# Bicester Village Park and Ride

## Bicester Village Park and Ride Ecological Impact Assessment

Oxfordshire County Council

18th October 2013

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This document has 27 pages including the cover.

## Document history

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# 1. Introduction

## 1.1. Terms of Reference

Atkins Limited (Atkins) was commissioned by Oxfordshire County Council to undertake an Ecological Impact Assessment (EcIA) in support of a planning application to construct a park and ride facility (the Scheme) within an existing arable field (the Application Site). The Application Site is located at the southwest corner of a recently constructed five arm roundabout on the A41, south of Bicester, Oxfordshire at Ordnance Survey Grid Reference (OSGR) SP 57060 21117. The location of the Application Site is shown in Appendix A, Drawing No. 5103682-BIC-ECO-001.

This report provides details of ecological information obtained from a desk study and a walkover survey of the Survey Area undertaken in 2013.

The report provides an appraisal of any likely impacts of the proposals upon protected species and features of ecological interest and highlights where these could potentially be a constraint to the work planned. The report assesses the potential impacts resulting from the Scheme both during its construction and operation and identifies the need for any avoidance or mitigation measures that may be required to minimise any impacts.

## 1.2. Site Overview

The Application Site is located to the South of Bicester, Oxfordshire OSGR SP 57060 21117 and is situated within an existing arable field, with the A41 and associated verge and footpath forming the south eastern boundary of the field. Green lane and now redundant slip roads onto the A41 from Green Lane form the south western boundary of the field. There is no vehicular access to these slip roads from Green Lane. The recently constructed Vendee Drive (part of the south-west Bicester by-pass) and its associated verge and footpath which leads off the newly created roundabout, heading north west, forms the northern boundary of the Survey Area. The north western boundary comprises an adjacent arable field. The location of the Application Site is shown in Appendix A, Drawing No. 5103682-BIC-ECO-001.

The Application Site is predominantly surrounded by arable fields, with a new housing development present 400 m beyond the northern boundary and the village of Chesterton some 500 m south west from the Application Site.

## 1.3. Description of Works

The planning application includes the construction of a remote park and ride facility to serve Bicester and Oxford using existing bus services and as a park and ride for Bicester Village outlet shopping centre. It is not proposed to include a terminal building or associated facilities.

In summary the planning application includes the construction of;

- Access to/egress from the facility via the existing dedicated arm of the newly constructed roundabout on the A41;
- Secure fencing to the perimeter of the development area;
- Appropriate pavement construction of access roads and bus lane;
- Appropriate pavement construction and surfacing for the car park area;
- Kerbing at edges of pavement areas to allow raised verges;
- Lighting columns, parking ticket machines and associated infrastructure;
- Positive drainage of car park and access road areas;
- Office, security and passenger services building;
- Bus stop and associated infrastructure;
- An attenuation pond; and,
- Landscaping and soft planting where appropriate.

The current proposals indicate that an area approximately 130 m x 130 m (the Application Site) will be lost as part of the construction process.

A draft outline of the proposed Scheme layout is shown in Appendix 2, Drawing No. 5124607/BIC/FEA/002.

# 2. Methodology

## 2.1. General

This EcIA has been undertaken with reference to current best practice and in particular the *Guidelines for Ecological Impact Assessment* in the United Kingdom (Chartered Institute of Ecology and Environmental Management (CIEEM), June 2006).

## 2.2. Zone of Influence or Spatial Scope

The proposed activities were reviewed in order to identify the spatial scale at which ecological features could be affected and to define the total extent of the study area for ecological assessment.

The zone of influence is the area encompassing all predicted negative ecological effects from the proposed scheme, both those which will occur as a result of land-take and habitat loss and those which will occur through disturbance such as noise.

Due to the scale and nature of the proposals, a maximum zone of up to 1 km (for internationally and nationally important statutory designated sites) is appropriate for the gathering of information during the desk study.

For the field survey, the Application Site itself plus the immediately adjacent land including the remainder of the arable field and associated field boundaries was taken as an appropriate Survey Area (as shown on Drawing 5103682-BIC-ECO-001 in Appendix A).

## 2.3. Temporal Scope

The proposed activities were reviewed in order to establish when impacts could occur and over what duration to define the temporal scope for ecological assessment. Impacts have been assessed in the context of the predicted baseline conditions within the zone of influence during the lifetime of the project (i.e. the assessment takes into account how the existing conditions might change between the surveys and the start of construction and/ or operation).

## 2.4. Desk Study

A review of online resources was undertaken to gather the following ecological data:

- details of statutory designated sites of nature conservation importance within 1 km of the Application Site e.g. Special Protection Areas (SPA), Special Areas of Conservation (SAC), Ramsar Sites, Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR);
- details of notable habitats within 1 km of the Application Site, including priority habitats and 'Habitats of Principal Importance in England' as notified under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and as listed in the England Biodiversity List[1] and referred to in the UK post-2010 Biodiversity Strategy[2]

The Thames Valley Environmental Records Centre (TVERC) was contacted in August 2013 to obtain the following ecological data:

- details of non-statutory designated sites of nature conservation importance within 1 km of the Application Site;

[1] England Biodiversity List available from http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx
[2] DEFRA (2012) Post 2010 Biodiversity Framework

- details of legally protected species (fauna and flora) and other notable species (fauna and flora) within 1 km of the Application Site, including priority species and 'Species of Principal Importance in England' notified under Section 41 of the NERC Act 2006 and as listed in the England Biodiversity List[1].

A review of Ordnance Survey maps and aerial images was undertaken to identify the presence of waterbodies within 500 m of the development area. Great crested newts will travel large distances between breeding ponds and terrestrial habitat. Following guidance provided by Natural England[3], land within 500 m of a great crested newt breeding pond should be treated as potential great crested newt terrestrial habitat and evaluated accordingly.

## 2.5. Field Survey

An ecological walkover survey of the Application Site and adjacent land, including the remainder of the arable field and its boundaries (the Survey Area) was undertaken on the 8th August 2013 by an experienced Atkins ecologist who is a member of CIEEM.

The walkover survey comprised a Phase 1 habitat survey of the Survey Area following Joint Nature Conservation Committee guidance (JNCC, 2010)[4], which was extended to include a search for evidence of presence, and an assessment of each habitats potential to support, notable and protected species as recommended by (CIEEM, 2012)[5].

Plant names follow *New Flora of the British Isles* (3rd Edition, Stace 2010).

