Ecology Strategy

LAND AT HAWKWELL, ESSEX

Barratt Eastern Counties

March 2011

LizLake

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Prepared by:	Susan Deakin
Position:	Ecologist and Landscape Manager
Qualifications:	Chartered Landscape Architect MSc MSc CMLI
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1 INTRODUCTION

1.1.1 The following Ecology Strategy relates to the proposed application site at Hawkwell, Essex, it refers to an updated alternative scheme for 175 residential units on the site, which has been specifically amended to substantially increase the extent of retained habitat (including a significant area of 'out-of-bounds' Woodland Conservation Area) and to reduce potential adverse effects on protected and other species of wildlife in comparison with an earlier scheme.

1.1.2 The strategy refers to the Inspector's Report to the Secretary of State following the Public Inquiry relating to this scheme in April 2010. The report concludes *'Concerns about ecology and biodiversity can, in my opinion, be adequately addressed by planning conditions. The Design and Access Statement sets out an ecology strategy involving the provision of green corridors, open space and woodland at the site and I see no reason to suppose that the proposals would cause any unacceptable harm to wildlife and ecological interests'.*

1.1.3 The strategy has been informed by a series of ecological surveys and investigations carried out between 2007 and 2011. An initial ecological walkover survey was carried out in November 2007 by Susan Deakin of LiZLaKe on behalf of Barratt Eastern Counties. A desk study was also carried out to ascertain any existing biological data (including protected / Biodiversity Action Plan (BAP) species) that may be available with regard to the site and its surroundings, along with details of any statutorily designated or otherwise notified sites of international, national, county or local level of ecological interest, within 2km of the site.

1.1.4 November is not an optimal time for ecological assessment, it was therefore considered necessary for further more detailed ecological survey to be carried out during the appropriate season in 2008. General ecological survey to exceed Phase 1 level of survey and also specialist survey for protected and other notable species of fauna and flora that may inhabit the site, was subsequently undertaken by The Robert Stebbings Consultancy Limited in summer 2008. Update protected species surveys were also carried out in summer 2009 and in January 2011, in order to fully inform the master-planning process. The results of these surveys are included in Appendix A 'Statement on the Survey and Assessment for Protected Species Report', prepared by The Robert Stebbings Consultancy

Limited (October 2008 and August 2009) and 'Re-assessment for Bats and Badgers', The Robert Stebbings Consultancy Limited (January 2011).

1.1.5 The Inspector's Report states that '*the appellant's ecological survey is agreed to be accurate and adequate and this is agreed with Natural England and the Environment Agency .....In terms of ecology it is agreed that the proposals are PPS9 compliant. Natural England and the Environment Agency have no objections to the scheme and agree that it is PPS9 compliant, having regard to the increase in habitat value through management and badger mitigation proposals '.*

1.1.6 There follows in Section 2 a summary of the general ecological issues associated with the site and its environs. A preliminary assessment of the ecological constraints, mitigation measures and opportunities associated with the alternative scheme proposals for residential development, are set out in Section 3. In this section recommendations are also made with respect to the 'way forward' including protected species mitigation and proposals for the retention / creation of habitat, to provide a high quality setting for the development and to maximise the opportunities for wildlife.

2 GENERAL ECOLOGICAL ISSUES

2.1 Site Context

2.1.1 The site is set within a generally residential area of Hawkwell, Essex. It is bounded on the western and eastern boundaries by existing residential development and on its southern and eastern sides by minor roads, with an area of Country Park (Spencer's Park and Leisure Centre) to the north. Within the wider vicinity of the site this part of southern Essex (Thames corridor) is characterised by open agricultural land and a framework of woodland and copses, with significant ingress of urban fringe land uses such as equestrian premises, horticultural production, caravan parks etc.

2.1.2 The site is located within an area formerly used for horticultural / nursery production. Within the wider vicinity of the site are areas of existing / abandoned nursery gardens / green houses similar in character to the habitats on site.

