Bicester Gateway Phase 1A

Ecological Appraisal

London and Regional Properties

13th February 2018

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Document Control

Project:	Bicester Gateway
Client:	London and Regional Properties
Job Number:	A103271
File Origin:	N:\Projects\Projects A103000\A103271 Land at A41 Bicester\REPORTS

Issue 1	13th December 2017	FINAL
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Rev:	Date:	Updated by:	Verified by:	Description of changes:
1	13/02/18	ES	VT	Amendments to the report to include retention of habitats following discussions with the LPA Ecologist

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Executive Summary

Contents	Summary
Site Location	The site is located off Wendlebury Road in Bicester and is centred at Ordnance Survey National Grid Reference SP 5738 2124.
Proposals	The development is for the construction of a hotel and associated hard and soft landscaping, including tree and hedgerow planting and the creation of a SUDs.
Existing Site Information	Previous surveys were undertaken by Ecology Solutions Ltd in April 2016 and a reptile survey in September 2017. These reports identified that the site is suitable to support foraging and commuting bats and nesting birds. Previous surveys did not identify any amphibians or reptiles present within the site
Scope of this Survey(s)	This survey was requested to support the Reserved Matters application for the Phase 1 A development and to support the discharge of associated planning conditions, in particular Condition 24.
Results	The desk study identified three sites of nature conservation importance within 2.5km of the site. The closest was Bicester Meadows LWS located 0.4km east of the site. The desk study identified records of amphibians, reptiles, bats, badgers, birds, invertebrates, otter and water vole, hedgehog and polecat. Previous surveys undertaken in 2016 and 2017 did not record reptiles or GCN on site. Therefore, these species are currently not considered to be present. The site is considered suitable to support foraging and commuting bats, badgers, nesting birds and hedgehog.
Recommendations	**Habitats:** Any retained trees/hedgerows within the site are to be protected, through the installation of temporary fencing in accordance with British Standard *BS 5873 2012. Trees in Relation to Construction.* **Bats:** A sensitive lighting scheme for bats has been developed for the site (Lighting report, WYG 2017). A minimum of two bat tubes/brick or slates will be installed within the development. **Badgers:** A pre-works walkover of the site will be undertaken three months prior to the commencement of development. **Birds:** Vegetation clearance is to be undertaken outside of the breeding season typically considered to be March to September. If this is not possible vegetation will be checked by a suitably qualified ecologist 48 hour prior to clearance. A minimum of four bird boxes will be installed within the development wither on the building or suitable trees. **Other:** The bases of the hedgerows should be checked for hedgehogs immediately prior to removal by a suitably qualified ecologist. Any planting on site will incorporate native fruit and seed-bearing species suitable for attracting wildlife wherever possible.

Glossary

AONB	Area(s) of Outstanding Natural Beauty
Badger Act	Protection of Badgers Act 1992
BCT	Bat Conservation Trust
BoCC	Bird(s) of Conservation Concern
BTO	British Trust for Ornithology
CEco	Chartered Ecologist
CEnv	Chartered Environmentalist
CEMP	Construction Ecological Management Plan
CIEEM	Chartered Institute of Ecology & Environmental Management
CRoW Act	Countryside and Rights of Way Act 2000
EcIA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EMP	Ecological Management Plan
EPS	European Protected Species
EPSL	European Protected Species Licence
GCN	Great crested newt
Habitat Regulations	Conservation of Habitats and Species Regulations 2010 (as amended)
HAP	Habitat Action Plan
Hedgerow Regulations	Hedgerow Regulations 1997
HPI	Habitat(s) of Principal Importance
HRA	Habitats Regulations Assessment
JNCC	Join Nature Conservancy Council
LERC	Local Ecological Record Centre
LBAP	Local Biodiversity Action Plan
LNR	Local Nature Reserve
LPA	Local Planning Authority
LWS	Local Wildlife Site
MCIEEM	Member of Chartered Institute of Ecology & Environmental Management
Natura 2000 site	A European site designated for its nature conservation value
NE	Natural England
NERC Act	Natural Environment and Rural Communities Act 2006
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
PEA	Preliminary Ecological Appraisal
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAP	Species Action Plan
SNCO	Statutory Nature Conservation Organisations
SPA	Special Protection Area
SPI	Species of Principal Importance
SSSI	Site(s) of Special Scientific Interest
W&CA	Wildlife & Countryside Act 1981

1.0 Introduction

1.1 Background

WYG was commissioned by London and Regional Properties (L+R) on the 24th November 2017 to undertake an Ecological Appraisal of the site known as Bicester Gateway. The site was granted planning consent on the 26th July 2017 ref 16/02586/OUT. The site is part of a larger development scheme which has planning consent, Phase 1B is for the field located to the south of Phase 1A. This report was requested to support a reserved matters application for Phase 1A of the development as shown of Figure 2.

This report has been prepared by Senior Ecologist, Elizabeth Sanders MCIEEM.

1.2 Site Location

The site is located off Wendlebury Road in Bicester and is centred at Ordnance Survey National Grid Reference SP 5738 2124. The land within the development boundary, hereafter referred to as the 'site', is shown on Figure 1. Phase 1A of the development measures approximately 1ha and comprises poor semi-improved grassland field, hedgerows, lines of trees, ditches and areas of scrub.

1.3 Development Proposals

The development proposals include the construction of a four-storey hotel for up to 149 bedrooms and associated car parking with soft landscaping. The site layout has been changed since the original application to retain the western hedgerow between the site and the A41. The landscaping proposals have changed following discussions between WYG and Turkington Martin to include more native species which are beneficial to wildlife. The following planning conditions relating to wildlife are to be discharged during the reserved matters application:

Planning condition 10 states *The first application for approval of reserved matters relating to the development on both Phase 1A or Phase 1B shall include a reptile survey relating to the whole of that phase that has been carried out by an appropriately qualified professional ecologist. The survey shall include details of any necessary protection, mitigation and management measures both during construction and once operational. Thereafter, the mitigation measures set out in the survey and approved as part of the grant of reserved matters approval shall be carried out in full prior to the first occupation of development within that phase and the management measures adhered to at all times thereafter.*

Planning condition 23 states *No removal of hedgerows, trees or shrubs shall take place between the 1st March and 31st August inclusive, unless the Local Planning Authority has confirmed in writing that such works can proceed, based on health and safety reasons in the case of a dangerous tree, or the submission of a recent survey (no older than one month) that has been undertaken by a competent ecologist to assess the nesting bird activity on site, together with details of measures to protect the nesting bird interest on the site.*

Planning condition 24 states *All applications for approval of reserve matters shall be accompanied by a statement that appraises the ecological implications of those reserve matters proposals including how they would mitigate harm to protected/priority species and contribute towards achieving overall*

net gain for biodiversity as part of the overall development. Thereafter, measures set out in the statement shall be implemented in full on site in accordance with the details approved as part of the grant of reserved matters application.

1.4 Purpose of the Report

The objectives of this is assessment are to carry-out:

- A preliminary ecological appraisal involving a walkover of the site to record habitat types and dominant vegetation, including any invasive species, and a reconnaissance survey for evidence of protected fauna or habitats capable of supporting such species;
- An assessment of the potential ecological receptors present on site, any constraints they pose to future development and any recommendations for any further surveys, avoidance, mitigation or enhancement measures that are needed (as appropriate).
- Discharge planning conditions related to this reserve matters application.

Note that, where possible, common names for flora and fauna have been used throughout this report for ease of reading.

2.0 Methodology

2.1 Desk Study

2.1.1 Previous Reports

An Ecological Assessment for the whole site (Phase 1A and Phase 1B) was undertaken by Ecology Solutions Ltd in April 2016. The report identified the following habitats within the Bicester Gateway Site:

- Semi-improved Grassland;
- Hedgerows/Treelines;
- Dense and Scattered Scrub; and
- Ditches.

Protected species surveys were undertaken in 2013 and 2016/17 which included the following:

- Bat activity surveys
- Badger
- Amphibian (GCN)
- Reptile

2.1.2 Local Ecological Records Centre

Information was requested from Thames Valley Environmental Records Centre (TVERC) as part of the Ecology Solutions Ltd Ecological Assessment (Ecology Solutions Ltd 2016) for information on any nature conservation designations within 2.5km and protected or notable species records within 1.5km of the site.

The data search covers:

- Statutory designated sites for nature conservation, namely SACs, SPAs, Ramsar sites, SSSIs, NNRs and LNRs;
- Non-statutory designated sites for nature conservation, namely LWS;
- Legally protected species, such as great crested newts, bats and badger;
- Notable habitats and species, such as those listed as Habitats or Species of Principal Importance; and,
- Priority habitats or species within the Oxfordshire LBAP.

The data search did not cover:

- Tree Preservation Orders (TPOs); or
- Conservation Areas designated for their special architectural and historic interest.

2.1.3 Local Species Recorders

The following local species recorder groups were also contacted by Ecology Solutions Ltd in April 2016, for any relevant records that they held:

- Oxfordshire Bat Group, no records held for the application site or the local area.
- Oxfordshire Badger Group, small number of records returned.

- Oxfordshire Ornithological Society, no response received.

2.1.4 Online Resources

A search for relevant information was also made on the following websites:

- MAGIC www.magic.gov.uk - DEFRA's interactive, web-based database for statutory designations and information on any EPSL applications that have been granted in the local area since 2015.

2.2 Field Surveys

The following methodologies have been used to identify the ecological features of value present on or near the site, which are relevant to the proposed development of Phase 1A.

2.2.1 Habitats

An extended Phase 1 habitat survey was undertaken on the site on 29th November 2017 by WYG Assistant Ecologist Amy Dowers.

The vegetation and broad habitat types within the site were noted during the survey in accordance with the categories specified for a Phase 1 Vegetation and Habitat Survey (Joint Nature Conservation Committee, 2010). Dominant plant species were recorded for each habitat present using nomenclature according to Stace (2010). The site was also appraised for its suitability to support notable flora, with regard to the CIEEM Guidelines for Preliminary Ecological Appraisal (2017).

2.2.2 Protected & Notable Species

The site was inspected for evidence of, and its potential to support, protected or notable species, especially those listed under the Schedule 2 of the Habitat Regulations, Schedule 5 of the W&CA, the CRoW Act, those given extra protection under the NERC Act, and species included in the Oxfordshire LBAP.

Great Crested Newt

The site was appraised for its suitability to support GCN. The assessment was based on Guidance outlined in the Joint Nature Conservation Committees' published *Herpetofauna Workers' Manual* (Gent & Gibson, 2003) and the *Great Crested Newt Conservation Handbook* (Langton, Becket & Foster, 2001).

Bats

Roosting bats – Trees

Any suitable trees on site were assessed from the ground for their suitability to support breeding, resting and hibernating bats using survey methods based on the BCT *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd ed, 2016) – hereafter referred to as the 'BCT Guidelines'. The following system has therefore been used to categorise the bat roost suitability of any features found:

Table 1 Categories of Bat Roost Suitability (BCT Guidelines)

Suitability	Typical Roosting Features
Negligible	Negligible habitat feature on site likely to be used by roosting bats.
Low	A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis & potentially for longer periods of time due to their size, shelter, protection, conditions & surrounding habitat.

Foraging/commuting bats

The BCT Guidelines use the following criteria to categorise the potential value of habitats and features for use by foraging and commuting bats and these have been used to characterise the value of this site:

Table 2 Categories of Habitat Suitability (BCT Guidelines)

Suitability	Typical Foraging & Commuting Features
Negligible	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

Reptiles

The site was appraised for its suitability to support reptiles. The assessment was based on guidance outlined in the Joint Nature Conservation Committees' published *Herpetofauna Workers' Manual* (Gent & Gibson, 2003).

Badgers

The site was surveyed for evidence of badger setts or other badger activity such as paths, latrines or signs of foraging. Methodologies used and any setts recorded were classified according to published criteria (Harris, Cresswell & Jefferies, 1989).

Hazel Dormice

The site was surveyed for its suitability to support hazel dormice. The assessment was based on guidance outlined in Bright *et al*. (2006).

Other Species

The site was also appraised for its suitability to support other protected or notable fauna including mammals, amphibians, birds and invertebrates with regard to CIEEM's *Guidelines for Preliminary Ecological Appraisal* (2017) and *BS42020:2013 Biodiversity – Code of Practice for Planning and Development*. Evidence of any current or historical presence of such species was recorded.

2.2.3 Invasive Species

The site was searched for evidence of invasive plant species, such as Japanese knotweed, Himalayan balsam, giant hogweed, wall cotoneaster and rhododendron – however see Appendix A for a full list.

2.3 Limitations

The optimal period to undertake an extended Phase 1 habitat survey is April-September. The survey was completed in November which is outside the optimal survey window. This is not considered to be a limitation to the accurate assessment of the habitats and the dominant species of the respective vegetation types were visible and identifiable.

To determine presence or likely absence of protected species usually requires multiple visits at suitable times of the year. As a result, this survey focuses on assessing the potential of the site to support species of note, which are considered to be of principal importance for the conservation of biodiversity with reference to those given protection under UK or European wildlife legislation. This report cannot therefore be considered a comprehensive assessment of the ecological interest of the site. However, it does provide an assessment of the ecological interest present on the day the site was visited and highlights areas where further survey work may be recommended. Previous survey and desk study information has been used to support this report, where protected species surveys have previously been undertaken. Therefore, this report assessed the conditions of the site on the day of the visit and their likelihood to support protected and notable species supported by previous survey information.

The details of this report will remain valid for a period of **two years** from the date of the survey (e.g. November 2019), after which the validity of this assessment should be reviewed to determine whether further updates are necessary. Note that the recommendations within this report should be

reviewed (and reassessed if necessary) should there be are any changes to the development red line boundary or development proposals which this report was based on.

3.0 Baseline Conditions

3.1 Designated Sites

The following designated site of nature conservation importance have been identified within 2.5km of the site, based on the data search obtained by Ecology Solutions Ltd in April 2016.

Table 3 Designated Sites within 2.5km

Designation	Site Name	Distance & Direction	Summary of features
LWS	Bicester Wetland Reserve	0.4km east	Site is managed by Banbury Ornithological Society in co-operation with Thames Water Utilities Ltd. The site is mostly maintained as wet grassland by outflow from sewage works. Small area of reedbed, open water, wet ditches, banks with tall herb and a dry grassland area. The site is important for overwintering wildfowl.
LWS	Graven Hill	1.4km South-east	Graven hill wood caps a low rounded hill on heavy soil. Oak and ash woodland with a mixed scrub layer including hazel with hawthorn, English elm, midland hawthorn, field maple and blackthorn.
LNR	Bure Park	2.25km north	Habitats include grass meadow, young broad-leaved woodland, hedges and scrub. A small river (the Bure) runs through the site, feeding a small pond which is home to GCN. A balancing pond at one end of the Reserve is fed by run-off from the area.

In additional to the above designations, the nearest Natura 2000 site is Oxford Meadows SAC located 15.9km south-west.

3.2 Habitats

The following habitats have been identified through our assessment, the habitats present on site and adjacent to the site were mapped and can be found detailed on Figure 2:

3.2.1 Scrub

A patch of scattered scrub is present to the centre of the site which comprised willow sp. and hard rush (Photograph 1). Dense scrub dominated by bramble is located along the dry ditch to the south of the site.

Photograph 1: Scattered Scrub

3.2.2 Species-Poor Hedgerows

Hedgerows and lines of trees are present on the site boundaries (Photograph 2). The hedgerows present to the eastern and western boundaries contain field maple, hazel, rose sp., ash, hawthorn, black thorn and crab apple. The hedgerows are approximately 3m in height, approximately 3-5m in width and with the trees being up to 7m tall. The hedgerows are sparse and gappy in places and did not appear to be subject to regular maintenance. The trees within the hedgerows did not have features such as cracks, crevices, split limbs or wood pecker holes present. Two trees with ivy were present in the eastern hedgerow, the ivy was not considered suitable to support bats. Seven woody species were identified within the hedgerows across the site in total, however, all seven species were not present within the same 30m sections of hedgerow. The hedgerows were also fairly gappy for their length.

Photograph 2: Species-Poor Hedgerow

3.2.3 Poor Semi-Improved Grassland

The majority of the site is poor semi-improved grassland which had been recently cut to approximately 15 cm at the time of the survey (Photograph 3). Species present included Yorkshire fog, Timothy, false-oat grass, meadow grasses, broadleaved dock, white clover, doves foot cranes bill, creeping buttercup, ribwort plantain, ground-ivy, dandelion, creeping thistle, cleavers, common

knapweed and bristly ox-tongue. An area of compact rush and moss (species not confirmed) was present on the western boundary within the grassland habitat.

Photograph 3: Poor Semi-Improved Grassland

3.2.4 Running Water

Two 15m long sections of running water were present to the south of the eastern and western site boundaries. The ditches were approximately 0.5m in width. Within the ditches, the flow of water was slow and the water level was approximately 0.5m in depth (Photograph 4). Emergent vegetation dominated by reedmace and patches of fools watercress were present within these sections of ditch.

Photograph 4: Section of Running water

3.2.5 Dry ditch

Dry ditches were present to three of the site boundaries, east, west and south (Photograph 5). These ditches were full of leaf litter at the time of the survey, patches of hogweed, bramble and ivy were also present along the ditches. A stone wall (TN1) formed one bank of the ditch to the east and the bed of the ditch comprised of rocks (TN3).

Photograph 5: Dry Ditch

Habitats adjacent to the site boundary included the following:

3.2.6 Broad-leaved Plantation Woodland

A section of young broadleaved plantation woodland was present to the north of the site and comprised young ash and field maple with patches of dense bramble (Photograph 6). The trees present were in good condition with no cracks crevices or wood pecker holes noted.

Photograph 6: Plantation Broadleaved Woodland

3.2.7 Dense Scrub

Dense scrub was present to the north of the site which predominantly comprised bramble and hawthorn (Photograph 7).

Photograph 7: Dense Scrub

3.2.8 Tall Ruderal

Tall ruderal species were present surrounding the balancing pond to the south western corner adjacent to the site. species present included dock sp., nettle, hogweed,

3.2.9 Amenity grassland

A small length of amenity grassland was present along the A41 to the west of the balancing pond (Photograph 8). The sward was shirt indicating that this habitat is regularly maintained. Species present included white clover, dandelion, creeping buttercup, perennial rye grass and ribwort plantain.

Photograph 8: Amenity Grassland Adjacent to A41

3.2.10 Scattered scrub

Scattered scrub was present to the west of the site which appeared to have been a balancing pond which was dry (Photograph 9). Scrub species included willow, bramble and thistle.

Photograph 9: Scattered Scrub

3.3 Protected & Notable Species

All desk study information has been taken from that obtained by Ecology Solutions Ltd in April 2016 from TVERC. Ecology Solutions undertook surveys of the site (Phase 1A) and the Phase 1B area located to the south. Only information relating to Phase 1A has been provided below.

3.3.1 Great Crested Newts

The desk study obtained in April 2016 identified 11 amphibian records within the surrounding area. The closest records were of common toad, common frog and smooth newt located approximately 1.4km west of the site in 2002/2003. The desk study identified a population of GCN located at Bure Park (LNR) located 2.25km north of the site.

A search of the MAGIC database identified four granted GCN licence applications within 1.5km of the site. Three of which were located to the east of the site beyond the stream, the closest located 645m south-east of the site and one located 1.5km to the west beyond the A41.

Ecology Solutions Ltd undertook terrestrial GCN survey in 2016 and did not identify any GCN during the survey. No waterbodies were surveyed in 2016 due to the ditches on site or adjacent to the site boundaries being dry at the time of the April 2016 survey. Ecology Solutions Ltd state in the Ecological Assessment Report (2016) that surveys had been undertaken within the vicinity of the site in 2013 and no GCN were identified in any waterbodies during that survey.

Ecology Solutions Ltd concluded that a lack of GCN records provided by TVERC, no waterbodies being present within the site and the ditches being dry in the April 2016 survey along-side the potential barriers to GCN movement including the A41 dual carriageway (west) and a stream known as Langford Brook (located 350m to the east) that the site does not support GCN either in their terrestrial phase or aquatic phase.

A pond is present 175m to the south-east of the site at OSNGR SP 5734 2093 within private land which was not accessed at the time of the survey. Ecology Solutions Ltd report that this pond was well stocked with fish and therefore unlikely to support GCN.

The habitats on site including the grassland, hedgerows, running water and scrub are considered suitable habitats to support GCN during their terrestrial phase however they do not provide connectivity to habitats off site where GCN are known to be present and therefore it is considered unlikely that GCN are present within the site.

A HSI was undertaken of the two wet sections of ditch, the results are as follows:

Suitability Index	Ditch 1 (west)	Ditch 2 (east)
Field location	1.00	1.00
Pond area	0.30	0.30
Pond drying	0.10	0.10
Water quality	0.67	0.67
Shade	0.40	0.40
Fowl	1.00	1.00
Fish	1.00	1.00
Ponds	1.00	1.00
Terrestrial habitat	1.00	1.00
Macrophytes	0.90	0.70
SCORE:	0.007236	0.005628
HSI SCORE :	**0.610871489**	**0.59571071**
Pond Suitability :	**Average**	**Average**

Whilst the HSI score for both wet sections of ditches is average the ditches being seasonally wet is considered to reduce the suitability of the ditches to support GCN. The survey undertaken by Ecology Solutions Ltd in April 2016 identified the ditches surrounding the site as being dry, the survey undertaken by WYG in November 2017 identified sections of the eastern and western ditches as containing water, however the survey was undertaken following rainfall over the previous week which is likely to be the reason the ditches were wet at the time of the WYG survey.

The conditions on site, other than the ditches holding some water, are not considered to have changed since the Ecology Solutions Ltd Surveys in 2016 which did not identify any GCN present and it is therefore considered unlikely that GCN will have colonised the site since 2016.

3.3.2 Reptiles

The desk study obtained by Ecology Solutions in April 2016 identified five reptile records. The closest records were of grass snake and slow worm located approximately 1.3km west of the site in 2003.

Ecology Solutions undertook a terrestrial amphibian survey in April 2016 which involved installing refugia across the site and a reptile survey in September 2017 where tin refugia was installed and checked on seven occasions. No reptiles were identified within the site during either of these surveys. it was concluded by Ecology Solutions that due to the short sward offered by the grassland, the barrier to movement presented by the A41, between the site and the presence of more suitable habitats where reptiles were recorded to the west in the desk study, and the lack of reptiles identified during the surveys the site is not utilised by reptiles.

The habitats on site are considered to provide some suitability to support reptiles due to the presence of ditches, dry stone wall, scrub, grassland and hedgerows.

The condition of the site is not considered to have changed since the Ecology Solutions Ltd survey in 2016 and September2017 and therefore it is considered that whilst the habitats on site provide some suitability to support reptiles, no reptiles were identified during the survey and therefore are currently considered absent from the site.

3.3.3 Bats

The desk study obtained by Ecology Solutions Ltd in April 2016 returned two bat records from the surrounding area. The closest records were of common pipistrelle located approximately 1km north-east of the site in 2009.

A search of the MAGIC database identified two granted licence applications within 1.5km of the site, one located 1.3km west and one located 1.5km south-east.

Ecology Solutions undertook a bat activity survey (transect survey) in September 2016 which identified only a small number of common and soprano pipistrelles utilising the hedgerow present within/adjacent to the site along the western boundary.

Roosting bats

None of the trees present within the hedgerows were considered suitable to support roosting bats. No cracks, crevices, woodpecker holes or split limbs were recorded during the survey.

Foraging bats

The site is considered suitable to support foraging and commuting bats due to the presence of ditches, hedgerows and lines of trees, all of which provide connectivity to habitats off-site to the east.

3.3.4 Badger

The desk study obtained by Ecology Solutions Ltd in April 2016 returned five badger records within the 1.5km search area. The closest record was of a dead badger located approximately 0.1km north-east of the site in 2004.

Ecology Solutions Ltd did not identify any evidence of badger activity within the site during the survey undertaken in April 2016.

The site and habitats immediately adjacent are considered to provide suitable areas of sett building and foraging resources for badgers due to the presence of ditches, grassland, planted woodland and hedgerows. However, no evidence of badger activity was recorded during the 2017 site visit by WYG.

3.3.5 Otter & Water Vole

The desk study obtained in April 2016 by Ecology Solutions Ltd identified ten records of otter within the search area, six of these records were associated with Bicester Wetland Reserve located 0.4km east of the site and the remaining four records are associated with streams/brooks located to the north and south over 1km from the site. No records for water vole were returned in the desk study.

No ponds are present within the site and the ditches surrounding the site boundaries are largely dry with only small sections (15m in length) of the eastern and western boundaries holding water in the southern sections. The ditches are not considered suitable to support water vole as they are likely to hold water within short sections only seasonally or following persistent heavy rain and support only sparse vegetation. The ditches are not directly connected to any other waterbodies off site and therefore otter are unlikely to utilise these ditches for foraging or commuting purposes. The woodland adjacent to the north of the site is not considered likely to support otter holts due to the distance from suitable aquatic habitats.

No evidence of otter or water vole was recorded during the 2017 site visit by WYG.

3.3.6 Birds

The desk study obtained in April 2016 identified 1,366 records of birds within the 1.5km search area. The majority of the bird records were related to the Bicester Wetland Reserve located 0.4km east of the site. The desk study included records of barn owl.

Ecology solutions Ltd identified woodpigeon, chiffchaff, wren, dunnock and red-legged partridge on site during the Ecological Assessment survey undertaken in April 2016.

The habitats on site are considered suitable to support foraging and nest building birds, with the hedgerows and trees being of most value to birds. The habitats on site are not considered suitable to support barn owl due to a lack of a thatch within the grassland which would support prey species such as mice and voles. No features (holes and cavities) suitable for nesting or roosting barn owl were identified within the trees on site.

3.3.7 Invertebrates

The desk study from April 2016 identified three records of invertebrates within the 1.5km search area. The most recent record was from 2000. The desk study also identified nine records of signal crayfish within the search area, the most recent records were from 2009 with the closest record located 385m to the east of the site.

The site is considered to offer limited suitable habitat for a range of common invertebrate species due to the presence of hedgerows with trees and grassland. However, these habitats are limited in diversity and are well represented in the immediate surrounding landscape to the site. The site is considered unlikely to support crayfish, in particular the native white clawed crayfish due to the ditches largely being dry.

3.3.8 Other Species

The desk study also identified two hedgehogs and one polecat record within the search area.

No evidence of either species or any other mammals were reported from the 2013 or 2016 surveys undertaken by Ecology Solutions Ltd.

Hedgerows within the site are suitable for foraging/resting/hibernating hedgehogs while the grassland provides additional potential foraging habitat. These habitats are also suitable for foraging polecat.

No evidence for the presence of either species was recorded during the survey by WYG in November 2017, however hedgehog (if present on site) would have been in hibernation at the time of the survey.

3.3.9 Invasive and Non-Native Species

The desk study identified on record of American mink located 140m north of the site and nine records of signal crayfish 390m south-east of the site. The desk study also identified records of Nuttall's waterweed and water fern, both of these records were from Bicester Wetland reserve located 400m east of the site.

No invasive species were identified on site during the Ecology Solutions Survey in 2016/17.

No invasive species were recorded on site during the survey in 2017 undertaken by WYG.

3.4 Importance of Ecological Features

In line with the CIEEM PEA Guidelines, and based on the above baseline information, each ecological feature recorded within the study area is considered to have the following importance, as defined within the CIEEM EcIA Guidelines (2016):

Table 4 Importance of Ecological Features

Feature	Importance	Rationale
Designated Sites	Negligible	The proposed development is considered unlikely to impact any statutory or non-statutory designated site due to the localised nature of the development and limited connectivity, intervening landscape and there is unlikely to be any recreational increases from development.
Scattered Scrub, Species-Poor Hedgerows and Poor Semi-Improved Grassland	Local	Provides suitability to support protected species such as birds, badger, hedgehog and bats. Hedgerows are considered unlikely to meet the LBAP/NERC Act Priority habitat criteria.
Running Water	Negligible	Small sections (15m long) of slow flowing water in two ditches (east and west). Likely only to be wet seasonally and therefore sub-optimal to support protected species.
Dry Ditches	Negligible	Sub-optimal to support protected species.
GCN	Negligible	No GCN were identified during the terrestrial surveys carried out by Ecology Solutions Ltd in 2016.
Reptiles	Negligible	The reptile survey in September 2017 did not identify any reptiles on site.
Bats	Local	Low numbers of foraging pipistrelle bats identified by Ecology Solutions Ltd during surveys in 2016.
Badger	Local	Badgers are highly mobile and can quickly excavate and occupy new setts. Habitats on site considered suitable to support sett building and foraging badgers.

Feature	Importance	Rationale
Otter and Water vole	Negligible	No suitable habitat on site. No evidence of presence on site.
Birds	Local	Habitats on site considered suitable to support nesting and foraging birds.
Invertebrates	Negligible	Habitats on site considered sub-optimal to support a diverse assemblage of invertebrates.
Other mammals (hedgehog, polecat and American mink)	Local	Habitats on site considered suitable to support hedgehogs and potentially polecat.
Invasive species	Negligible	No invasive species identified on site.

The potential for the proposals to have adverse or beneficial impacts on these features, along with the need for any mitigation or enhancement measures are discussed in detail below.

4.0 Relevant Planning Policy & Legislation

4.1 National Planning Policy Framework

The NPPF was adopted in March 2012. Section 11 of the NPPF, *Conserving and Enhancing the Natural Environment* replaces *Planning Policy Statement 9 (PPS9): Biodiversity and Geological Conservation*. However, government Circular *06/2005, Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System*, which relates to PPS9 remains valid and is referenced within Paragraph 113 of the NPPF.

Circular 06/2005 states that the presence of protected species is a material consideration in the planning process. The NPPF also states that '*planning policies should promote the protection of priority species populations linked to national and local targets*'.

Furthermore, central and local government policy now points towards ecological enhancement on development sites. The NPPF considers enhancement in the statement '*The planning system should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes….and minimising impacts on biodiversity and providing net gains in biodiversity*'.

4.2 Biodiversity 2020: A strategy for England's wildlife & ecosystem services

Biodiversity 2020 replaces the previous UK Biodiversity Action Plan and sets national targets to be achieved. The intent of Biodiversity 2020, however, is much broader than the protection and enhancement of less common species, and is meant to embrace the wider countryside as a whole.

The priority species and habitats considered under Biodiversity 2020 are the SPI & HPI detailed under NERC Act (see Appendix A for further details).

4.3 Local Biodiversity Action Plan

Local Biodiversity Action Plans (LBAPs) identify habitat and species conservation priorities at a local level (typically County by County) and are usually drawn up by a consortium of local Government organisations and conservation charities. Although they are no-longer managed at a national level many are still reviewed and updated at a local level.

The Oxfordshire LBAP is the relevant document for this site and it contains the following Habitat & Species Action Plans:

The Oxfordshire BAP contains 82 protected species and 1,360 notable species which have been identified within the county. Table 5 details the fauna and flora groups which are present.

Table 5 LBAP SAPs

Species Action Plans	
Plants	Birds
Fungi	Lichens

Species Action Plans	
Invertebrates	Bryophytes
Mammals	Fish
Reptiles	Freshwater bryozoan
Amphibians	

Table 6 LBAP HAPs

Habitats Action Plans	
Lowland Meadows	Eutrophic Standing Waters
Lowland Calcareous Grassland	Mesotrophic Lakes
Lowland Heath	Ponds
Lowland Wood Pasture and Parkland	Reedbed
Lowland Beech and Yew Woodland	Rivers
Lowland Mixed Deciduous Woodland	Purple Moor Grass and Rush Pastures
Wet Woodland	Arable Field Margins
Traditional Orchards	Hedgerows
Lowland Meadows and Flood Plain Grazing Marsh	Open Mosaic Habitats on Previously Developed Land
Fens	

It should be noted that the existence of a SAP or HAP does not always infer an elevated level importance for those features. These plans may be designed to encourage an increase in these habitats/species, rather than to protect a county-scarce feature (for example).

4.4 Cherwell Local Plan

On 19th December 2016, Policy Bicester (Gavray Drive) of the Cherwell Local Plan 2011-2031 Part 1 was adopted. The plan looks to the future and sets out proposals to support the local economy and communities over the next few decades.

The application site forms the westernmost part of a strategic Development Site – Policy Bicester 10 (Bicester Gateway). Policy Bicester 10 makes specific reference to:

Adequate investigation of, protection of and management of priority and protected habitats and species on site given the ecological value of the site, with biodiversity preserved and enhanced. An ecological survey should be undertaken, investigating the cumulative impacts of development at this site and at other sites on the Local and District Wildlife Sites in the vicinity.

The following policies are relevant to biodiversity:

Policy ESD 9 - Protection of the Oxford Meadows SAC *The Oxford Meadows SAC has been designated for the lowland hay meadow habitats it supports. Developers will be required to demonstrate that:*

- *During construction of the development there will be no adverse effects on the water quality or quantity of any adjacent or nearby watercourse.*
- *During operation of the development any run-off of water into adjacent or surrounding watercourses will meet Environmental Quality Standards.*
- *New development will not significantly alter groundwater flows that the hydrological regime of the Oxford Meadows SAC is maintained in terms or water quality and quantity.*
- *Run-off rates or surface water from the development will be maintained at greenfield rates.*

Policy ESD 10 – Protection and Enhancement of Biodiversity and the Natural Environment states *Protection and enhancement of the natural environment will be achieved by the following:*

- *In considering proposals for development, a net gain in biodiversity will be sought by protecting, managing, enhancing and extending existing resources, and by creating new resources*
- *The protection of trees will be encouraged, with an aim to increase the number of trees in the District*
- *The reuse of soils will be sought*
- *If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or as a last resort, compensated for, then development will not be permitted.*
- *Development which would result in the damage to or loss of a site of international value will be subject to the Habitats Regulations Assessment process and will not be permitted unless it can be demonstrated that there will be no likely significant effects on the international site or that effects can be mitigated*
- *Development which would result in damage to or loss of a site of biodiversity or geological value of national importance will not be permitted unless the benefits of the development clearly outweigh the harm it would cause to the site and the wider national network of SSSIs, and the loss can be mitigated to achieve a net gain in biodiversity/geodiversity*
- *Development which would result in damage to or loss of a site of biodiversity or geological value of a regional or local importance including habitats of species of principal importance for biodiversity will not be permitted unless the benefits of the development clearly outweigh the harm it would cause to the site, and the loss can be mitigated to achieve a new gain in biodiversity/geodiversity*
- *Development proposals will be expected to incorporate features to encourage biodiversity, and retain where possible enhance existing features of nature conservation within the site. existing ecological networks should be identified and maintained to avoid habitats fragmentation, and ecological corridors should form an essential component of green infrastructure provision in association with new development to ensure habitat connectivity*
- *Relevant habitat and species surveys and associated reports will be required to accompany planning applications which may affect a site, habitat or species of known or potential ecological value*
- *Planning conditions/obligations will be used to secure net gains in biodiversity by helping to deliver Biodiversity Action Plan targets and/or meeting the aims of Conservation Target Areas. Developments for which these are the principal aims will be reviewed favourably*

- *A monitoring and management plan will be required for biodiversity features on site to ensure their long term suitable management*

Policy ESD 11 – Conservation Target Areas states: *Where development is proposed within or adjacent to a Conservation Target Area biodiversity surveys and a report will be required to identify constraints and opportunities for biodiversity enhancement. Development which would prevent the aims of a Conservation Target Area being achieved will not be permitted. Where there is potential for development, the design and layout of the development, planning conditions or obligations will be used to secure biodiversity enhancement to help achieve the aims of the Conservation Target Area.*

Policy ESD 17 – Green Infrastructure states: *The Districts Green Infrastructure network will be maintained and enhanced through the following measures:*

Pursuing opportunities for joint working to maintain and improve the green infrastructure network, whilst protecting sites of importance for nature conservation….

….Ensuring that green infrastructure network considerations are integral to the planning of new development. proposals should maximise the opportunity to maintain and extend green infrastructure links to form a multi-functional network of open space, providing opportunities for walking and cycling, and connecting the towns to the urban fringe and the wider countryside beyond

All strategic development sites will be required to incorporate green infrastructure provision and proposals should include details for future management and maintenance.

4.5 Legislation

Full details of the UK legislation and offences which are relevant to the ecological receptors identified are included in Appendix A. However, based on the findings of our assessment, it is considered that the proposals will need to consider the following legal provisions:

- Disturbance or killing of an EPS
- Disturbance of nesting wild birds
- Disturbance of nesting Schedule 1 bird species or their dependant young

5.0 Discussion

5.1 Designated Sites

Natura 2000 Sites

The closest Natura 2000 site is Oxford Meadows located 15.9km from the site. The development of the site is unlikely to cause any direct impacts to this Natura 2000 site. It is also considered unlikely to cause any indirect impacts through construction activities or during the operational phase, due to the localised nature of the development, its distance, the intervening landscape and the lack of direct hydrological connectivity between the site and Oxford Meadows.

Sites of Special Scientific Interest

The closest SSSI is Wendlebury Meads and Mansmoor Closes located 3.2km south of the site. It is considered unlikely that this SSSI would be negatively impacted by the development due to the localised nature of the development, distance between the sites and the presence of intensively managed arable farmland between the site and the SSSI.

Local Wildlife Sites

The closest LWS is Bicester Wetland reserve located 0.4km east of the site. The distance and lack of hydrological connectivity between the two sites reduces the potential impacts of development on the LWS. Furthermore, the development is unlikely to increase any potential impacts through increased recreation as the development is for a hotel. Best construction practices should be implemented during development activities to further reduce any potential impacts through dust and run-off.

A Construction Ecological Management Plan (CEMP) is being produced for the development which will detail protection measures which must be put in place to control any potential pollution measures which could arise from the development. The production of a CEMP will support the reserve matters application meeting local and national planning policies and conditions related to planning consent.

5.2 Habitats

The habitats on and adjacent to the site are all common and widespread locally and nationally and therefore none of the habitats are considered to be priority habitats within Section 41 of the NERC Act (2006).

The habitats present within the site are considered to remain the same as the Ecology Solutions Ltd survey in 2016, with the exception of the ditches to the east and west which had some water present during November 2017 which is considered to be as a result of recent rainfall.

The landscaping plans (Drawing Number TM336L04 Rev C) for the development indicate that the hedgerow to the western boundary (along the A41) is to be retained, the hedgerow to the east is to be retained and an access point installed which will require the removal of a section of hedgerow. The landscaping proposals also show that a SUDs will be created and planted with suitable submerged and emergent vegetation to support a variety of wildlife (see Landscaping Drawing TM336L04 Rev C in Figure 3 for details of species mix). The landscaping proposals are considered to support a net gain to biodiversity through the provision of wildlife attracting species and enhancing/improving the site for use by protected and notable species.

The habitats being removed include:

- Grassland 1.07ha

The habitats being retained include:

- Hedgerows 426m
- Trees 12

The habitats being planted include:

- Hedgerows 64m of native hedgerows
- Hedgerows 64m evergreen hedgerow
- Trees 45
- Other planting including emergent and marginal vegetation 0.18ha
- Buildings 0.9ha

Any removal of vegetation will be undertaken outside the nesting bird season which is considered to extend between March and September inclusive, if this is not possible the vegetation will be checked by a suitably qualified ecologist within 48 hours of its proposed removal to check for nesting or nest building birds. Any trees/hedgerows which are to be retained will be protected, through the installation of temporary fencing in accordance with British Standards *BS 5873 2012. Trees in Relation to Construction.*

The sensitive timing of vegetation clearance and the protection of retained vegetation will support the development in meeting national and local planning policies ESD 10 and ESD 17 and planning conditions 23 and 24 attached to the application.

5.3 Protected & Notable Species

Bats

Roosting

No trees were identified within the site with suitability to support roosting bats. If a tree which is to be removed is identified with features suitable to support roosting bats (cracks, crevices, split limbs or woodpecker holes) the tree must be retained and an ecologist contacted for advice.

Enhancement opportunities for roosting bats will be included within the development through the installation of at least two bat tubes/bricks or slates within the building to be constructed (Appendix C). This will provide roosting opportunities within the site which are not currently available and therefore increase the potential for the site to be utilised by roosting bats, this is considered to be beneficial for biodiversity.

Foraging

A low number of bats were recorded utilising the site for foraging and commuting during the Ecology Solutions Ltd surveys (Ecology Solutions Ltd, 2016). The landscaping proposals identify that the hedgerow to the west of the site (along the A41) is to be removed to facilitate development. The landscaping plans indicate that a new hedgerow will be installed along this boundary following the

creation of the SUD's areas and a section of hedgerow will be planted to the south of the site. Tree planting is also proposed throughout the site.

Enhancement opportunities for foraging and commuting bats will include the planting of native and wildlife attracting species throughout the site and including the retention of existing hedgerow to the west and east and the planting up of retained hedgerows where gaps are present (Appendix D). The landscaping plans (Figure 3) also show that a SUDs will be created along the western boundary which will be planted with species of benefit to a variety of wildlife, this will not only provide additional foraging habitats for bats but also provide connectivity to additional habitats off site to the north and south.

A lighting strategy (Lighting Report, WYG, 2017) has been developed for the site which takes into consideration foraging and commuting bats, and identifies dark areas on the building where lighting is restricted which could be suitable locations for bat tubes/bricks or slates to be installed. This is considered to maintain dark corridors with the site which support foraging and commuting bats.

Badgers

The site and immediately adjacent habitat features are considered suitable to support badger and therefore a pre-commencement survey for badgers should be undertaken within three months prior to the commencement of any works to identify any newly excavated setts within the site and 50m of the site boundary. Any deep excavations must be covered overnight or a ramp placed inside to allow a means of escape to any animal which could fall into the excavation and otherwise become trapped.

The landscaping plan details the proposals for retaining and planting of habitats including hedgerows and SUDs which will provide habitats suitable for foraging and commuting badgers.

A lighting scheme has been designed for the site (Lighting Report, WYG, 2017) which will detail the implications of lighting to foraging and commuting nocturnal wildlife.

Birds

The site is considered suitable to support nesting and foraging birds and as such any vegetation clearance must be undertaken outside of the nesting season which is considered to be between March and September inclusive. If it is not possible to undertake vegetation clearance outside this period then all vegetation to be removed must be checked by a suitably qualified ecologist immediately prior to its clearance (a maximum of 48 hours prior to removal) for evidence of nesting or nest building birds. If an active nest is identified a minimum of a 5m buffer (buffer is dependent upon species and will be clarified by the ecologist on site) will be installed and the nest protected until the young have fledged and cease to return to the nest.

Enhancement opportunities within the development for nesting birds includes the installation of a minimum of four bird boxes within the development, these can either be installed on the building or on suitable trees within the broadleaved plantation woodland located to the north of the site boundary (Appendix C). This is considered to provide a biodiversity gain through the provision of additional nesting opportunities being provided within the site. The planting of wildlife attracting seed and fruit bearing plants will also provide additional foraging resource for birds (Appendix D). The retention of existing hedgerows, the planting of new hedgerows and the planting provided around the SUDs are all considered to provide suitable habitats to support a variety of bird species and be beneficial to wildlife.

Other Species

The site is considered suitable to support hedgehog and potentially polecat. Vegetation clearance works should be undertaken with this in mind. Any hedgehog or polecat which is encountered should either be allowed to move away from the site naturally or the local wildlife rescue centre contacted for advice.

National and Local Planning Policy & Planning Conditions

The provision of enhancement for wildlife through incorporating wildlife boxes, wildlife attracting planting, planting of trees and hedgerows, the creation and planting of the SUDs, the protection of retained vegetation and the design of a sensitive lighting strategy will support the development meeting national and local planning policies ESD 10 and 17, discharging planning conditions 23 and 24 relating to wildlife and support the scheme in providing an overall net gain for biodiversity.

6.0 Summary

6.1 Designated Sites

It is unlikely that the development will have any impact to statutory or non-statutory nature conservation sites. A CEMP will be prepared and implemented for the site which will provide details of measures which will be put in place to control pollution and run-off which could occur.

6.2 Habitats

None of the habitats on site are considered to meet the criteria for Priority Habitats.

Vegetation clearance work will be undertaken outside of the nesting bird season (March to September).

Any trees/hedgerows which are to be retained on site must be protected, through the installation of temporary fencing in accordance with British Standards *BS 5873 2012. Trees in Relation to Construction.*

6.3 Protected & Notable Species

No evidence of notable or protected species have been recorded within or immediately adjacent to the site.

The following is a summary of the mitigation and enhancement recommendations for the proposal of Bicester Gateway Phase 1A and will contribute towards achieving an overall net gain for biodiversity as part of the overall development:

Bats

A minimum of two bat tubes/brick or slates are to be installed within the new hotel development to provide enhancement for bats.

A lighting strategy has been prepared for the site (Lighting Report, WYG, 2017) which supports the maintenance of dark corridors for foraging and commuting bats, discussions between the ecologist and the lighting team facilitated its design.

Wildlife attracting plants (Appendix C) have been, following discussions between WYG and the landscapers, incorporated into the landscaping scheme to enhance the site for foraging and commuting bats.

Badger

A pre-works walkover survey of the site will be undertaken 4-8 weeks prior to the commencement of vegetation clearance to check for any evidence of the presence of badgers within the site or 50m of the site boundaries.

Birds

All vegetation clearance will be undertaken outside the breeding bird season which is typically considered to extend between March and September. If this is not possible a suitably qualified

ecologist will check the vegetation for nesting birds within 48 hours of its planned removal. Any active nests will be protected until the young have fledged and cease to return to the nest.

A minimum of four bird boxes will be installed (see Figure 2 for locations) within the development either on the hotel or in the broadleaved plantation woodland.

Other

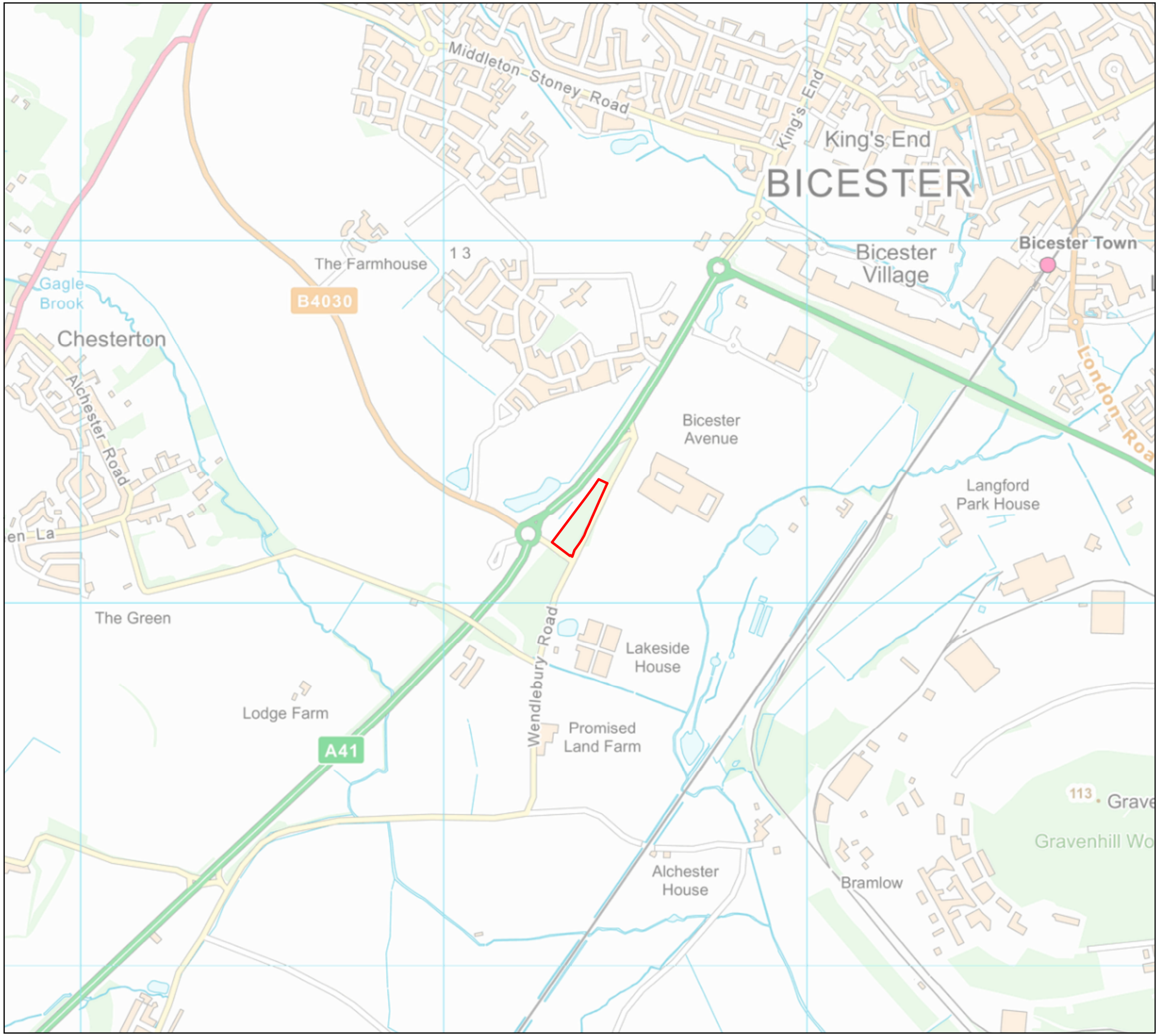
The bases of hedgerows should be checked by a suitably qualified ecologist for any refuge areas which could be utilised by hedgehogs and carefully removed by hand to check for hedgehogs which may be hibernating if works are to be undertaken between October and February. If any hedgehogs are found to be hibernating the local wildlife rescue centre will be contacted for advice. Any other animals such as hedgehogs or polecats discovered during clearance works, if undertaken between March and September will be allowed to move away from the site naturally if they are able to do so or the local wildlife rescue centre contacted for advice.

7.0 References

- Bright PW, Morris PA and Mitchell-Jones A (2006). Dormouse Conservation Handbook, 2nd Edition. English Nature, Peterborough.
- Chartered Institute for Ecology and Environmental Management (2013). Guidelines for Preliminary Ecological Appraisal.
- Cherwell Local Plan 2011-2031 Part 1 can be found at: https://www.cherwell.gov.uk/downloads/download/45/adopted-cherwell-local-plan-2011-2031-part-1-incorporating-policy-bicester-13-re-adopted-on-19-december-2016 accessed 5th December 2017.
- Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed). The Bat Conservation Trust, London.
- Communities and Local Government (2012) National Planning Policy Framework.
- Ecology Solutions Ltd (2016) Ecological Assessment, Bicester Gateway, Bicester, Oxfordshire
- Ecology Solutions Ltd (2017) Reptile Survey, Bicester Gateway, Bicester, Oxfordshire
- English Nature (2011). Badgers and Development. English Nature, Peterborough, UK.
- Gent, T. & Gibson, S. (2003). Herpetofauna Workers' Manual. JNCC, Peterborough.
- Joint Nature Conservation Committee (2010). Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit. JNCC, Peterborough.
- Langton, T.E.S, Beckett, C.L and Foster, J.P. (2001). Great Crested Newt Conservation Handbook. Froglife, Halesworth.
- Oldham R.S., Keeble J., Swan M.J.S & Jeffcote M., (2000). Evaluating the Suitability of Habitat for the Great Crested Newt (Triturus cristatus). Herpertological Journal 10 (4), 143-155.
- Stace, C. (2010) New Flora of the British Isles (3rd edition). Cambridge University Press, Cambridge.
- Oxfordshire BAP http://www.tverc.org/cms/node/44 accessed 5th December 2017.

FIGURES

Figure 1 – Site Location Plan
Figure 2 – Phase 1 Habitat Plan
Figure 3 – Landscaping Plan
TM366L04 Rev C



Rev	Date	Notes
A	04/12/17	Initial map production

Legend

Site boundary

0 100 200 400 Metres

Site Location Plan

Land at A41 Bicester
Holiday Inn Express

Scale at A3:	Project No:	Drawing No:	Revision:
1:10,000	A103271	Figure 1	A
Drawn by:	**Drawn date:**	**Approved by:**	
Ben Blowers	04/12/2017	Elizabeth Sanders	

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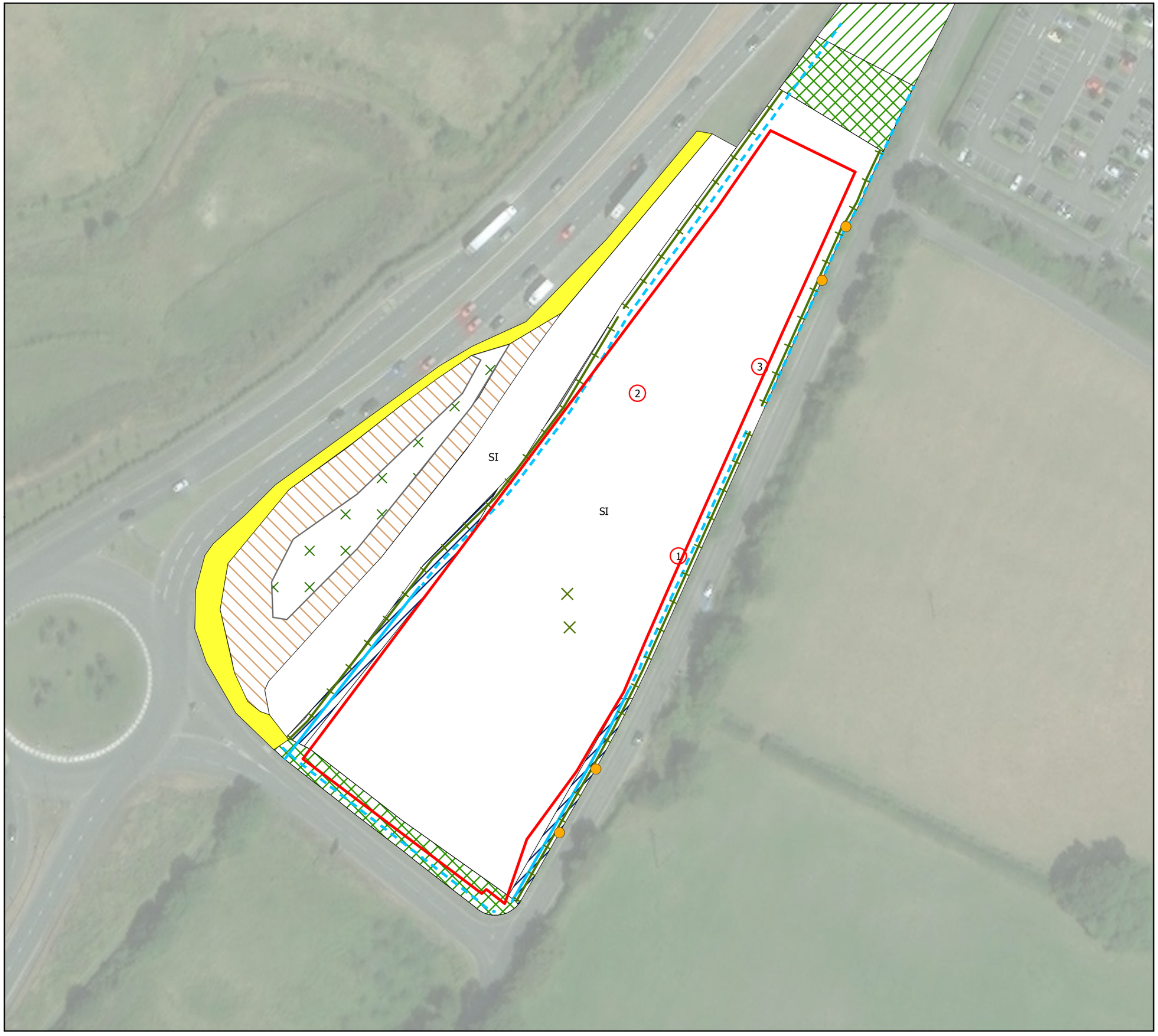


Rev	Date	Notes
A	04/12/17	Initial map production

Legend

- Site boundary
- Amenity grassland
- Broad-leaved plantation woodland
- Dense scrub
- Inundation vegetation
- Poor semi-improved grassland
- Scattered scrub
- Tall ruderal
- Dry ditch
- Hedge and trees (species-poor)
- Running water
- Indicative bird box location
- Scattered scrub
- Target note

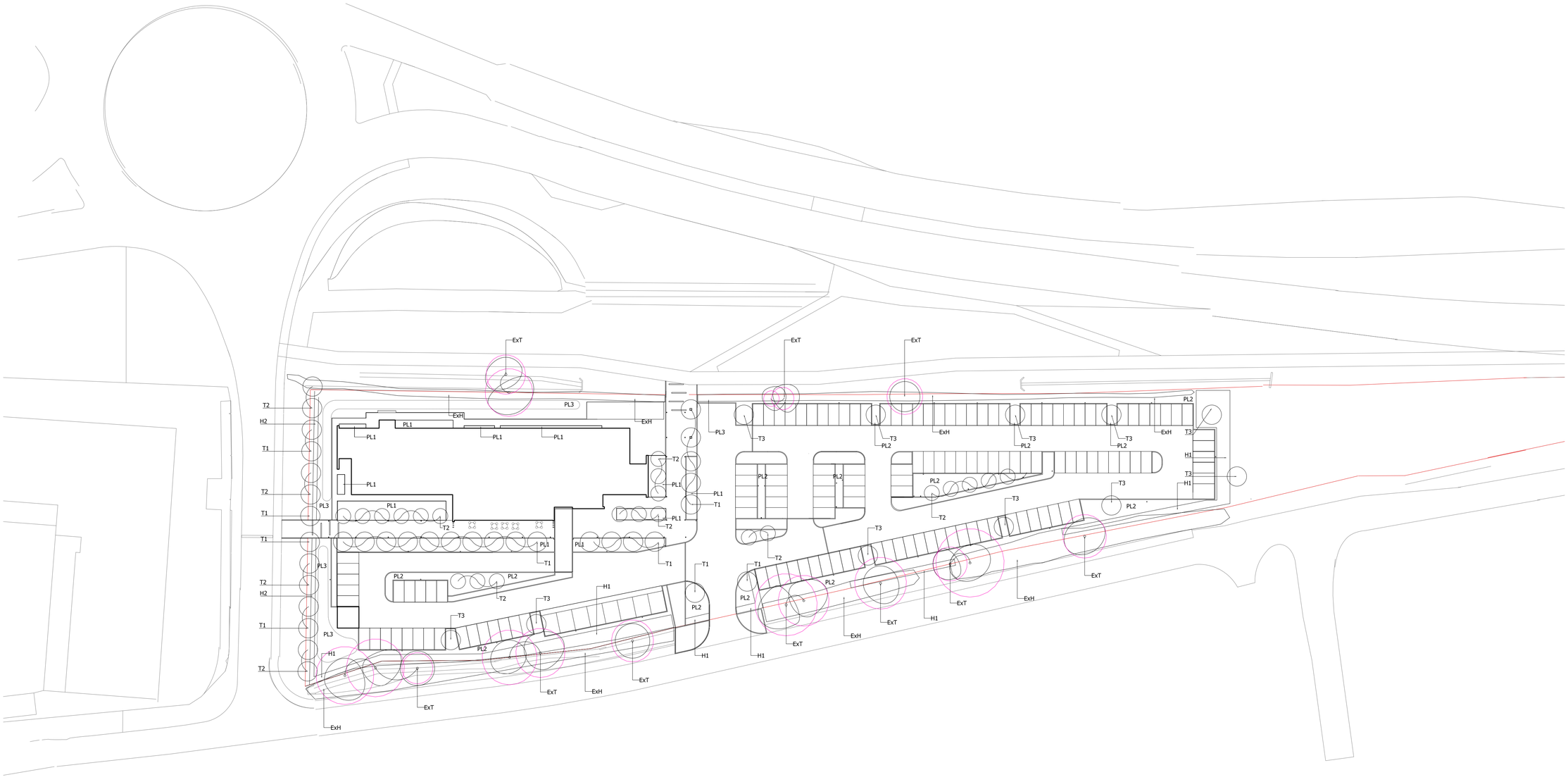
0 15 30 60 Metres

Phase 1 Habitat Plan

Land at A41 Bicester
Holiday Inn Express

Scale at A3:	Project No:	Drawing No:	Revision:
1:1,000	A103271	Figure 2	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	13/12/2017	Elizabeth Sanders



NOTES:

1. This drawing is to be read in conjunction with all relevant contract documentation from the design team, with any conflicting information to be brought to the attention of Turkington Martin Landscape Architects in writing before commencing on site.

2. The contractor is to check and verify all levels and dimensions before construction. Any discrepancies are to be brought to the attention of Turkington Martin Landscape Architects in writing before commencing on site.

3. All dimensions in mm, unless otherwise stated.

4. Do not scale from this drawing.

5. All sub base and concrete design and specification to engineer's details. All diagrams provided here are purely indicative.

6. Waterproofing of any element to be specified by others.

7. All proprietary products shall be installed in accordance with manufacturers written instructions.

8. Plant numbers are an indication only and plants should be ordered to suit site areas in accordance with scheduled plant densities.

9. Any proposed plant substitution shall be agreed with the landscape architect prior to ordering.

EXISTING VEGETATION
ExT Existing Tree retained
ExH Existing Hedge retained

refer to drawing TM336L02 for Trees to be Remove / Retained information

Root protection area
(only shown to retained trees)

TREES

	Name	Girth	Height
T1	Acer campestre 'Streetwise'	20-25cm	min 6m
T2	Betula pendula	20-25cm	min 6m
T3	Quercus robur	18-20cm	min 4.5m

HEDGE

	Name	Size	Density	%age
H1	Native hedgerow mix	90-120cm BR	7/ lin. m, double staggered row	
	Acer campestre			25%
	Cornus sanguinea			15%
	Crataegus monogyna			20%
	Prunus spinosa			10%
	Salix caprea			15%
	Malus sylvestris			15%

To include timber post and strained galv. wires fence line to centre of hedge, 1.5m high.

H2	Evergreen hedgerow	90-120cm CG	7/ lin. m, double staggered row	
	Lonicera nitida			100%

To include timber post and strained galv. wires fence line to centre of hedge, 1.5m high.

All hedges to be under seeded, 1m either side of the hedgerow, with grassland seed mix, including speci
Achillea millefolium
Agrimonia eupatoria
Alliaria petiolata
Centaurea nigra
Clinopodium vulgare
Digitalis purpurea
Galium album - (Gallium mollugo)
Geum urbanum
Hypericum perforatum
Leucanthemum vulgare
Plantago lanceolata
Primula veris
Prunella vulgaris
Silene dioica
Stachys sylvatica
Torilis japonica
Vicia cracca
Agrostis capillaris
Anthoxanthum odoratum
Brachypodium sylvaticum
Cynosurus cristatus
Deschampsia cespitosa
Festuca rubra
Poa nemoralis

PLANTING

PL1	Euonymus fortunei 'Emerald and gold'	3L	6/m2	15%
	Euphorbia amygdaloides 'Robbiae'	3L	6/m2	15%
	Hebe pinguifolia 'Pagei'	3L	6/m^2	20%
	Hebe 'Wiri cloud'	3L	6/m^2	15%
	Ilex crenata	3L	6/m^2	15%
PL2	Cornus sericea 'flaviramea'	5L	5/m2	15%
	Cornus sanguinea 'Midwinter Fire'	5L	5/m2	15%
	Euphorbia characias wulfenii	5L	5/m2	15%
	Nandina domestica 'firepower'	3L	6/m^2	20%
	Skimmia japonica 'Nymans'	3L	6/m^2	10%
PL3	Carex comans 'Frosted Curls'	3L	7/m^2	10%
	Carex elata 'Aurea'	3L	7/m^2	10%
	Centranthus ruber	2L	7/m^2	5%
	Iris sibirica	2L	7/m^2	5%
	Iris pseudacorus	3L	6/m^2	10%
	Leucanthemum vulgare	2L	7/m^2	10%
	Miscanthus sinensis 'Kleine Fontaine'	2L	7/m^2	15%
	Calamagrostis acutiflora	2L	6/m^2	15%
	Stipa gigantea	2L	6/m^2	15%
	Verbena bonariensis	2L	6/m^2	5%

TOPSOIL

Tree pits
450mm topsoil
650mm subsoil
150mm drainage layer

Planting areas (including hedges)
450mm topsoil
450mm subsoil
150mm drainage layer

NB. All plants are to be supplied in accordance with Horticultural Trade Association's National Plant Specification and from a HTA certified nursery.

All plants and to be planted in accordance with BS3936.

Trees are to be supplied, planted and maintained in accordance with BS8545.

Delivery and backfilling of all plant material to be in accordance with BS4428/JCLI/CPSE Code of Practice for 'Handling and Establishing Landscape Plants, Parts I, II and III.

All excavated areas to be backfilled with either topsoil from site or imported to be BS3882 – General purpose grade.
All topsoiled areas to be clear of rocks and rubble larger than 50mm diameter and any other debris that may interfere with the establishment of plants.

DATE	DRAWN	DESCRIPTION OF REVISION	REVISION LETTER	CHECKED BY
2017.02.12	CS	Car park layout amended	C	TS
2017.12.14	CS	Building layout amended	B	TS
2017.12.08	CS	Car park arrangement updated	A	TS

turkington martin
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CLIENT
London & Regional

PROJECT TITLE
Bicester Gateway, Hotel

DRAWING TITLE
Planting GA

DRAWING STATUS
For Information

DRAWING SCALE : 1:500	DRAWN BY : CS	DRAWN DATE : 2017.11.20
PAPER SIZE : A1	CHECKED BY : TS	CHECKED DATE : 2017.11.20

DRAWING NUMBER : TM336L04
REVISION : C

Turkington Martin LANDSCAPE ARCHITECTS

Appendix A – Wildlife Legislation

Bern Convention

The *Convention on the Conservation of European Wildlife and Natural Habitats* (the *Bern Convention*) was adopted in Bern, Switzerland in 1979, and was ratified in 1982. Its aims are to protect wild plants and animals and their habitats listed in Appendices 1 and 2 of the of the Convention, and regulate the exploitation of speices listed in Appendix 3. The regulation imposes legal obligations on participating countires to protect over 500 plant species and more than 1000 animals.

To meet its obligations imposed by the Convention, the European Community adopted the *EC Birds Directive* (1979) and the *EC Habitats Directive* (1992 – see below). Since the Lisbon Treaty, in force since 1st December 2009, European legislation has been adopted by the European Union.

Bonn Convention

The Convention on the Conservation of Migratory Species of Wild Animals or 'Bonn Convention' was adopted in Bonn, Germany in 1979 and came into force in 1985. Participating states agree to work together to preserve migratory species and their habitats by providing strict protection to species listed in Appendix I of the Convention. It also establishes agreements for the conservation and management of migratory species listed in Appendix II.

In the UK, the requirements of the convention are implemented via the Wildlife & Countryside Act 1981 (as amended), Wildlife (Northern Ireland) Order 1985 (as amended), Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 and the Countryside and Rights of Way Act 2000 (CRoW).

Habitats Directive

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Fora, or the 'Habitats Directive', is a European Union directive adopted in 1992 in response to the Bern Convention. Its aims are to protect approximately 220 habitats and 1,000 species listed in its several Annexes.

In the UK, the Habitats Directive is transposed into national law via the Conservation of Habitats and Species Regulations 2010 (as amended) in England and Wales, and via the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland.

Birds Directive

The EC Directive on the Conservation of Wild Birds (791409/EEC) or 'Birds Directive' was introduced to achieve favourable conservation status of all wild bird species across their distribution range. In this context, the most important provision is the identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex 1 of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance.

Conservation of Habitats and Species Regulations 2017 (as amended)

Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species (listed in Annexes I or II of the Habitats Directive respectively) to the European Commission. These sites, if ratified by the European Commission, are then designated as Special Protection Areas (SPAs) within six years. Amendments made in 2012 stipulated that public bodies help preserve, maintain and re-establish habitats for wild birds.

The Regulations also make it an offence to deliberately capture, kill, disturb or trade in the animals listed in Schedule 2, or pick, uproot, destroy, or trade in the plants listed in Schedule 5 - see below:

Schedule 2 – European Protected Species of Animals	**Schedule 5 – European Protected Species of Plants**
Horseshoe bats *Rhinolophidae* - all species	Shore dock *Rumex rupestris*
Common bats *Vespertilionidae* - all species	Killarney fern *Trichomanes speciosum*
Wild cat *Felis silvestris*	Early gentian *Gentianella anglica*
Dolphins, porpoises and whales *Cetacea* – all sp.	Lady's-slipper *Cypripedium calceolus*
Dormouse *Muscardinus avellanarius*	Creeping marshwort *Apium repens*
Pool frog *Rana lessonae*	Slender naiad *Najas flexilis*
Sand lizard *Lacerta agilis*	Fen orchid *Liparis loeselii*
Fisher's estuarine moth *Gortyna borelii lunata*	Floating-leaved water plantain *Luronium natans*
Great crested newt *Triturus cristatus*	Yellow marsh saxifrage *Saxifraga hirculus*
Otter *Lutra lutra*	
Lesser whirlpool ram's-horn snail *Anisus vorticulus*	
Smooth snake *Coronella austriaca*	
Sturgeon *Acipenser sturio*	
Natterjack toad *Epidalea calamita*	
Marine turtles *Caretta caretta, Chelonia mydas, Lepidochelys kempii, Eretmochelys imbricata, Dermochelys coriacea*	

Wildlife & Countryside Act 1981 (as amended)

This is the principal mechanism for the legislative protection of wildlife in the UK. This legislation is the chief means by which the 'Bern Convention' and the Birds Directive are implemented in the UK. Since it was first introduced, the Act has been amended several times.

The Act makes it an offence to (with exception to species listed in Schedule 2) intentionally:

- kill, injure, or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use; or
- take or destroy an egg of any wild bird.

Or to intentionally do the following to a wild bird listed in Schedule 1:

- disturbs any wild bird while it is building a nest or is in, on or near a nest containing eggs or young; or
- disturbs dependent young of such a bird.

In addition, the Act makes it an offence (subject to exceptions) to:

- intentionally or recklessly kill, injure or take any wild animal listed on Schedule 5;

- interfere with places used for shelter or protection, or intentionally disturbing animals occupying such places; and
- The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Finally, the Act also makes it an offence (subject to exceptions) to:

- intentionally pick, uproot or destroy any wild plant listed in Schedule 8, or any seed or spore attached to any such wild plant;
- unless an authorised person, intentionally uproot any wild plant not included in Schedule 8; or
- sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Following all amendments to the Act, Schedule 5 'Animals which are Protected' contains a total of 154 species of animal, including several mammals, reptiles, amphibians, fish and invertebrates. Schedule 8 'Plants which are Protected' of the Act, contains 185 species, including higher plants, bryophytes and fungi and lichens. A comprehensive and up-to-date list of these species can be obtained from the JNCC website.

Part 14 of the Act makes unlawful to plant or otherwise case to grow in the wild any plant which is listed in Part II of Schedule 9.

It is recommended that plant material of these species is disposed of as bio-hazardous waste, and these plants should not be used in planting schemes.

Schedule 1 - Birds which are protected by special penalties			
Avocet	*Recurvirostra avosetta*	Osprey	*Pandion haliaetus*
Bee-eater	*Merops apiaster*	Owl, Barn	*Tyto alba*
Bittern	*Botaurus stellaris*	Owl, Snowy	*Nyctea scandiaca*
Bittern, Little	*Ixobrychus minutus*	Peregrine	*Falco peregrinus*
Bluethroat	*Luscinia svecica*	Petrel, Leach's	*Oceanodroma leucorhoa*
Brambling	*Fringilla montifringilla*	Phalarope, Red-necked	*Phalaropus lobatus*
Bunting, Cirl	*Emberiza cirlus*	Plover, Kentish	*Charadrius alexandrinus*
Bunting, Lapland	*Calcarius lapponicus*	Plover, Little Ringed	*Charadrius dubius*
Bunting, Snow	*Plectrophenax nivalis*	Quail, Common	*Coturnix coturnix*
Buzzard, Honey	*Pernis apivorus*	Redstart, Black	*Phoenicurus ochruros*
Capercaillie	*Tetrao urogallus*	Redwing	*Turdus iliacus*
Chough	*Pyrrhocorax pyrrhocorax*	Rosefinch, Scarlet	*Carpodacus erythrinus*
Corncrake	*Crex crex*	Ruff	*Philomachus pugnax*
Crake, Spotted	*Porzana porzana*	Sandpiper, Green	*Tringa ochropus*
Crossbills (all species)	*Loxia*	Sandpiper, Purple	*Calidris maritima*
Curlew, Stone	*Burhinus oedicnemus*	Sandpiper, Wood	*Tringa glareola*
Divers (all species)	*Gavia*	Scaup	*Aythya marila*
Dotterel	*Charadrius morinellus*	Scoter, Common	*Melanitta nigra*
Duck, Long-tailed	*Clangula hyemalis*	Scoter, Velvet	*Melanitta fusca*
Eagle, Golden	*Aquila chrysaetos*	Serin	*Serinus serinus*
Eagle, White-tailed	*Haliaetus albicilla*	Shorelark	*Eremophila alpestris*
Falcon, Gyr	*Falco rusticolus*	Shrike, Red-backed	*Lanius collurio*
Fieldfare	*Turdus pilaris*	Spoonbill	*Platalea leucorodia*
Firecrest	*Regulus ignicapillus*	Stilt, Black-winged	*Himantopus himantopus*
Garganey	*Anas querquedula*	Stint, Temminck's	*Calidris temminckii*
Godwit, Black-tailed	*Limosa limosa*	Swan, Bewick's	*Cygnus bewickii*

Goshawk	*Accipiter gentilis*	Swan, Whooper	*Cygnus cygnus*
Grebe, Black-necked	*Podiceps nigricollis*	Tern, Black	*Chlidonias niger*
Grebe, Slavonian	*Podiceps auritus*	Tern, Little	*Sterna albifrons*
Greenshank	*Tringa nebularia*	Tern, Roseate	*Sterna dougallii*
Gull, Little	*Larus minutus*	Tit, Bearded	*Panurus biarmicus*
Gull, Mediterranean	*Larus melanocephalus*	Tit, Crested	*Parus cristatus*
Harriers (all species)	*Circus*	Treecreeper, Short-toed	*Certhia brachydactyla*
Heron, Purple	*Ardea purpurea*	Warbler, Cetti's	*Cettia cetti*
Hobby	*Falco subbuteo*	Warbler, Dartford	*Sylvia undata*
Hoopoe	*Upupa epops*	Warbler, Marsh	*Acrocephalus palustris*
Kingfisher	*Alcedo atthis*	Warbler, Savi's	*Locustella luscinioides*
Kite, Red	*Milvus milvus*	Whimbrel	*Numenius phaeopus*
Merlin	*Falco columbarius*	Woodlark	*Lullula arborea*
Oriole, Golden	*Oriolus oriolus*	Wryneck	*Jynx torquilla*
Invasive plant species listed in Schedule 9			
Australian swamp stonecrop or New Zealand pygmyweed	*Crassula helmsii*	Japanese rose	*Rosa rugosa*
Californian red seaweed	*Pikea californica*	Japanese seaweed	*Sargassum muticum*
Curly waterweed	*Lagarosiphon major*	Laver seaweeds (except native species)	*Porphyra* spp
Duck potato	*Sagittaria latifolia*	Parrot's-feather	*Myriophyllum aquaticum*
Entire-leaved cotoneaster	*Cotoneaster integrifolius*	Perfoliate alexanders	*Smyrnium perfoliatum*
False Virginia creeper	*Parthenocissus inserta*	Pontic rhododendron	*Rhododendron ponticum*
Fanwort or Carolina water-shield	*Cabomba caroliniana*	Purple dewplant	*Disphyma crassifolium*
Few-flowered garlic	*Allium paradoxum*	Red algae	*Grateloupia luxurians*
Floating pennywort	*Hydrocotyle ranunculoides*	Rhododendron	*Rhododendron ponticum* × *Rhododendron maximum*
Floating water primrose	*Ludwigia peploides*	Small-leaved cotoneaster	*Cotoneaster microphyllus*
Giant hogweed	*Heracleum mantegazzianum*	Three-cornered garlic	*Allium triquetrum*
Giant kelp	*Macrocystis* spp.	Variegated yellow archangel	*Lamiastrum galeobdolon* subsp. *argentatum*
Giant knotweed	*Fallopia sachalinensis*	Virginia creeper	*Parthenocissus quinquefolia*
Giant rhubarb	*Gunnera tinctoria*	Wakame	*Undaria pinnatifida*
Giant salvinia	*Salvinia molesta*	Wall cotoneaster	*Cotoneaster horizontalis*
Green seafingers	*Codium fragile*	Water fern	*Azolla filiculoides*
Himalayan cotoneaster	*Cotoneaster simonsii*	Water hyacinth	*Eichhornia crassipes*
Hollyberry cotoneaster	*Cotoneaster bullatus*	Water lettuce	*Pistia stratiotes*
Hooked asparagus seaweed	*Asparagopsis armata*	Water primrose	*Ludwigia grandiflora*
Hottentot fig	*Carpobrotus edulis*	Water primrose	*Ludwigia uruguayensis*
Hybrid knotweed	*Fallopia japonica* × *Fallopia sachalinensis*	Waterweeds	*Elodea* spp.
Indian (Himalayan) balsam	*Impatiens glandulifera*	Yellow azalea	*Rhododendron luteum*
Japanese knotweed	*Fallopia japonica*		

Protection of Badgers Act 1992

The main legislation protecting badgers in England and Wales is the Protection of Badgers Act 1992 (the 1992 Act). Under the 1992 Act it is an offence to: wilfully kill, injure, take or attempt to kill, injure or take a badger; dig for a badger; interfere with a badger sett by, damaging a sett or any part thereof, destroying a sett, obstructing access to a sett, causing a dog to enter a sett or disturbing a badger while occupying a sett.

The 1992 Act defines a badger sett as: "any structure or place which displays signs indicating current use by a badger"

Natural Environment and Rural Communities Act 2006

Section 41 (S41) of this Act requires the Secretary of State to publish a list (in consultation with Natural England) of Habitats and Species which are of Principal Importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies including local and regional authorities, in implementing their duty under Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal (e.g. planning) functions. The S41 list includes 65 Habitats of Principal Importance and 1,150 Species of Principal Importance.

Hedgerow Regulations 1997

The Hedgerow Regulations were made under Section 97 of the Environment Act 1995 and came into force in 1997. They introduced new arrangements for local planning authorities in England and Wales to protect important hedgerows in the countryside, by controlling their removal through a system of notification. Important hedgerows are defined by complex assessment criteria, which draw on biodiversity features, historical context and the landscape value of the hedgerow.

Birds of Conservation Concern

This is a review of the status of all birds occurring regularly in the United Kingdom. It is regularly updated and is prepared by leading bird conservation organisations, including the British Trust for Ornithology (BTO), Joint Nature Conservation Committee (JNCC) and The Royal Society for the Protection of Birds (RSPB).

The latest report was produced in 2015 (Eaton *et al*, 2015) and identified 67 red list species, 96 amber species, and 81 green species. The criteria are complex, but generally:

- **Red list** species are those that have shown a decline of the breeding population, non-breeding population or breeding range of more than 50% in the last 25 years.
- **Amber list** species are those that have shown a decline of the breeding population, non-breeding population or breeding range of between 25% and 50% in the last 25 years. Species that have a UK breeding population of less than 300 or a non-breeding population of less than 900 individuals are also included, together with those whose 50% of the population is localised in 10 sites or fewer and those whose 20% of the European population is found in the UK.
- **Green list** species are all regularly occurring species that do not qualify under any of the red or amber criteria are green listed

Global IUCN Red List

The International Union for Conservation of Nature (IUCN) Threatened Species was devised to provide a list of those species that are most at risk of becoming extinct globally. It provides taxonomic, conservation status and distribution information about threatened taxa around the globe.

The system catalogues threatened species into groups of varying levels of threat, which are: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CE), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD), Not Evaluated (NE). Criteria for designation into each of the categories is complex, and consider several principles.

Local Biodiversity Action Plan (LBAP)

Local Biodiversity Action Plans (LBAP) identify habitat and species conservation priorities at a local level (typically at the County level), and are usually drawn up by a consortium of local Government organisations and conservation charities.

Some LBAP's may also include Habitat Action Plans (HAP) and/or Species Action Plans (SAP), which are used to guide and inform the local decision making process.

Wild Mammals (Protection) Act 1996

This Act offers protects a form of protection to all wild species of mammals, irrespective of other legislation, and focussed on animal welfare, rather than conservation.

Unless covered by one of the exceptions, a person is guilty of an offence if he mutilates, kicks, beats, nails or otherwise impales, stabs, burns, stones, crushes, drowns, drags or asphyxiates any wild mammal with intent to inflict unnecessary suffering.

It's application is typically restricted to preventing deliberate harm to wildlife (in general) during construction works etc.

Appendix B – Target Notes

Target Note	Description	Photograph
1	Remains of a fire	
2	Dry Stone Wall	
3	Rock bed of ditch	

Appendix C – Wildlife Boxes

Introduction

The information in this appendix relates to bat and bird boxes that can be easily incorporated into building and landscape plans. The information provided is not exhaustive and provides examples of some of the types of boxes available.

Including bat and bird boxes throughout the development site has a number of benefits:

- Any roosting or resting places lost as a result of the work will be replaced;
- The ecological value of the site will be enhanced;
- Priority species within the UK and local Biodiversity Action Plans (BAPs) will be encouraged.

Bats

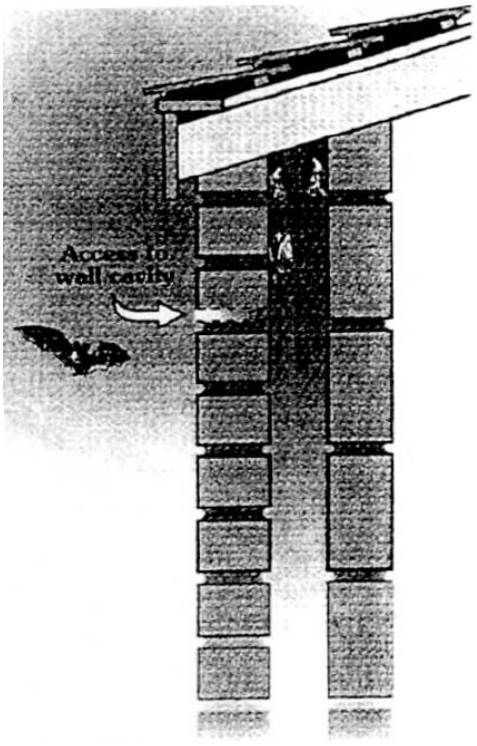
For Buildings

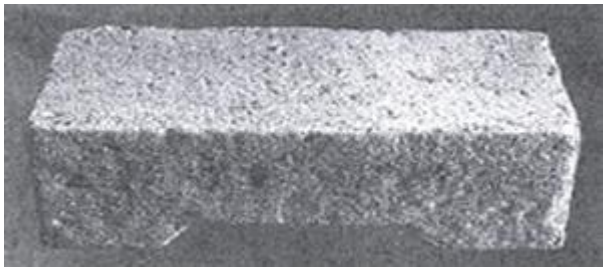
The inclusion of a variety of bat bricks, tubes and boxes for buildings is recommended to encourage a diversity of bat species. Bat bricks and tubes require no maintenance.

Bat Access and Roost Bricks

Source: Marshalls Clay Products (approved by the Bat conservation Trust)

'… Marshall Clay Products have been producing a Bat Access Brick specially designed to help the country's badly depleted bat population by provided access to wall cavities or roof spaces where most bat colonies tend to be (see diagram). In recent years bats have been declining at an alarming rate. Nearly all colonies tend to be on the outside of houses, in wall cavities, under slates, flashing or tiles, et c. … Contrary to popular opinion, bats do not make pests and do absolutely no damage to buildings or roof timbers, indeed many people encourage bat colonies in their area because of the large number of insect pests, woodworm, et c. which they eat. Most colonises will use a house for only a few weeks in summer before dispersing in autumn.'





A Bat Brick should ideally be placed as high as possible at the gable apex or close to the soffit.

Marshalls Clay Products - Quarry Lane, Howley Park, Woodkirk, Dewsbury, West Yorkshire, WF12 7JJ – Tel: (01132) 203535, Fax: (01132) 203555.

Marshall's Bat Access Brick, which is now also available in stone.

Bat Tube

Brick bat tubes are designed for buildings, or underneath bridges, arches or tunnels, where conditions are relatively humid. They are particularly useful for new buildings or bridges to attract bats, or to provide new roost sites where existing buildings with bats are being renovated.

This long box can be installed within brick masonry, beneath plasterwork or wood panelling, or incorporated into concrete structures such as factory buildings or bridges. Inside it contains a woodcrete surface, a roughened wood board, and a metal mesh, providing a choice of roosting areas depending on the weather conditions and the bats' habits. This box is maintenance-free as the entrance slit is at the bottom.

No painting required, but if painting is necessary a natural breathable paint should be used.

Width: 20cm; Height: 47.5cm; Depth: 12.5cm; Entrance Width: 15cm; Entrance Depth: 2cm; Weight: 13kg

Bird Boxes

A variety of bird box designs could be installed throughout the development site to attract a diversity of species. Open fronted boxes will attract species such as robins, pied wagtails and spotted flycatchers, while boxes with entrance holes will attract tits, wrens and tree sparrows. Roost pockets will be used by roosting birds over the winter and by smaller species, such as wrens, for nesting in the spring.

Open Fronted Boxes

This box is attractive to robins, pied wagtails, spotted flycatcher, wrens and black redstarts and is best sited on the walls of buildings with the entrance on one side.

These woodcrete boxes are designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.

Boxes with Entrance Holes

This box is attractive to smaller birds such as tits, wrens and tree sparrows. Sparrow terraces are also available.

Appendix D – Wildlife Attracting Plant Species

Table D1: Trees, shrubs and climbers

Common name	Scientific name
Bramble	*Rubus fruticosus*
Buddleia	*Buddleja sp.*
Common alder	*Alnus glutinosa*
Dog rose	*Rosa canina*
Elder	*Sambucus sp.*
English oak	*Quercus robar*
Gorse	*Ulex sp.*
Guelder rose	*Viburnum opulus*
Hawthorn	*Crataegus sp.*
Hazel	*Corylus sp.*
Honeysuckle	*Lonicera periclymenum*
Hornbeam	*Carpinus sp.*
Ivy	*Hedera sp.*
Jasmine	*Jasminum sp.*
Rowan	*Sorbus sp.*
Silver birch	*Betula pendula*

Table D2: Flowers for borders

Common name	Scientific name
Aubretia*	*Aubrieta sp.*
Candytuft*	*Iberis sp.*
Cherry pie*	*Heliotropium arborescens*
Corncockle	*Agrostemma githago*
Cornflower	*Centaurea cyanus*
Corn marigold	*Glebionis segetum*
Corn poppy	*Papaver rhoeas*
Echinacea*	*Echinacea sp.*
English Bluebell	*Hyacinthoides non-scripta*
Evening primrose*	*Oenothera sp.*
Field poppies	*Papaver rhoeas*
Honesty*	*Lunaria annua*
Ice plant 'Pink lady'*	*sedum spectabile*
Knapweed	*Centaurea sp.*
Mallow	*Malva sp.*
Mexican aster*	*Cosmos bipinnatus*
Michaelmas daisy*	*Aster novi-belgii*
Night-scented stock*	*Matthiola longipetala*
Ox-eye daisy	*Leucanthemum vulgare*
Phacelia*	*Phacelia tanacetifolia*
Poached egg plant*	*Limnanthes douglasii*
Primrose	*Primula vulgaris*
Red campion	*Silene dioica*
Red valerian*	*Centranthus ruber*
Scabious	*Scabiosa sp.*
St John's wort	*Hypericum perforatum*
Sweet William*	*Dianthus barbatus*
Tobacco plant*	*Nicotiana*
Verbena*	*Verbena sp.*

Wallflowers*	*Erysimum sp.*
Wood forget-me-not	*Myosotis sylvatica*
Yarrow	*Achillea millefolium*

Plants marked * are hybrids or exotics

Table D3: Herbs

Common name	Scientific name
Angelica	*Angelica sp.*
Bergamot	*Monarda sp.*
Borage	*Borago officinalis*
Coriander	*Caroiandrum sp.*
English marigolds	*Calendula officinalis*
Fennel	*Foenicululm sp.*
Feverfew	*Tanacetum parthenium*
Hyssop	*Hyssopus officinalis*
Lavenders	*Lavandula*
Lemon balm	*Melissa officinalis*
Marjoram	*Origanum majorana*
Rosemary	*Rosmarinus officinalis*
Sweet cicely	*Myrrhis odorata*
Thyme	*Thymus vulgaris*

Table D4: Wildflowers for pond edges and marshy areas

Common name	Scientific name
Bog bean	*Menyanthes sp.*
Bugle	*Ajuga sp.*
Creeping Jenny	*Lysimachia nummularia*
Flag iris	*Iris pseudacorus*
Hemp agrimony	*Eupatorium cannabinum*
Lady's smock	*Cardamine pratensis*
Marsh mallow	*Althaea officinalis*
Marsh marigold	*Caltha palustris*
Marsh woundwort	*Stachys palustris*
Meadowsweet	*Filipendula ulmaria*
Purple loosestrife	*Lythrum salicaria*
Water avens	*Geum rivale*
Water forget-me-not	*Myosotis scorpioides*
Water mint	*Mentha citrata*

(Source: *'Encouraging bats – Gardening for bats'*, Bat Conservation Trust, 2015)