With respect to legally protected species, the walkover survey also assessed/searched for the following:

- Searching for potential roosting sites for bats from the ground (i.e. within any semi-mature and mature trees within the Survey Area boundary). The categorises used to define the suitability of a feature to support roosting bats are provided in Appendix C;
- Searching for signs of otter and water vole on the adjacent drain to the south of the Survey Area and assessing if this water course was suitable to support these species;
- Assessing if the adjacent drain provided habitat suitable for white-clawed crayfish;
- Searching for signs of badger activity including setts, tracks, snuffle holes and latrines within the Survey Area;
- Searching for signs of bird nests and identifying any suitable nesting habitats within the Survey Area;
- Assessing if the adjacent hedgerow and woodland along the southern boundary of the Survey Area provided suitable habitat for dormice;
- An assessment of two water bodies located 50 m north of the Survey Area for their potential to be used by great crested newts and a Habitat Suitability Index (HSI)[6] assessment (see Section 2.5.1 below) conducted on each to assess suitability to support breeding populations of great crested newt;
- An assessment of land within the Survey Area for its potential to be used by reptiles; and
- Evidence of the presence of invasive plants ( Japanese knotweed, giant knotweed, hybrid knotweed and Himalayan balsam) listed on Schedule 9 of the Wildlife and Countryside Act 1981 and subject to strict legal control.

Following the extended Phase 1 habitat survey and HSI assessment, no further surveys for notable species or habitats were undertaken, as the habitats within the Survey Area have been concluded as unsuitable to support significant populations of any such species,

### 2.5.1. Habitat Suitability Indices

[3] English Nature [now Natural England] (2001) Great Crested Newt Mitigation Guidelines
[4] Joint Nature Conservation Committee (2010) *Handbook for Phase 1 habitat survey - a technique for environmental audit*
[5] Institute of Ecology and Environmental Management (2012) *Guidelines for Preliminary Ecological Assessment*

[6] Oldham R.S., Keeble J., Swan M.J.S & Jeffcote M (2000) Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus) Herpetological Journal 10 (4), 143-155.

The desk study indentified the presence of five ponds within 500 m of the Application Site. Three of these ponds are located to the east of the Application Site, with the nearest of these ponds being located 300 m away. These ponds are isolated from the Application Site by the presence of the A41 dual carriageway, which acts as a dispersal barrier to any great crested newts which may be present in these ponds, and these ponds are not considered further in this assessment.

The other two ponds are located within 50 m of the northern boundary of the Application Site, to the north of Vendee Drive. Habitat Suitability Indices (HSI)[7] as set out in the Natural England great crested newt licence application form[8] were undertaken of each of these ponds. For the purposes of this report, these ponds are referred to as Ponds 1 and 2 and their location is shown on the Phase 1 Habitat map in Appendix A. Drawing No. 5103682-BIC-ECO-001.

The HSI is a quantitative measure of habitat quality for great crested newt and is based on a numerical index between 0 and 1, derived from an assessment of ten habitat variables known to influence the presence of newts such as geographic location, water body size and permanence, the presence of predatory fish and wildfowl, availability of suitable terrestrial habitat and proximity to other ponds, and scores each factor based on its level of suitability. The HSI is calculated on a single pond basis, but takes into account surrounding terrestrial habitat and local pond density.

The following categorises provided in Table 2-1 based on the HSI score are used to summarise the suitability of a given pond to support great crested newts.

**Table 2-1 HSI score in relation to pond suitability**

| HSI Score | Pond Suitability |
|---|---|
| <0.5 | Poor |
| 0.5-0.59 | Below average |
| 0.6-0.69 | Average |
| 0.7-0.79 | Good |
| > 0.8 | Excellent |

## 2.6. Survey Limitations

There were no limitations regarding access to the Survey Area.

Ecological surveys are limited by factors which affect the presence of plants and animals, such as the time/season of year, migration patterns and behaviour. Consequently, the walkover survey of the Survey Area has not produced a complete list of plants and animals; and the absence of evidence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future. However, it is considered that the results of the walkover survey undertaken have allowed for the identification of the habitats, the potential presence of legally protected species and other valued ecological features and resources within the sites where access was possible (i.e. within the site boundaries).

The water body search was undertaken using OS based plans and aerial photographs only. These sources may not show all water bodies and or water bodies within 500 m of the survey boundary and therefore some water bodies may not have been recorded. However, it is considered that all reasonable effort has been made to identify any significant constraints posed by the presence of great crested newts.

The list of invasive plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is extensive and these plants are found in a range of different habitats, including aquatic habitats. The walkover survey checked for the presence of Japanese knotweed, giant knotweed, giant hogweed, rhododendron and Himalayan balsam. There may be other invasive plant species present within the survey boundary which were not recorded, but it is considered that this survey is sufficient to identify any significant constraints posed by invasive plants.

The results of this ecological survey have been sufficient to undertake the EcIA and have allowed an evaluation of ecological features within the zone of influence, together with an assessment of the significance of any effects of the proposed development and the likely requirements for mitigation.

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[7] Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal 10 (4), 143-155)*

*8 WML-A14-2 version, June 2012*

## 2.7. Nature Conservation Evaluation Criteria

The nature conservation value or potential value of an ecological feature is determined within the following geographic context:

- **International importance:** for example, Special Areas of Conservation, Special Protection Areas, Ramsar sites;
- **National importance:** for example, Sites of Special Scientific Interest;
- **Regional importance:** for example, Environment Agency regional biodiversity indicators, important features in Natural England Natural Areas;
- **County importance:** for example, Local Nature Reserves;
- **Local (parish) importance:** for example, local wildlife sites and significant ecological features such as old hedges, woodlands, ponds;
- **Important within the site and immediate environs:** for example, habitat mosaic of grassland and scrub (i.e. within the zone of influence only);
- **Negligible importance:** this is usually applied to areas such as built development or areas of intensive agricultural land.

It should be noted that it is usual to consider habitats and species together when ascribing a value to a feature using this geographic context. However, there are circumstances where an ecologist may feel it necessary to assign a value to a particularly valuable species. In assigning value to species it is necessary to consider the species distribution and status including a consideration of trends based on available historical records and to make use of any relevant published evaluation criteria. For instance, the presence of a significant population of European protected species such as bats and great crested newts may be worth separate consideration[9].

## 2.8. Impact Assessment Criteria

The assessment of the potential impacts of the proposed development takes into account both on-site impacts and those that may occur to adjacent and more distant ecological features. Impacts can be positive or negative. Negative impacts can include:

- Direct loss of wildlife habitats;
- Fragmentation and isolation of habitats;
- Disturbance to species from noise, light or other visual stimuli;
- Changes to key habitat features; and/ or
- Changes to the local hydrology, water quality and/ or air quality.

Negative and positive impacts on nature conservation features have been characterised based on predicted changes as a result of the proposed activities. In order to characterise the impacts on each feature, the following parameters are taken account of:

- The magnitude of the impact;
- The spatial extent over which the impact would occur;
- The temporal duration of the impact;
- Whether the impact is reversible and over what timeframe; and
- The timing and frequency of the impact.

The assessment identifies those positive and negative impacts which would be 'significant', based on the integrity and the conservation status of the ecological feature. Impacts are unlikely to be significant where features of local value or sensitivity are subject to small scale or short-term impacts. However, where there

are a number of small scale impacts that are not significant alone, it may be that, cumulatively, these may result in an overall significant impact.

The integrity of 'defined' sites is described as follows and has been used in this assessment to determine whether the impacts of the proposals on a designated site are likely to be significant:

> *The integrity of a site is the coherence of the ecological structure and function across its whole area that enables it to sustain the habitat, complex of habitats and/ or the levels of populations of the species for which it was classified*

The conservation status of habitats and species within a defined geographical area is described as follows and has been used in this assessment to determine whether the impacts of the proposals on non-designated habitats and species are likely to be significant:

> *For habitats, conservation status is determined by the sum of influences acting on the habitat and its typical species, that may affect its long term distribution, structure and functions as well as the long term survival of its typical species within a given geographical area;*
>
> *For species, conservation status is determined by the sum of influences acting on the species concerned that may affect the long term distribution and abundance of its population within a given geographical area.*

The mitigation measures described have been agreed with Walsall Council, incorporated into the design and programme and taken into account in the assessment of impacts. These measures include those required to achieve the minimum standard of established practice plus additional measures to further reduce any adverse impacts of the scheme. In addition measures to enhance biodiversity within the scheme are identified.

In addition to determining the significance of an impact on any ecological features, this EcIA also identifies any legal requirements in relation to wildlife.

# 3. Baseline Conditions

A summary of the legislation relevant to the baseline conditions identified is provided in Appendix D.

## 3.1. Desk Study

### 3.1.1. Statutory Designated Sites

There are no statutory designated sites within 1 km of the Application Site.

### 3.1.2. Non-statutory Designated Sites

Bicester Wetland Reserve Local Wildlife Site (LWS) is located 700 m east of the Application Site, with the A41 providing a terrestrial barrier between the Application Site and the LWS. There are no water courses which link the Application Site to the LWS

The site is managed by Banbury Ornithological Society in co-operation with Thames Water Utilities Ltd. The site is important for over-wintering wildfowl namely teal, pintail, pochard, wigeon and gadwall (all Birds of Conservation Concern[10] Red listed). Amber listed species include snipe and water rail.

No other non-statutory designated sites are situated within 2 km of the development area.

## 3.2. Habitats

The location and extent of the broad habitat types described below and the location of the photos provided below are shown on the Phase 1 Habitat map in Appendix A Drawing No. 5103682-BIC-ECO-001.

The following paragraphs give brief summary descriptions of the main habitats found within the Survey Area.

### 3.2.1. Semi-natural broad-leaved woodland

To the south of the Application Site, adjacent to the Survey Area boundary is an area of semi-natural broad-leaved woodland comprising of grey willow, hawthorn, field maple and ash. The ground flora was limited with bare ground being predominant.

### 3.2.2. Semi-improved neutral grassland

Areas of semi-improved neutral grassland were limited to the boundaries of the Survey Area, including the verges along the A41 and disused slip road to the south west and at the base of the hedgerow along the south eastern and western boundary. Species recorded included dominant false oat grass with frequent wild carrot, knapweed.

### 3.2.3. Improved grassland

Areas of improved grassland managed as mown amenity grassland were present along the verge of Vendee Drive to the north of the Survey Area and were comprised of abundant perennial rye-grass and red fescue.

### 3.2.4. Tall ruderal vegetation

The development area itself is comprised entirely of an area of arable land which has been left to go fallow and now supports tall ruderal vegetation. Tall ruderal vegetation is also present along the northern boundary of the Application Site as a 1 m wide strip between the arable field and grass verge running parallel to Vendee Drive. Species recorded in the areas of tall ruderal vegetation included abundant soft brome, false oat grass, perennial ryegrass, creeping thistle, willow herb species, common ragwort, curled dock and knapweed.

Photo 1 (location shown in Appendix A Drawing No. 5103682-BIC-ECO-001) below shows a view of the Application Site looking north west from the 'arm' of the roundabout leading off the roundabout to the Application Site.

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[10] Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD (2009) *Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man.* British Birds *102, pp296-341*

**Photo 1. View of Application Site looking north west.**

### 3.2.5. Standing water

A drainage ditch (Target Note 1, Appendix A Drawing No. 5103682-BIC-ECO-001) is present along the south western and south eastern boundary of the Survey Area. At the time of the survey this was partially dry. The ditch supported primarily tall ruderal vegetation including dominant hoary willowherb and in wetter sections reed mace was recorded as occasional. The ditch is overshadowed by the adjacent areas of woodland and hedgerow. Photo 2 below shows a view of a more open section of the ditch along the south western boundary, looking west.

**Photo 2. View of section of ditch along south western survey boundary**

### 3.2.6. Cultivated/ disturbed land

Beyond the Scheme area, the remainder of the arable field is still under cultivation. At the time of the survey barley and wheat were being grown.

### 3.2.7. Hedgerow

Along the south eastern and western boundaries a species poor intact hedgerow was present (see Appendix A, Drawing No. 5103682-BIC-ECO-001) Species present included abundant field maple and hawthorn with elm and elder being frequent to occasional. The base of the hedgerow comprised semi-improved neutral grassland as previously discussed above. Photo 3 below shows a view of the hedgerow along the south eastern survey boundary, looking southwards. This photo also shows the area of semi-improved neutral grassland at the base of the hedgerow.

**Photo 3. View of hedgerow along south eastern boundary of the Survey Area.**

## 3.3. Legally Protected and Notable Species

### 3.3.1. Invertebrates

No records of invertebrate species of conservation concern were received from the TVERC.

During the survey a large number of common butterfly species were recorded and included common blue, brown argus, brimstone, a species of skipper, large white, ringlet and speckled wood. The area of tall ruderal vegetation within the development area and adjacent habitats within the Survey Area, are likely to support a number of common invertebrate species associated with these habitats.

### 3.3.2. Amphibians

No records of great crested newts were received from the TVERC.

There are five water bodies within 500 m of the Application Site. Three of these ponds have been discounted from further assessment in this report as these ponds are located 300 m to the east of the Application Site and isolated from the Application Site by the presence of the A41 dual carriageway, which acts as a dispersal barrier to any great crested newts which may be present in these ponds, and these ponds are not considered further in this assessment.

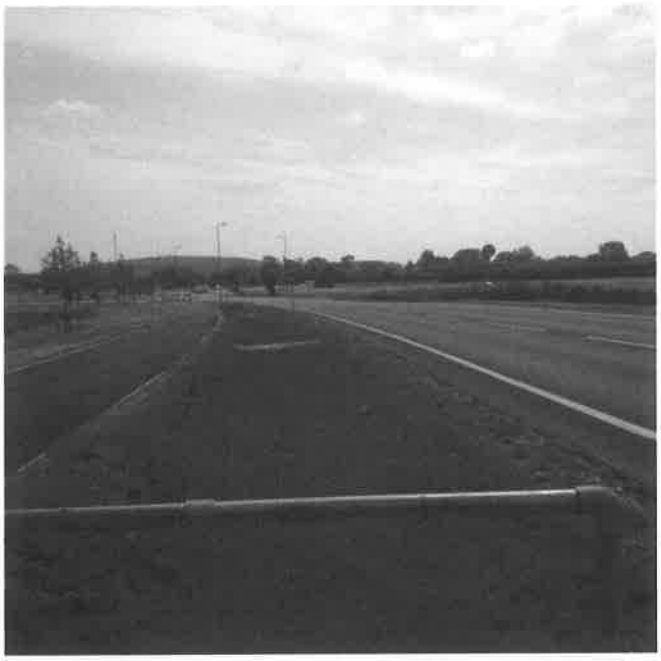
The remaining two water bodies, Ponds 1 and 2 are located 50 m to the north of the Application Site, separated from the Application Site by Vendee Drive. Their location is shown on the Phase 1 Habitat map in Appendix A. Drawing No. 5103682-BIC-ECO-001.

A water course, Gaggle Brook is present 450 m south west of the Application Site. This water course is unsuitable for great crested newts as it is running water which great crested newts find unsuitable.

No other water bodies were identified within 500 m of the Survey Area

Photograph 4 shows the Application Site to the right hand side with the Ponds 1 and 2 located to the lefthandside of the photo.

**Photo 4. View of Vendee Drive and drainage ditch looking east,**



The drainage ditch appears to flow into the two ponds (Ponds 1 and 2) and at the time of the survey was dry. The presence of grass within the drainage ditch suggests that it does not continually hold water.

Both ponds contain abundant emergent vegetation, including reedmace, purple loosestrife, water mint and water plantain. A species of Charophyte (a type of aquatic algae) comprises the dominant aquatic vegetation.

The grassland surrounding the ponds is improved grassland managed as mown amenity grassland, with an area left to grow tall to the north of Pond 2. This area was not accessed. Photographs 5 and 6 show each of the ponds and also show the areas of improved grassland surrounding each pond.

**Photo 5. Pond 1 (taken looking north east)**

**Photo 6. Pond 2, (taken looking north east).**

The HSI score for each pond is summarised in Table 3-1 below.

**Table 3-1 HSI Score**

| Pond Number | HSI Score | Pond Suitability |
|---|---|---|
| 1 | 0.81 | Excellent |
| 2 | 0.76 | Good |

Ponds 1 and 2 are considered to have excellent and good suitability to support great crested newts respectively. These ponds appear to be part of the landscaping for the development north of the Application Site and recent aerial photographs do not show these ponds as being present, which suggests that they have only been created recently (within 3 years). No other ponds within 500 m of Ponds 1 and 2 were identified during the desk study and it is therefore unlikely that Ponds 1 and 2 will have been colonised by great crested newts. Further to this, Ponds 1 and 2 are separated from the Application Site by Vendee Drive and its associated pavement which runs parallel to the northern edge of the Application Site. Vendee Drive is a B road (B3040) and is approximately 20 m wide and forms part of the south west Bicester bypass. If great crested newts were present within these ponds, Vendee Drive would pose a significant barrier to dispersal. In addition to this the field surrounding the Application Site is under arable cultivation and is likely to be ploughed each year, further reducing the likelihood of the Application Site supporting great crested newts.

In view of the above it is extremely unlikely that great crested newts are present within the Application Site.

### 3.3.3. Reptiles

A record for grass snake, 80 m east of the Application Site was received from TVERC. However, this records dates from 1987. No other records of reptiles were received from TVERC.

The area of tall ruderal vegetation within the development area and areas of semi-improved neutral grassland within the Survey Area provide foraging habitat for common reptile species including common lizard and grass snake. The Application Site also has connectivity with the wider area including the verge running alongside the A41 and the hedgerow along the south eastern and western boundaries which may also support reptiles or provide a link to habitat which does.

It is not known how long the Application Site area has been left fallow and on the basis of the vegetation present (early colonising tall ruderal species) it is presumed that it has been left fallow for less than 3 years. Of the species mentioned above, only grass snake is known to travel large distances over the course of a year between hibernation, breeding and foraging sites with common lizard and slow-worm less likely to travel large distances and colonise new areas (CIEEM Reptile Mitigation Course, 2008). In addition to this the area of tall ruderal vegetation is unlikely to provide suitable hibernation habitat for reptiles.

In view of the above it is considered unlikely that common lizard and slow-worm are present within the area of tall ruderal vegetation and that grass snake, if present in the wider area, will only use the area for foraging.

### 3.3.4. Birds

A large number of bird records were received from the TVERC, however these records all originate from Bicester Wetland Reserve and are predominantly of species associated with wetlands.

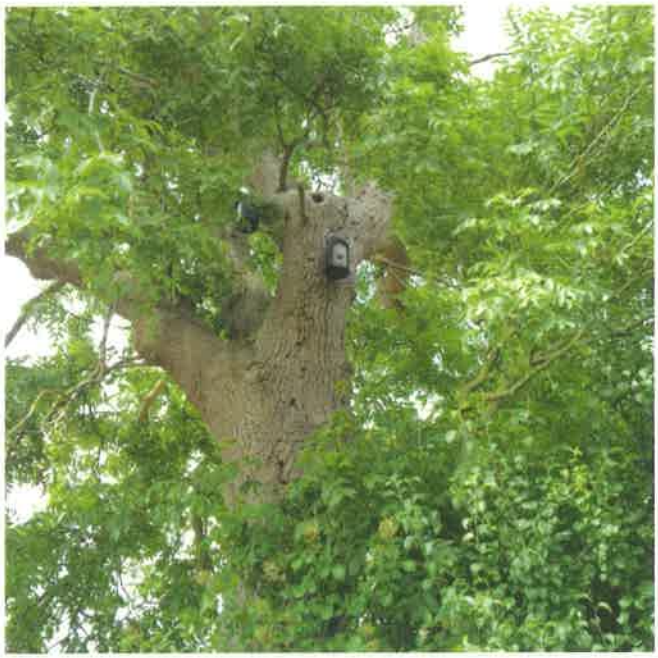
The hedgerow, arable field and tall ruderal vegetation has potential to support a number of breeding farmland bird species.

### 3.3.5. Bats

No records of bats were received from the TVERC.

Adjacent to the northern corner of the Survey Area boundary (see Appendix A, Drawing No. 5103682-BIC-ECO-001), were a number of mature ash and oak trees on which had been placed bat boxes (see Photo 7 below). The trees themselves also were considered to have medium to high suitability to support roosting bats with a number of dead branches and rot holes observed. The hedgerow, woodland and areas of tall ruderal vegetation within the Survey Area potentially provide suitable foraging habitat for bats.

**Photo 7. Mature ash tree with bat box**



## 3.3.6. Dormice

No records of dormice were received from the TVERC.

The hedgerow along the south western and south eastern boundary of the Survey Area has connectivity to a small area of woodland to the north and other adjacent hedgerows; and may provide habitat for dormice. However, these hedgerows and small section of woodland appear to offer little in the way of foraging opportunities to dormice, lacking significant fruiting trees and shrubs such as bramble and hazel.

The hedgerow will not be directly affected by the proposals. Indirect impacts from light spill are also likely to be minimal as the hedgerow is already adjacent to a busy carriageway (the A41) that is lit during night time hours. Therefore dormice are not considered further in this report.

## 3.3.7. Badgers

[redacted]

## 3.3.8. Water vole and otter

No records for water vole or otter were received from the TVERC.

The water course, a small partially wet drain drain located adjacent to the south western and south eastern boundary of the arable field was not considered suitable to support water voles or otters, being dry with limited connectivity to other, more suitable watercourses.

Water voles and otters are not considered further in this report.

# 4. Nature Conservation Evaluation

The nature conservation value of the ecological features identified within the desk study and field survey is summarised below.

| Ecological Receptor | Summary | Value |
|---|---|---|
| Bicester Wetlands Reserve LWS | Supports a range of wintering birds of conservation concern as well as other aquatic species. | County |
| Hedgerows | The hedgerow on Site supports more than one native species along 50% of its length and therefore qualifies as the Habitat of Principal Importance 'Hedgerows' as listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.<br><br>The hedgerow is not considered to qualify as important under the Hedgerow Regulations 1997 based on the ecological criteria set within the regulations.<br><br>The hedgerow is likely to act as a wildlife corridor as well as providing breeding habitat for birds and is considered to be of local importance. | Local (parish) |
| Other habitats | The areas of woodland, water course, semi-improved neutral grassland and tall ruderal vegetation potentially support a range of invertebrate species.<br><br>The arable land, tall ruderal vegetation and woodland potentially support a range of breeding bird species.<br><br>Badgers, grass snake and bats are also likely to use the above habitats as whole for foraging and commuting along/ through. No evidence of these species being present in the Survey Area was recorded during the field survey; therefore should these species be present, they are not considered to be present in significant numbers.<br><br>However, the habitats discussed above are abundant within the wider area and within the UK as a whole and are therefore considered to be of importance within the Site and immediate environs only. | Within the Site and immediate environs only |

# 5. Assessment of Impacts and Mitigation Measures

This section summarises the impacts anticipated on habitats and notable species as a result of the proposed works outlined in Section 1. This assessment assumes that works will be limited to the boundaries of the Application Site as shown in Appendix A, Drawing No. 5103682-BIC-ECO-001 and that access to the Application Site will be from the existing roundabout.

The current proposals indicate that an area (approximately 130 m x 130 m) of tall ruderal vegetation will be lost as part of the construction process.

The rationale for the level of impact and mitigation proposed to reduce these impacts is partly based on the legal protection afforded to certain habitats and species. A summary of the legislation relevant to this study is provided in Appendix D.

Oxfordshire County Council has agreed that the mitigation measures identified in this section will be incorporated into the detailed design proposals and implemented as part of the overall development of the Application Site.

## 5.1. Designated Sites of Nature Conservation Importance

Bicester Wetland Reserve LWS is located 700 m to the east of the Application Site and has been valued in this assessment as being of County value as it supports a range of wintering bird species.

### 5.1.1. Construction Impacts and Mitigation

The habitats on the Bicester Wetland Reserve LWS are not directly linked to the Application Site. The wintering bird species for which the LWS is important are associated with wetlands habitat and are not likely to occur within the Application Site and will not be affected by the development proposals. The scale of the proposed works is also expected to be minor.

No impacts are therefore anticipated to the LWS and no mitigation is required.

### 5.1.2. Operational Impacts and Mitigation

The Scheme will not have any impacts on the LWS and no mitigation is required.

## 5.2. Habitats

This Section assesses the potential impacts of the Scheme on habitats within the Site and immediately adjacent.

### 5.2.1. Construction Impacts and Mitigation

The proposed works will not result in the loss of the hedgerow recorded along the south eastern and south western Survey Area boundary. However, the hedgerow could be subject to impacts such as compaction of roots and physical damage to the hedgerow trees by construction traffic.

To avoid indirect impacts, the hedgerow will be fenced off with Heras fencing or similar throughout the construction periods at a distance of at least 2 m from the base of the hedge.

The remainder of the habitats recorded on Within the Survey Area are considered to be of value within the Site and immediate environs only and only the areas of tall ruderal vegetation will be lost. To enhance the overall biodiversity value of the Scheme, the landscape proposals will incorporate planting using native plant species of local provenance where possible.

## 5.3. Species

### 5.3.1. Invertebrates

#### 5.3.1.1. Construction Impacts and Mitigation

The proposals will result in the loss of an area of tall ruderal vegetation which potentially supports a number of common invertebrate species. Tall ruderal vegetation is widespread and common in the wider landscape and it is not considered that the proposals will have a significant impact on invertebrates beyond the site level.

The landscape proposals for the Scheme will incorporate native plant species which are beneficial to invertebrates to help maintain the biodiversity on Site, including providing a food source for bats and birds. Species will include knapweed and scabious species.

### 5.3.2. Reptiles

#### 5.3.2.1. Construction Impacts and Mitigation

Suitable although limited habitat to support grass snakes has been recorded within the Survey Area. Due to the small scale of habitat to be lost within the Application Site and the more suitable habitat (grassland associated with the adjacent road verges etc.) which are present beyond the Application Site, it is considered that any negative impacts on the conservation status of the populations of grass snake within the Site and in local area would be short term in nature and not significant.

As grass snakes are a protected species (see Appendix D), to avoid killing any grass snakes during construction, the area of tall ruderal vegetation will be ploughed during the period October 2013 to March 2014 and maintained where possible as bare ground until construction begins. This will prevent more permanent grassland developing and reduce the likelihood of the area being colonised by grass snakes and other reptile species.

As a precaution, if vegetation clearance is required during April to October when grass snakes are active then the vegetation will be removed in a directional manner, starting from the east of the development area and moving westwards to effectively 'displace' any grass snakes to unaffected areas of the Survey Area.

### 5.3.3. Nesting birds

#### 5.3.3.1. Construction Impacts and Mitigation

Wild birds and their nests have full legal protection (see Appendix D). Where possible, vegetation clearance will be undertaken outside the bird breeding season to avoid damage or destruction of nests or disturbance to breeding birds. The bird nesting season generally occurs between 1st February and 31st August although this is subject to the weather and seasonal variation.

If it is not possible to remove vegetation outside the bird breeding season, it will be necessary for an ecologist to survey the vegetation for nesting birds no more than 24 hours prior to trimming/ clearance. If any nesting birds are identified during the survey they will be left in situ for their entire nesting period and alternative approaches to the work proposed. This may include leaving an exclusion zone around the nests to avoid disturbance.

It is recommended that bird nest boxes are placed in suitable locations once the Scheme is complete to provide nesting habitat for declining bird species such as house sparrows and starlings.

The removal of vegetation to enable the works will result in the loss of some suitable nesting and foraging habitat for breeding birds. However, it is considered that any negative impacts on the conservation status of the bird populations within the Application Site and in the local area would be short term in nature and not significant.

### 5.3.4. Badger

#### 5.3.4.1. Construction Impacts and Mitigation

No evidence of badger activity was recorded during the survey and no impacts on the population within the local area are anticipated. However, badgers may be foraging or commuting across the Survey Area. As a precaution all excavation holes should be infilled or suitable ramps installed at the end of each working day to prevent badgers from falling in and becoming trapped.

### 5.3.5. Bats

#### 5.3.5.1. Construction Impacts and Mitigation

The proposed development is not considered to have any direct impact on bats although indirect impacts on foraging and commuting bats may results from the lighting of the development. It is recommended that to avoid any indirect impacts the lighting design limits light spill and includes directional lighting.

In conclusion, there will be no significant negative impacts from the proposed scheme on the conservation status of the bat populations in the local area.

#### 5.3.5.2. Operational Impacts and Mitigation

There are no anticipated operational impacts on bats within and adjacent to the Application Site.

# 6. Conclusion

This EcIA is based upon an initial ecological survey undertaken on the 8th August 2013.

The assessment has included a desk top study, a Phase 1 habitat walkover survey and an assessment of the potential impacts of the works taking into account mitigation and enhancement measures which will be incorporated into the design of the development.

There are no statutory designated sites within 1 km of the Application Site.

Bicester Wetland Reserve LWS is located 700 m to the east of the Application Site. No impacts on this site are anticipated.

The Application Site is situated within an arable field, with the Application Site itself being left to go fallow and supporting tall ruderal vegetation considered to be of value within the Site and immediate environs only. This area of tall ruderal vegetation will be lost as part of the proposals, however, as tall ruderal vegetation is common and widely distribute in the wider area the loss of this area of tall ruderal vegetation is not considered to be a significant negative impact.

The area of tall ruderal vegetation potentially provides foraging and nesting habitat for farmland bird species, as well as supporting a range of invertebrates as well as having some, limited potential to support grass snakes. However as previously stated areas of more suitable habitat are present in the wider area and the loss of this area of habitat is not considered to pose a significant impact on the population of these species in the local area.

Mitigation and enhancement measures agreed with Oxfordshire Country Council include:

- Landscaping on site will include native plant species which provide a food/ nectar source for invertebrates;
- Bird nest boxes will be placed at suitable locations within the Application Site;
- all excavation holes will be infilled or suitable ramps installed at the end of each working day to prevent badgers from falling in and becoming trapped ;

- light spill onto adjacent hedgerows will be limited by positioning any lighting away form the hedgerow;
- undertaking vegetation clearance outside the bird nesting season (or if this is not possible getting an ecologist to search all areas to be removed at least 24 hours prior to works beginning on site);
- the area of tall ruderal vegetation will be ploughed in during October 2013 to March 2014 and maintained where possible as bare ground until construction begins to avoid killing any grass snakes and prevent reptiles colonising the site ; and..
- if vegetation clearance is required during April to October when grass snakes are active, then the vegetation will be removed in a directional manner, starting from the east of the development area and moving westwards to effectively 'displace' any grass snakes to unaffected areas of the Survey Area

### 6.1.1. Summary

No significant negative impacts have been identified on the integrity of designated sites of importance for nature conservation in the vicinity of the Application Site. There is potential for the use of native pant species, of value to invertebrates within the landscaping and the installation of bird nest boxes to result in a positive (beneficial) effect on the conservation status of these species. There are no significant impacts on the conservation status of populations of notable and legally protected species within the Application Site. There will be significant, temporary impacts on the conservation status of populations of some common species of breeding birds in the context of the Application Site, but these impacts are not significant in the context of the local area.

# Appendix A. Phase 1 Habitat Map

# Appendix B. Draft Outline Proposals

# Appendix C. Bat Roost Potential Categories

**Table 1 - Assessment of Potential to Support Roosting Bats - Categories for Trees**

| Category (Potential to support roosting bats) | Description |
|---|---|
| Negligible potential | Tree contains no suitable features for roosting bats. These can include young trees without ivy and without loose bark and obvious cracks / fissures. Usually saplings, semi-mature specimens with a small girth or mature trees which do not tend to form fissures as readily such as sycamore. |
| Low potential | Tree contains limited features suitable for roosting bats. Usually young (sapling or semi-mature) trees with some ivy or some loose bark but no obvious cracks or fissures. No evidence of bats found (e.g. droppings / staining). |
| Moderate potential | Tree contains some features suitable for roosting bats. Trees with some cracks or fissures and/or large amounts of ivy / loose bark. Usually semi-mature or mature specimens. Trees tend not to have large splits, hollow trunks or woodpecker holes. No evidence of bats found. |
| High potential | Tree contains features that are highly desirable for roosting bats. Trees with woodpecker holes / large cracks and/or crevices. Often with a hollow trunk. May support very dense ivy. No evidence of bats found. |
| Confirmed roost | Bats discovered roosting within the tree, or recorded emerging / entering a tree at dusk / dawn. Trees found to contain conclusive evidence of occupation by bats, such as bat droppings. A confirmed roost record (as supplied by an established source such as the local bat group) would also fall into this category. |

# Appendix D. Summary of Relevant Ecological Legislation

| Site Designation | Legislation (England & Wales) | Protection | Guidance |
|---|---|---|---|
| **Local Sites (eg County Wildlife Sites, Sites of Importance for Nature Conservation)** | There is no statutory designation for local sites. | Local sites are given protection through policies in the Local Development Plan. | Development proposals that would potentially affect a local site would need to provide a detailed justification for the work, an assessment of likely impacts, together with proposals for mitigation and restoration of habitats lost or damaged.<br>England: The *National Planning Policy Framework* (Department for Communities and Local Government, March 2012), with particular reference to Policy 11, and the joint Circular.<br>Wales: Technical Advice Note 5. |
| **Species** | **Legislation (England & Wales)** | **Offences** | **Licensing procedures and guidance (England & Wales)** |
| **Bats**<br>*European protected species* | Conservation of Habitats and Species Regulations 2010 (as amended) Reg 41 | Deliberately[1] capture, injure or kill a bat; deliberate disturbance[2] of bats; or damage or destroy a breeding site or resting place used by a bat.<br>[The protection of bat roosts is considered to apply regardless of whether bats are present.] | A Natural England (NE) licence in respect of development is required in England or a licence from the Welsh Assembly Government in consultation with Countryside Council of Wales (CCW) in Wales.<br>*European Protected Species: Mitigation Licensing- How to get a licence* (NE 2010)<br>*Bat Mitigation Guidelines* (English Nature 2004)<br>*Bat Workers Manual* (JNCC 2004) |
| | Wildlife and Countryside Act 1981 (as amended) S.9 | Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb[3] a bat in such a place. | Licence from NE or CCW is required for surveys (scientific purposes) that would involve disturbance of bats or entering a known or suspected roost site. |
| **Badger** | Protection of Badgers Act 1992 | Wilfully kill, injure or take a badger; or intentionally or recklessly damage, destroy or obstruct access to a badger sett or disturb a badger in its sett.<br>[It is not illegal to carry out disturbance activities in the vicinity of setts that are not occupied.] | Where required, licences for development activities involving disturbance or sett interference or closure are issued by Natural England (NE) or Countryside Council for Wales (CCW). Licences for activities involving watercourse maintenance, drainage works or flood defences are issued under a separate process.<br>Licences are normally not granted from December to June inclusive because cubs may be present within setts.<br>*Badgers & Development* (NE 2007) |

| Site Designation | Legislation (England & Wales) | Protection | Guidance |
|---|---|---|---|
| **Birds** | Wildlife and Countryside Act 1981 (as amended) S.1 | Intentionally kill, injure or take any wild bird; intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built; intentionally take or destroy the nest or eggs of any wild bird.<br>[Special penalties are liable for these offences involving birds on Schedule 1 (e.g. most birds of prey, kingfisher, barn owl, black redstart, little ringed plover).]<br>Intentionally or recklessly disturb a Schedule 1 species while it is building a nest or is in, on or near a nest containing eggs or young; intentionally or recklessly disturb dependent young of such a species. | No licences are available to disturb any birds in regard to development.<br>Licences are available in certain circumstances to damage or destroy nests, but these only apply to the list of licensable activities in the Act and do not cover development.<br>General licences are available in respect of 'pest species' but only for certain very specific purposes e.g. public health, public safety, air safety. |
| **Adder**<br>**Common lizard**<br>**Grass snake**<br>**Slow worm** | Wildlife and Countryside Act 1981 S.9(1) and S.9(5) | Intentionally kill or injure any common reptile species. | No licence is required in England or Wales.<br>However an assessment for the potential of a site to support reptiles should be undertaken prior to any development works which have potential to affect these animals. |

[1]Deliberate capture or killing is taken to include "accepting the possibility" of such capture or killing

[2]Deliberate disturbance of animals includes in particular any disturbance which is likely a) to impair their ability (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of hibernating or migratory species, to hibernate or migrate; or b) to affect significantly the local distribution or abundance of the species to which they belong.

[3]Lower levels of disturbance not covered by the Conservation of Habitats and Species Regulations 2010 remain an offence under the Wildlife and Countryside Act 1981 although a defence is available where such actions are the incidental result of a lawful activity that could not reasonably be avoided.

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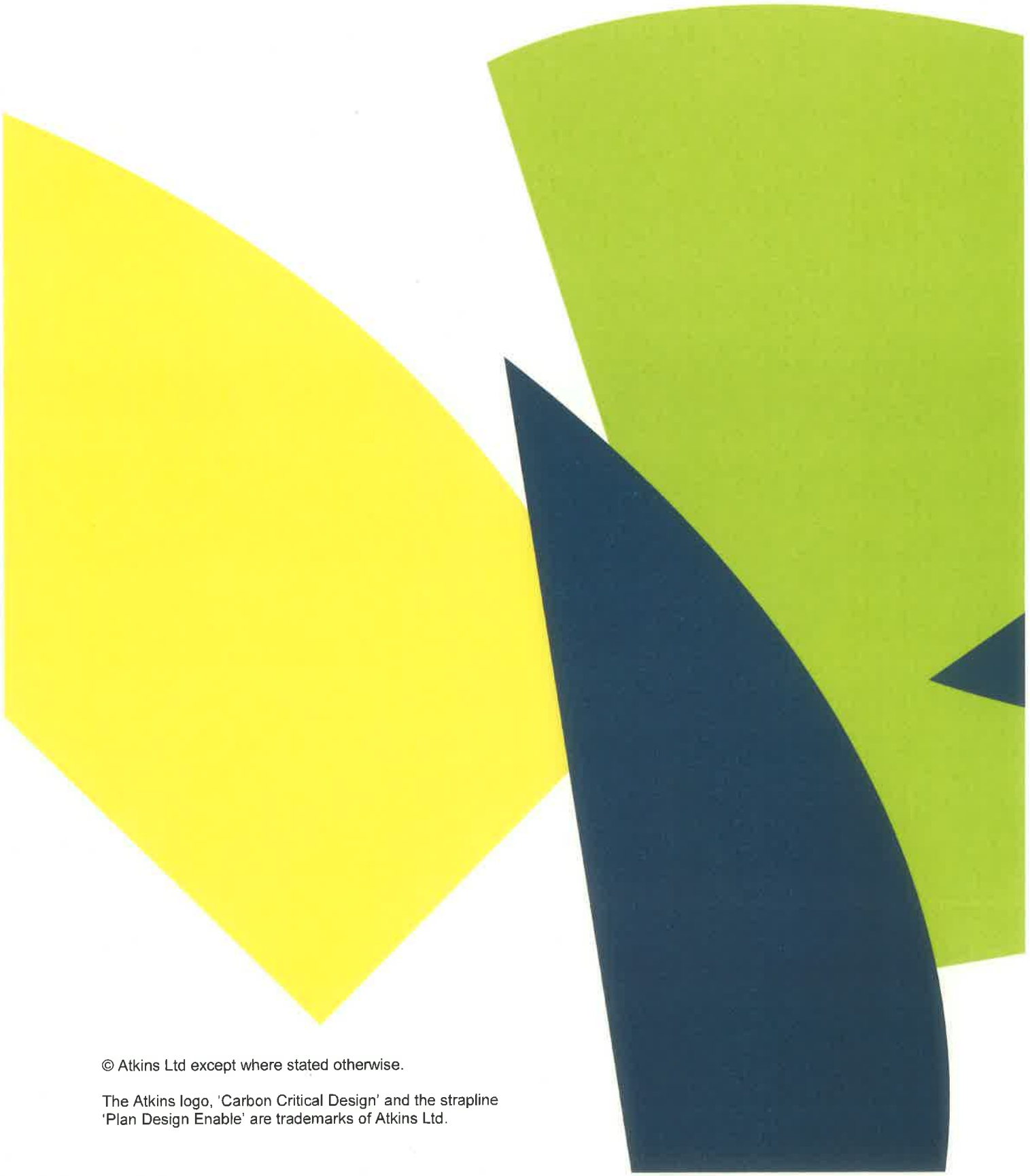

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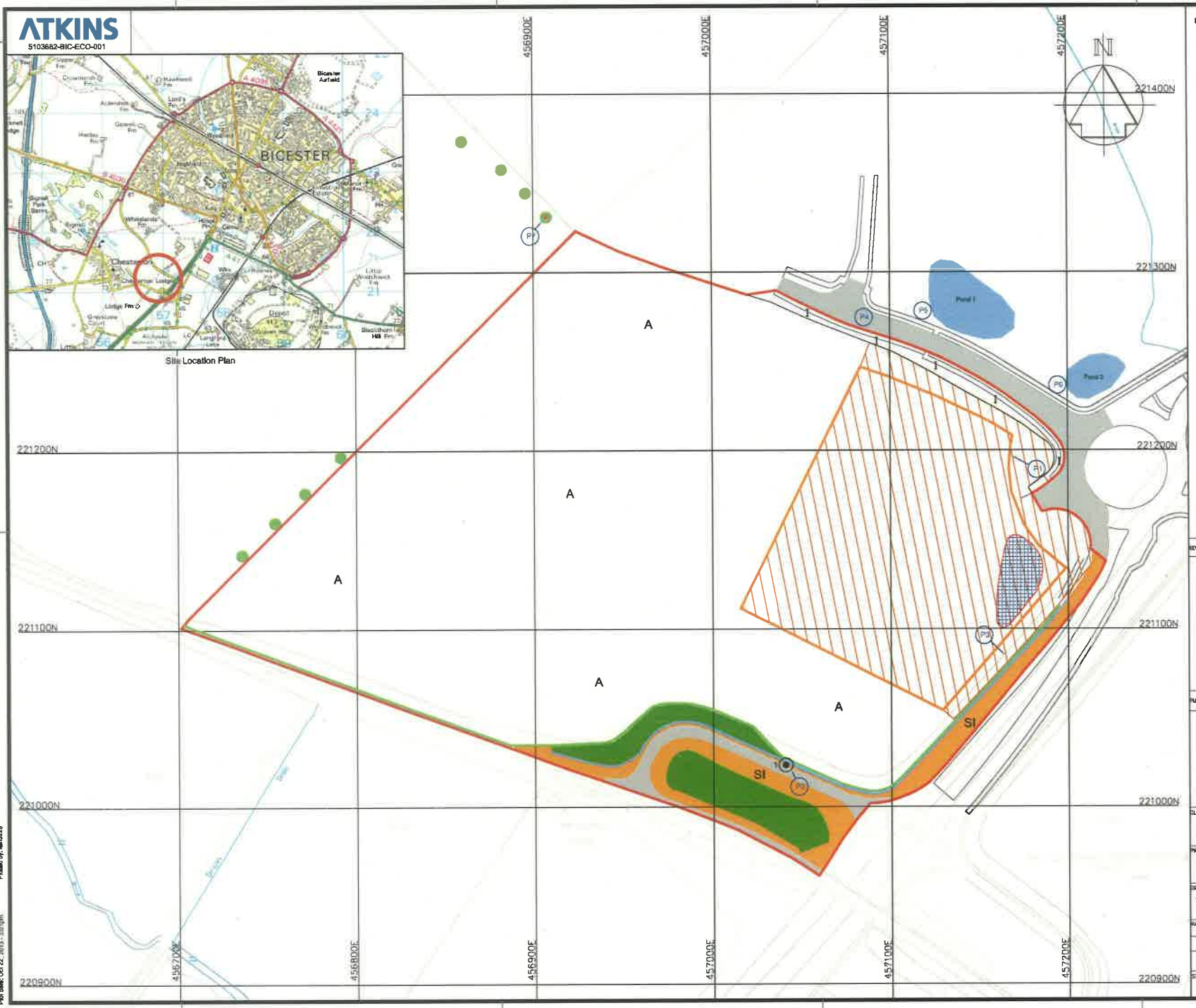
Site Location Plan




Legend

- Survey Area
- Application Site
- Species poor hedgerow
- Semi - natural broad- leaved woodland
- A — Arable
- Semi - improved neutral grassland
- I — Improved grassland
- Tall Ruderal
- Hardstanding
- Tree with bat boxes
- Scattered trees
- Standing water
- Target note
- P — Photo location and number
- SUDS

| REVISIONS | Drawn By | Checked By | Date |
|---|---|---|---|

| PURPOSE OF ISSUE | Rev. | Authorised for issue | Date |
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CLIENT

PROJECT
OXFORDSHIRE COUNTY COUNCIL

DRAWING TITLE
APPENDIX A
PHASE 1 HABITAT MAP

| SCALE | DRAWN | CHECKED | CO-ORD CHECK |
|---|---|---|---|
| 1:1000 | MJ | JG | |
| | DATE 06.09.13 | DATE 06.09.13 | DATE |

SHEET A1 | PLOT DATE 22.10.13

STATUS | DRAWING NO 5103682-BIC-ECO-001 | REV -

Plotted by: tbh3226

Plot date: Oct 22, 2013 - 3:07pm

Drawing file: C:\DESKTOP\PHASE 1 HABITAT\5103682-BIC-ECO-001 Phase 1 Habitat.dwg