2.1.3 The majority of the site itself was formerly under horticultural / nursery management. Although parts of the site are currently under Christmas tree production and there are also some remnant glass houses and scrap vehicle commercial premises, most of the site is no longer under active horticultural management. The regenerating habitat is of variable value in terms of biodiversity. Those areas that have been stripped of topsoil, mainly in the SW part of the site now support a relatively recently developed but reasonably diverse grassland and scrub habitat. Other parts of the site support immature secondary woodland, with some cleared areas and there are also mature grown out hedgerows with trees and peripheral areas of grassland actively grazed by horses in the NE and southern parts of the 11.3 hectare site.

2.2 Protected and Other Notable Species

Reptiles and Amphibians

2.2.1 The desk study indicated the presence of 3 of the UK protected species of reptile (adder, common lizard and grass snake) within the wider vicinity of the site and the herpetological survey undertaken in 2008/9 recorded exceptional / high population levels of slow worm and common lizard, with moderate / low populations of grass snake, within those areas of

suitable habitat within the site (see accompanying protected species report, October 2008 and August 2009, Appendix A 1).

2.2.2 The UK and European protected great crested newt is also known to be present in ponds within the wider vicinity of the site, albeit in the Ashingdon area, over 1km to the NE of the site. This is in excess of the 500m territorial distance of great crested newts from their breeding pond. The herpetological survey indicated no presence of great crested newts on the application site.

Badgers

2.2.3 The desk study indicated a number of recent badger records within the 2km desk study area. The initial 2008 badger survey (see Appendix A 1.) recorded 3 badger setts on the site, one of which, a small subsidiary sett, had subsequently become disused in the interim period prior to the 2009 update survey. The two setts active in 2009 comprised a long established, main breeding sett (Sett 3) and a smaller subsidiary sett (Sett 1), both within the central part of the site, with a small disused sett (Sett 2) located to the west of Sett 2. It was at that stage established that there was a small population of badgers living in the area.

2.2.4 Update badger survey undertaken in January 2011 (see Appendix A 2.) has indicated a significant increase in badger activity on the site, with a dramatic expansion of Sett 2, which is now a large, subsidiary sett, with 10 entrances in active use. Badger usage of Setts 1 and 3 remain similar to 2009, although both these setts have suffered from flooding in the interim period and two of the Sett 3 entrances appear to have been affected by ditch reinstatement works. More details with respect to badger activity are included in the accompanying protected species reports (see Appendix A).

Bats

2.2.5 Most of the mature oaks and some other mature tree specimens on site (mainly on the site periphery and along established hedgerows) were initially considered to provide potential for roosting bats, along with a number of buildings on site. The desk study (information received from Essex Mammal Surveys) indicates the presence of pipistrelle, brown long-eared and noctule bats within the general vicinity of the application site. The specialist bat survey undertaken in 2008 recorded a small to medium sized colony of brown long-eared bats inhabiting a house in the southern part of the site, adjacent to Rectory Road. The bats are thought to live and breed within the roof space throughout the year. There are no

other bat roosts within trees or buildings on the site. The nearby mature hedgerows with trees are used by foraging bats for shelter, feeding and dispersal purposes. The update bat surveys undertaken in 2009 and 2011 indicated that the brown long eared bat colony had continued to live and breed in the house in the interim period. More details with respect to bat activity are included in the accompanying protected species reports, Appendix A.

Dormouse

2.2.6 There are two negative survey records of the UK and European protected dormouse in Hockley Woods (an extensive area of woodland, the closest part of which is approximately 700m to the west of the site) dating from tube surveys in 2003 and 2004. Further discussions with EECOS (Essex Ecology Services Ltd.) indicate the closest known presence of dormice in the Castle Point District at Pound Wood and Dodds Grove, Belfairs, at some distance from the application site, to the south of the A127 (T) and west of Southend-on-sea. The ecological surveys undertaken by The Robert Stebbings Consultancy Limited discounted the likely presence of dormouse inhabiting the site.

Other Protected Species

2.2.7 The site does not currently provide suitable habitat for water voles, otters or other protected /BAP species dependent on wetland habitat.

Birds, Invertebrates and Other Wildlife

2.2.8 There are no records of protected / BAP species of birds or invertebrates available to us for the site or its environs. However, the recent ornithological surveys (see accompanying protected species report, Appendix A 1.) indicated that parts of the site support breeding populations of a variety of common and widespread birds (no Schedule 1 species). Two Red List species of conservation concern, starling and song thrush, were found to be breeding on the site, with breeding evidence of a further three Amber List species, undergoing moderate decline, great tit, swallow and dunnock. A further seven Red and Amber List species were also noted using the site. The birds found within the survey area were unremarkable and all were species to be expected in the available habitats. There were no 'special' species which need particular consideration in the proposed development.

2.2.9 The site is also considered to support a range of characteristic invertebrates, including a range of moths, butterflies and beetles, including deadwood organisms and there is a

localised distribution of ant hills. There has been no specialist invertebrate survey undertaken to date.

2.2.10 The site provides habitat suitable for supporting a range of other mammals including fox, rabbit, mole, muntjac, stoat, weasel, wood mouse, brown rat, grey squirrel, field vole and hedgehog.

Habitat Types

2.2.11 The broad habitats types present on site are indicated on Figure 1 (see Appendix B). It should be noted that due to indistinct boundaries between different habitat types on the ground and graduation in plant communities, these habitat zones should be taken as indicative.

2.2.12 The main central part of the site, including the rough grassland areas that have been stripped of topsoil, is intrinsically the most ecologically diverse sector of the site, along with a network of mature hedgerows and standard mainly oak trees, with some dry ditches, towards the eastern part of the site, associated with horse grazed paddocks. The wooded area in the northern sector of the site, whilst apparently secondary in origin (ie relatively recent and not ancient) forms immature oak, ash, field maple and hawthorn woodland habitat, of value for a range of flora and fauna. The stream along the northern boundary of this area and a small ditch within the wood also provide additional habitat, although currently both are heavily shaded and mostly dry and of relatively limited biodiversity value. The stream is the only known area of wetland habitat on or within close proximity of the site and it does not currently provide suitable habitat for great crested newts, water voles, otters or other protected /BAP species dependent on wetland habitat.

2.2.13 Towards the eastern part of the central part of the site is a large swathe of land that was recently cleared of semi-mature trees and scrub. This area appears to be of relatively low intrinsic ecological value but the large timber / brash piles left in the area provide hibernating habitat for reptiles and a nesting site for birds and will need to be cleared with care in late summer to avoid disturbance and contravention of the legislation.

2.2.14 There is an area of generally dense scrub to the south of the cleared area. This is of relatively low biodiversity interest although more open areas of rough grass within the scrub are relatively diverse and intrinsically more valuable to a range of wildlife.

2.2.15 The areas of paddock under active horse grazing management in the NE part of the site, comprise semi-improved, reasonably diverse grassland and combined with a network of good mature, outgrown hedgerows / hedgerow trees (including one on the Clements Hall Way site boundary) and a number of remnant orchard trees, engender this area of some intrinsic ecological value. The hedgerows and associated mature oak specimens provide substantial wildlife links and are also of intrinsic visual amenity. There are also some, generally insubstantial hedge sections on the Rectory Road boundary.

2.2.16 The paddocks on the southern periphery of the site are improved / semi-improved, species poor grassland of low ecological value, except the westernmost paddock which is more diverse.

2.2.17 The Christmas tree plantation in the SE part of the site is generally of low ecological value but like much of the remainder of the site, provides suitable reptile habitat – the northern part of the plantation area, in particular, includes old tree stumps, mammal holes, debris and piles of mulch etc., all of which provide suitable hibernating and foraging habitat for reptiles.

2.2.18 There are also some remnant glass houses located towards the south-western part of the site. The existing horticultural nurseries on the western side of the site are generally of low ecological value, due to their managed and partially sterile nature. However, again there are some parts of this area (mainly the northern part) which consist of rough grass and heaps of materials etc. which provide reptile potential.

2.2.19 The land to the west of Thorpe Road is of relatively low ecological value. The southern section is predominantly short mown species poor grass, with a tennis court and commercial scrap vehicle premises and the northern open part is colonised with tall ruderal vegetation, with areas of rough grass. The dense belt of scrub in the eastern part of this area is also of relatively low value. The peripheral hedges and a number of mature and semi-mature oaks are the main features for retention in this area.

Statutory and Other Notified Sites

2.2.20 The desk study indicates that there are no statutory designated sites of national or international ecological value within the application site or adjoining its boundaries, although there are designated sites within the wider vicinity of Hawkwell. The closest Site of Special Scientific Interest (SSSI) is Hockley Woods SSSI, the closest part of which lies within 750m of the western site boundary. This is an extensive area (130ha) of ancient woodland,

dominated by oak and sweet chestnut coppice, with more frequent birch on areas of acid soils and hornbeam located in areas of wet clay soils. There are 4 SSSI units within Hockley Woods SSSI, all of which were assessed in 2008 as 'Unfavourable recovering'. Of particular interest is the presence of a population of the notable heath fritillary butterfly within more open sectors of the woodland.

2.2.21 There are also a large number of Local Wildlife Sites (Rochford District Local Wildlife Sites) within 2km of the application site and three Local Nature Reserves (LNR). Of the Local Wildlife Sites (LoWS) within the 2km search area, the closest are :

- W20 : Belchamps Camp, Hockley Woods. This is a small ancient remnant of the extensive Hockley Woods complex (see above), dominated by hornbeam coppice with pedunculate oak standards. This is located approximately 750m to the west of the site.
- W25 : Potash Wood. This is a larger area of hornbeam, ash and sweet chestnut coppice, under pedunculate oak standards, which is located some 300m to the south of the site.

2.2.22 None of the notified sites within the wider vicinity of the site would be affected in any way by proposed development of the application site, with the possible exception of marginally increased recreational pressure (see 3.1.2 below).

2.2.23 The Inspector's Report states that '*the appellant's ecological survey is agreed to be accurate and adequate and this is agreed with Natural England and the Environment Agency .....In terms of ecology it is agreed that the proposals are PPS9 compliant. Natural England and the Environment Agency have no objections to the scheme and agree that it is PPS9 compliant*'.

3 ASSESSMENT OF ECOLOGICAL CONSTRAINTS, MITIGATION MEASURES AND OPPORTUNITIES ASSOCIATED WITH DEVELOPMENT OF THE SITE

3.1 Ecological Site Constraints and Mitigation Measures

3.1.1 The ecological assessment of the site indicates the following ecological constraints and associated mitigation measures required to ensure that nature conservation issues are not unduly compromised and that protected species are maintained in a favourable conservation status, in accordance with the provisions of PPS9. It should be noted that compared to the original scheme, the significantly increased retention and creation of new habitat associated with the revised scheme has allowed the implementation of substantial habitat enhancement and reduced the levels of potential impact on the inhabiting populations of protected and other notable species of wildlife.

3.1.2 The constraints and mitigation measures, along with likely residual impacts of the scheme are set out below :

Reptiles

3.1.3 The site supports three species of UK protected species of reptiles, with exceptional / high populations of slow worm and common lizard, along with good / low occurrence of grass snakes, concentrated mainly in the central parts of the site. In order to enable the implementation of scheme proposals it will therefore be necessary to undertake update survey in May - September 2011, with a subsequent programme of reptile translocation as agreed with Natural England. Scheme proposals have been adapted to allow significantly more extensive areas of good quality reptile habitat to be retained / enhanced / created, within the central part of the site, than the original scheme. This will enable a substantial proportion of the inhabiting reptiles to be retained on site. It will be necessary to create / enhance the retained 'receptor' habitat well in advance (12 months) of the relocation exercise / site clearance, to optimise the carrying capacity of the habitat for reptiles and to ensure that the retained reptiles are provided with adequate shelter, egg laying sites, food resources and hibernation sites, to perpetuate the populations in the long term. It is expected that the capture / translocation of reptiles will be phased, with some of the less optimal reptile habitats e.g the Christmas tree plantation, cleared of reptiles in the summer

2011, once the application has been approved. The remainder of the site would be subject to reptile translocation during May to September 2012. The provisions of the alternative scheme include new areas of grassland, parts of which will be specifically managed to favour reptiles.

3.1.4 Given the numbers of reptiles involved it is still likely to be necessary for the remaining reptiles to be captured and translocated to a suitable off-site receptor site(s), within the vicinity of Hawkwell, although this may prove to be unnecessary. A number of potentially suitable receptor sites have been identified within 2.5km of the site and further investigation will be carried out in the interim, including discussions with landowners, reptile surveys and setting up management agreements, incorporating long term monitoring. This will ensure that the sites are rendered suitable for accommodating translocated reptiles and that the animals will be safeguarded in the long term, with populations maintained in a favourable conservation status and no decline in overall reptile numbers. Proposals in this respect are set out in more detail in Section 5 of the accompanying protected species reports (see Appendix A 1). Natural England have indicated that sufficient detail has been provided for the purposes of determining the planning application and that they consider it appropriate that details of the receptor site(s) should be provided as part of the reserved matters application.

3.1.5 It is expected that following scheme implementation the populations of slow worm, common lizard and grass snake inhabiting the site will continue to thrive within the open spaces retained and the chosen receptor site(s), if required.

Bats

3.1.6 An established small to medium sized colony of brown long eared bats has been identified in a house in the southern part of the site, survey undertaken in 2008 and 2009 indicate no other bat roosts in trees or other structures on site. Update survey undertaken in 2011 confirms that the bat colony continues to live and breed within the house. In order to minimise impact on these UK and European protected species and in recognition of the importance of the roost in the context of maintaining existing bat populations in the local area, master-plan proposals have been amended to retain the house and its garden on the periphery of the development. We are pleased to acknowledge that Natural England welcomes the intention to retain the house, so that it will not be affected by the development.

In order to ensure that the bat roost will be maintained and safeguarded in the future, it is envisaged that the responsibility for its maintenance will be subject to a planning condition and / or Section 106 Agreement. Measures will be taken to avoid physical disturbance to the roost during the construction period and in the longer term. It will be particularly important that the lighting regime around the house and elsewhere does not illuminate the roost entrance or commuting routes used to access the wider countryside.

3.1.7 Any necessary repair works to the roof space within which the roost is located, will be minimised and mitigation subject to agreement with Natural England and an EPS licence if necessary. The roof space would be inspected by a bat specialist 3 months prior to the onset of works and a safe way of working agreed with Natural England, which is likely to restrict works that could disturb the roosting bats to the April – May and/or September – October periods.

3.1.8 In order to minimise any impacts relating to losses of foraging habitat and food resources and to ensure the future viability of the bat population on site, the scheme has been amended to significantly increase the extent of retained habitat on site and to create new wildlife links. As indicated on Figure 2 (see Appendix B), the adjacent hedgerow / tree belt will be substantially retained / reinforced with new planting, and will link into a network of new and existing hedgerows, woodland edge and other linear habitat features, to provide shelter, foraging habitat and dispersal routes for bats. In some locations it is likely to be appropriate to coppice a small number of existing hawthorn and other native tree / shrub species to provide a more consolidated bat corridor. In a small number of locations where the linear habitat features are crossed by internal paths and roads, new and existing tree planting either side of the crossing points will be encouraged to arch over the roadway to maintain the integrity of the flight path.

3.1.9 There is also potential for the scheme to provide long term benefit to bat populations within the Hawkwell area, through creating extensive roosting opportunities associated with new houses, along with connections to new and enhanced woodland edge in the northern part of the site, thus increasing the range of invertebrates present on site and improving food resources for the inhabiting bats.

3.1.10 It is expected that in the medium to long term there will be a positive effect on the integrity of the bat populations within the vicinity of the site, as a result of scheme implementation.

Badgers

3.1.11 There are currently three badger setts in active occupation within the central / northern part of the site, a main sett and two subsidiary setts. Masterplan proposals have been amended to significantly increase the extent of retained habitat within the central part of the site, including an extensive Woodland Conservation Area. This will ensure that there is greater provision of badger foraging habitat retained on site and also linking to connecting habitat off-site, compared to the original scheme, to sustain the inhabiting badgers and help to ensure that the colony thrives in the long term. There would also be scope to enhance the retained habitat to provide areas of short grass, glades and woodland edge, of potentially increased value for feeding badgers.

3.1.12 The scheme proposals have been substantially amended to allow for the retention of the main sett (Sett 3) in-situ within a network of retained hedgerow / tree belt in the open space central to the eastern area of proposed housing development. This sett, along with the connecting corridors and strategic parts of the Woodland Conservation Area, will be adequately protected with badger permeable fencing / defensive prickly planting, to deter disturbance to the inhabiting badgers. A safe, unlit badger corridor has been provided through the retention of an established hedgerow / tree belt, extending from the sett to the north. To further safeguard the inhabiting badgers a proposed footpath in this corridor has now been omitted.

3.1.13 Scheme proposals require the closure of the two subsidiary setts (Setts 1 and 2), which would be closed under Natural England licence, in accordance with the provisions of the Protection of Badgers Act, 1992 and the updated guidance on disturbance to badgers. Sett closure would be undertaken during the July to November period once the application has been approved, likely to be 2012.

3.1.14 In this scenario the re-location of the badgers within a safer more extensive area of woodland (the Woodland Conservation Area), is a favourable alternative and one which in the longer term is more likely to ensure that the badger population thrives. The location of a proposed artificial badger sett is shown on Figure 2 (see Appendix B). Details of the proposed sett are included in Appendix A 2.

3.1.15 The new artificial sett will be situated within reasonably close proximity of the setts to be closed. This is perfectly feasible and a tried and tested option. In the Hawkwell case it should be possible to construct a new sett within approximately 100m of the existing sett

towards the north of the retained habitat area. Sett construction would be undertaken some time prior to sett closure, likely to be during 2011 and would have to take account of existing trees and other vegetation in the relocation area. Natural England would require assurance that the sett would be safeguarded in the future and this is likely to require 'defensive' prickly planting around the sett along with some strategic, badger-permeable fencing around a 'no-go' buffer area of 20- 30m around the sett. In this case the new sett would be located within an extensive area of 'out-of-bounds' woodland and thus the 'no-go' buffer would be considerably larger than 20-30m.

3.1.16 Sett closure would generally entail the erection of badger proof fencing around the sett / gating the sett entrances, monitoring over a 3 week period, followed by sett destruction through excavation of the sett tunnels and chambers.

3.1.17 The retention of foraging links to the wider countryside particularly to the north, will ensure that sufficient badger foraging territory is available to the re-located badgers and they are not hemmed in by the new development. Dedicated badger corridors will also be provided which are specifically designed to avoid lighting interference and to be safeguarded from human interference. This is likely to involve the strategic use of fencing, defensive prickly planting in advance of the completion of development, gates and wildlife tunnels / bridges and sympathetic lighting design. In order to ensure that the badger corridors (which will also provide useful links for other wildlife on site) remain fully functional, a regular regime of monitoring will be required in the long term.

3.1.18 It is expected that following scheme implementation, the badgers inhabiting the site will continue to thrive within the extensive areas of open spaces retained and designed into the scheme and that free access to adjacent open land will continue to be afforded to them in the future.

Birds and Other Ecological Issues on Site

3.1.19 Whilst substantial parts of the site consist of grazed improved grassland and land under current horticultural production / commercial use, of low ecological value, other significant areas of the site, consisting of former horticultural land, are now semi-derelict and have now reverted to regenerating woodland, scrub and unmanaged grassland. These habitats, along with some more floristically diverse areas of horse grazed paddock, are of some local ecological value as wildlife refuge areas for nesting birds, invertebrates and a range of mammals, including muntjac deer, foxes, voles, mice, shrews and other small mammals. The

majority of direct habitat losses associated with the scheme proposals involve loss of horse grazed and other grassland and scrub, along with extensive areas of Christmas tree plantation, active horticultural production and commercial premises. A substantial proportion of the woodland, scrub and grassland in the central part of the site will remain undeveloped and habitat enhancement proposals in this area (see below) will involve replacement of some of the secondary woodland with new woodland edge habitat and new areas of floristically diverse grassland. Deer movement across the site will be facilitated by the retention of open green corridors crossing the site and linking with Spencer's Park to the north and large gardens and open countryside to the south.

3.1.20 Whilst the ornithological surveys undertaken in 2008 indicated that the site supports a reasonably characteristic assemblage of birds and there are no Schedule 1 species present, scheme amendments will help ensure that potential losses of habitat suitable for the threatened / declining (Red or Amber list or BAP Priority) bird species, currently present on site, such as song thrush and great tit, will be reduced. The extent of retained and enhanced woodland and scrub habitat suitable for breeding, feeding and rearing young, has been significantly increased from the original scheme and specific habitat creation / enhancement measures adopted to increase the range of habitats available for birds within and around the site. These include strategic opening up of the retained stream and ditches, new woodland edge, floristically diverse grassland and hedgerows. In addition it is likely that the majority of species currently present on site will also colonise the extensive quantum of new garden space to be provided within the development.

3.1.21 All vegetation clearance operations (including rough grassland suitable for use by ground nesting species), will need to be timed to avoid the bird breeding season, which is generally February to August. It is envisaged that the major part of the vegetation clearance operation will be undertaken between September 2011 and January 2012.

3.1.22 In order to ensure that retained hedgerows, trees, woodland and other vegetation / habitat within and around the periphery of the site are adequately protected during the construction and ongoing operational period, a comprehensive regime of protection measures will be implemented.

3.1.23 It is expected that in the medium to long term, the measures implemented as part of the scheme, to retain and enhance habitat on site will ensure that the site continues to support similar numbers and diversity of bird species, as it does currently.

In terms of invertebrate interests it is considered that the site supports a range of characteristic invertebrates that will be perpetuated within the context of the revised open space provision within the site. It is also expected that the new habitat enhancement proposals proposed for the site including new grassland and woodland edge creation will increase the potential diversity of invertebrate species.

Impact on Hockley Woods SSSI and Other Notified Sites

3.1.24 There are no predicted direct or indirect impacts of any significance, on any SSSI's, European protected sites, Local Nature Reserves, county level wildlife sites or other sites of ecological interest in the vicinity of the site.

3.1.25 Existing residential development separates Hockley Woods SSSI (approx. 750m to the west) from the site and whilst scheme implementation could result in some marginal increase in informal recreational use of this extensive woodland, the woodland is relatively robust in terms of its ecological interests and it is already subject to reasonably high levels of public access. It is also expected that the new residents would tend to use the on-site public open space, which has now been significantly enlarged compared to the original scheme and the adjoining Spencer's Park to the immediate north of the application site, rather than the SSSI, due to ease of access.

3.1.26 Natural England considers that the scheme proposals will not have a significant effect on the interest features of the Hockley Woods SSSI, as it is 'more resilient to recreational pressures than other more sensitive sites'. Natural England has also indicated that any increase in recreational use of the SSSI should be balanced by continued investment in conservation management of the SSSI by Rochford District Council. This will help ensure that the special interests of the SSSI are conserved in the future.

3.1.27 Natural England and the Environment Agency agree that all impacts potentially associated with the scheme can be adequately mitigated in accordance with paragraphs 15 and 16 of PPS9 and that in terms of ecology the scheme proposals are PPS9 compliant '*having regard to the increase in habitat value through management and badger replacement mitigation proposals*'.

3.2 Ecological Enhancement / Opportunities

3.2.1 Whilst the scheme proposals will result in some losses of abandoned horticultural land, now mainly grassland and scrub / outgrown hedgerow of local wildlife interest, along with losses of horse grazed grassland and land under active horticultural production and commercial premises of low ecological value, there is scope to offset these losses through the retention / enhancement of substantial areas of sustainable woodland, grassland and other associated habitats. It is expected that this will effectively safeguard the long term future of the inhabiting wildlife.

3.2.2 The revised scheme supports the retention and safeguarding of an extensive area of habitat, to ensure that through the provision of a strong network of green corridors, open space and woodland, connectivity to the wider network of local open space and wildlife habitats will be maintained. To this end the scheme has been substantially adapted to reduce fragmentation and adverse impact on the inhabiting wildlife.

3.2.3 Habitat retention and enhancement will focus on an area that broadly correlates with an existing TPO (Tree Preservation Order) area in the centre of the site. This includes the proposed Woodland Conservation Area, within the northern part of the site, along with a connecting mosaic of new and retained meadow grassland, woodland edge, tree and hedgerow planting, paddock pasture sown with a native grassland mix and also amenity grassland. A defining network of habitat corridors, incorporating the existing well developed hedgerow / tree belts within the site and on it's perimeter, along with strategic new native planting, will also be retained / enhanced to form strong east-west and north-south wildlife corridors, linking with and forming an effective extension to, substantial existing retained habitat within and outside the site boundaries. This includes adjoining areas of open habitat in Spencer's Park, to the north of the site, along with open countryside to the south. The current proposals support a strong ecological strategy.

3.2.4 The ecological implications of the current master-plan proposals are summarised on Figure 2 (see Appendix B). It is considered that the amendments address the concerns expressed by Essex Wildlife Trust in connection with loss of habitat and fragmentation of existing habitat. In line with the vision of the recent 'Living Landscapes' initiative (Essex Wildlife Trust and Essex County Council), the aim of the ecology strategy for the Hawkwell application site is to implement a scheme of habitat enhancement that will revitalise fragmented landscapes to the benefit of wildlife and people who use the area. These guiding principles

are also in line with sustainable development as promoted in national planning policy PPS 1. Efforts have been made to ensure that there is no significant overall loss in biodiversity, through off-setting losses of grassland and scrub habitat by a sustainable strategy of ecological enhancement of the retained habitat.

3.2.5 The strategy includes the proposed opening up / enhancement of the existing stream and ditches. This will encourage colonisation by a range of native marginal and other aquatic flora, which in turn should encourage use by a range of aquatic and terrestrial invertebrates, amphibians, reptiles, bats and breeding birds.

3.2.6 The Inspector's Report to the Secretary of State following the Public Inquiry relating to this scheme in April 2010 concludes *'Concerns about ecology and biodiversity can, in my opinion, be adequately addressed by planning conditions. The Design and Access Statement sets out an ecology strategy involving the provision of green corridors, open space and woodland at the site and I see no reason to suppose that the proposals would cause any unacceptable harm to wildlife and ecological interests'.*

3.2.7 A detailed Nature Conservation Management Plan will be developed in association with the environmental consultees, to ensure that the scheme proposals outlined above, which aim to optimise the value of retained and new habitat on site, are fully sustainable and effective in the long term.

3.2.8 It is envisaged that this management plan will be provided in response to a suitably worded planning condition and / or Section 106 Agreement and will include the following elements :

Outline Nature Conservation Management Plan

Context

1. It is envisaged that as part of a Section 106 Obligation or planning condition, requirement will be set out for a detailed Nature Conservation Management Plan. This will be implemented for all areas of new and retained habitat at the Hawkwell site.

2. The Management Plan will provide a practical working document which includes an initial period of establishment maintenance for all areas of new and enhanced habitat and will contain itemised and detailed maintenance schedules for each habitat present on the site, along with reptile receptor site(s) off-site, for a ten year period. It will aim to ensure that the stated objectives are translated into well managed results on the ground

and that the areas of habitat associated with the scheme fulfil their optimal potential with regard to biodiversity.

3. The document will contain :

   - Summary description of the existing / new habitats present on the site.
   - Aims and objectives of the Management Plan
   - Maintenance regime for the initial Establishment Period
   - Proposals for monitoring and review of the Management Plan
   - Schedule of longer term management measures.

4. The routine operation of the Management Plan will be monitored and subject to twice annual inspection by the Project Ecologist with those responsible for the management of the open spaces and resident representatives, in liaison with the Essex Wildlife Trust, Natural England and the Local Planning Authority, as appropriate. It will be necessary to ensure that a suitable balance is achieved and maintained between ecological interests and public use of the areas.

Site Specific Objectives of the Management Plan

5. The specific site objectives are to :

   - Optimise the value of the retained woodland (including the Woodland Conservation Area), scrub, grassland and new habitats through implementing a positive regime of sympathetic management, to include protection, gapping up and conservation management of new and existing hedgerows, coppicing and strategic thinning, natural regeneration and re-planting of woodland and woodland edge. