reptiles are using the site and as such do not pose a constraint to development.

Biodiversity Enhancement

4.25 The following section provides recommendations for ecological enhancements that will help achieve a net biodiversity gain from development of the site. The recommendations seek to comply with aspirations of the NPPF. Therefore enhancement measures will focus on complementary habitats and species and be tailored to maximise the contribution that the development makes to local nature conservation objectives.

4.26 The following are recommendations for the proposed planting, and should therefore be followed where feasible. In order to provide ecological enhancement within the site in line with NPPF, preference should be given within the planting scheme to the use of locally native woody species,

with an emphasis on species bearing nectar, berries, fruit and nuts, as these enhance the foraging opportunities for local wild fauna including birds and invertebrates. Suitable small tree species for inclusion in planting schemes include field maple *Acer campestre*, silver birch *Betula pendula*, wild cherry *Prunus avium*, bird cherry *P. padus*, holly *Ilex aquifolium*, crab apple *Malus sylvestris* and rowan *Sorbus aucuparia*. Other shrub species suitable for inclusion within the design include hawthorn *Crataegus monogyna*, hazel *Corylus avellana,* blackthorn *Prunus spinosa*, dog rose *Rosa canina*, honeysuckle *Lonicera periclymenum* and wild privet *Ligustrum vulgare*.

4.27 It is recommended that the detailed design and creation of these habitats seek to complement existing habitats by providing links through the site and between hedgerows. Any proposed open green space within the development should be seeded with a neutral grassland and wildflower mix, of local provenance.

4.28 The retention of boundary features, in combination with a scheme of native planting, will ensure that the proposals help maintain and enhance connectivity across the site. These measures should be designed to preserve and enhance existing linkages to areas of adjacent habitat, and ensure the site access to the wider countryside is maintained for local fauna.

4.29 The creation of the detention basin has the potential to increase the site's suitability for a wide range of species through good design and planting. Where engineering function allows, the basin should be designed with a sinuous organic shape, stepped margins and a deeper central area, over-deepened if necessary to provide an area of permanent standing water or at least damp substrate. Wet grassland can be sown within waterbodies where seasonal inundation is expected, with Emorsgate EM8 Mixture for Wetlands being suitable. The surrounding area should be sown with a bankside mix, where more dry conditions may be expected.

4.30 In addition, it is recommended that faunal habitat measures be incorporated into the redevelopment. These could include features such as bat boxes, bird boxes, hedgehog houses and insect tubes/boxes.

Key

- Site Boundary
- Environmentally Sensitive Areas
- NERC Act Section 41 Habitats of Principal Importance
- Brown Long-eared Bat
- Common Pipistrelle
- Myotis
- Noctule Bat
- Soprano Pipistrelle
- Unidentified Bat
- Common Toad
- Grass Snake
- West European Hedgehog

Hallam Land Management Ltd

Oxford (Bankside 2)
Banbury

Site Location and Desk Study Results Plan

scale @ A3 1:12,000 | ERW/ABS | 3/1/2019

Figure 1 | 6394-E-01

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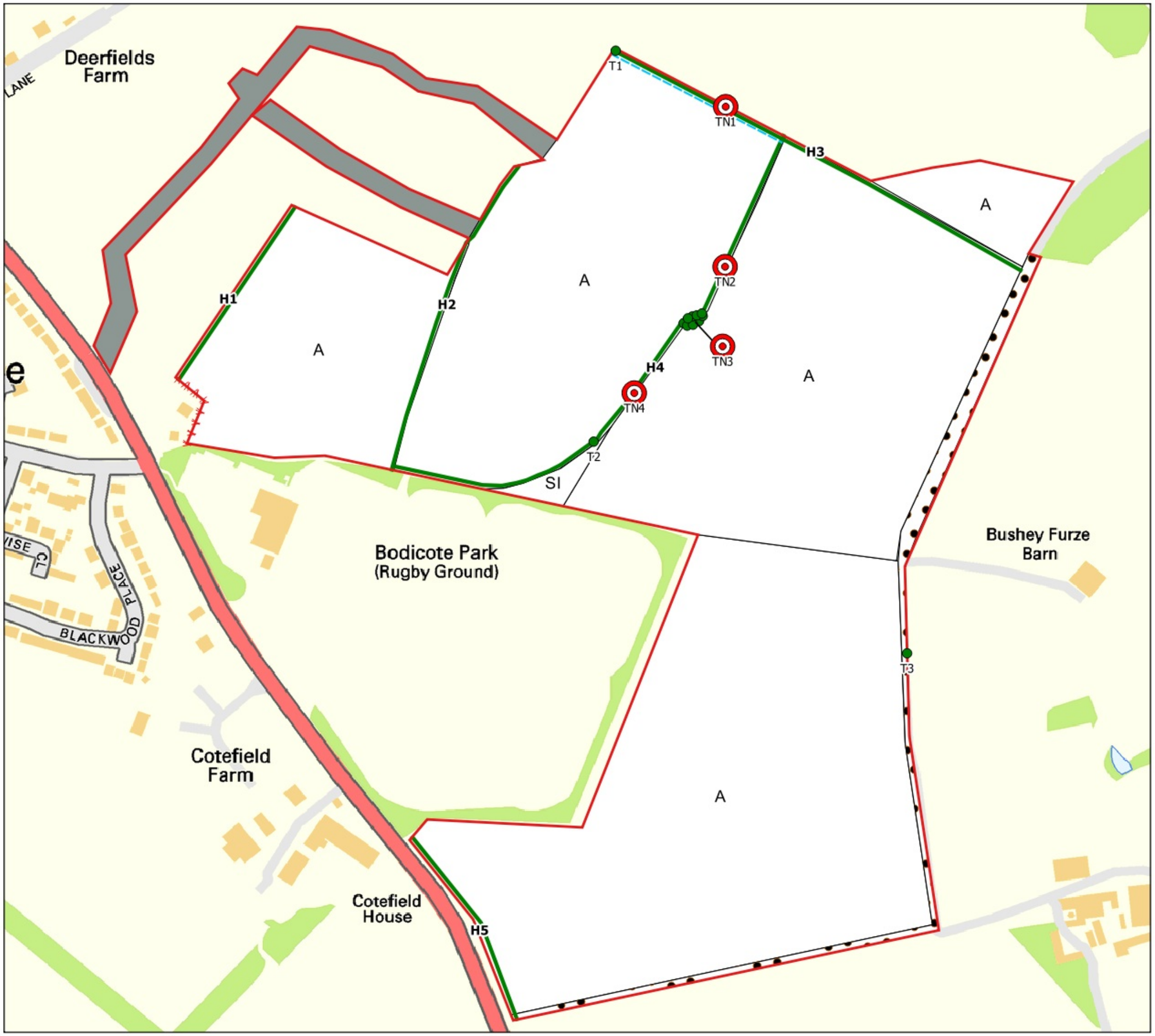

Key

- Site Boundary
- SI — Poor semi-improved grassland
- A — Arable
- Built Environment: Buildings/hardstanding
- Bare ground
- Hedge (with reference)
- Garden Hedge
- Dry ditch
- Broadleaved tree
- Target note (with reference)

Hallam Land Management

Oxford Road,
Banbury (Bankside 2)

Phase 1 Habitat Plan

scale 1:4.100 | drawn LTW/ABS | issue 19/3/2019

drawing / figure number **Figure 2** | rev **6394**

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APPENDIX A-BOTANICAL SPECIES LIST

Common name	Scientific name	Arable	Semi-improved grassland
Barren brome	*Bromus sterilis*	R	
Bramble	*Rubus fruticosus*	R	
Bristly oxtongue	*Picris echioides*	R	
Broadleaved dock	*Rumex obtusifolius*	LF	O
Cleavers	*Galium aparine*	O	
Cock's-foot	*Dactylis glomerata*	LF	F
Common couch	*Elymus repens*	LF	
Common mallow	*Malva sylvestris*	R	
Common nettle	*Urtica dioica*	A	A
Common poppy	*Papaver rhoeas*	R	R
Common ragwort	*Senecio jacobaea*	O	R
Creeping thistle	*Cirsium arvense*	F	F
Curled dock	*Rumex crispus*	O	
Dandelion	*Taraxacum* agg	R	
Dove's-foot crane's-bill	*Geranium molle*	R	
False oat-grass	*Arrhenatherum elatius*	D	F
Field bindweed	*Convolvulus arvensis*	A	A
Field forget-me-not	*Myosotis arvensis*	R	
Germander speedwell	*Vernoica chamaedrys*	R	
Great willowherb	*Epilobium hirsutum*	R	
Greater plantain	*Plantago major*	R	
Groundsel	*Senecio vulgaris*	O	
Hawthorn	*Crataegus monogyna*		R
Hedge bindweed	*Calystegia sepium*	R	
Hoary willowherb	*Epilobium parviflorum*	O	
Hogweed	*Heracleum sphondylium*	LF	
Ivy	*Hedera helix helix*	O	
Lacy phacelia	*Phacelia tanacetifolia*	LA	
Lady's bedstraw	*Galium verum*	R	

Common name	Scientific name	Arable	Semi-improved grassland
Lesser burdock	*Arctium minus*	F	
Lords-and-ladies	*Arum maculatum*	R	
Marsh thistle	*Cirsium palustre*		O
Mugwort	*Artemisia vulgaris*	R	
Nipplewort	*Lapsana communis*	O	
Oxeye daisy	*Leucanthemum vulgare*		
Prickly lettuce	*Lactuca serriola*	R	
Red campion	*Silene dioica*		R
Rough meadow grass	*Poa trivialis*		
Scentless mayweed	*Tripleurospermum inodorum*	R	
Small Teasel	*Dipsacus pilosus*	O	
Spear thistle	*Cirsium vulgare*	LF	A
St. John's-wort sp.	*Hypericum* spp		LF
Sun spurge	*Euphorbia helioscopia*	R	
Sunflower	*Helianthus annuus*	LF	
Tufted hair-grass	*Deschampia cespitosa*		O
Wall barley	*Hordeum murinum*	R	
White campion	*Silene alba*		R
Wild marjoram	*Origanum vulgare*	R	
Wild oat	*Avena fatua*	LF	
Wood avens	*Geum urbanum*	R	
Yarrow	*Achillea millefolium*	O	R
Yorkshire fog	*Holcus lanatus*	O	

APPENDIX B-SITE PHOTOGRAPHS

Photograph 1: Arable field and field margin

Photograph 2: Species poor semi-improved grassland area

Photograph 3: Understorey of tree cluster in centre of site showing some disused badger holes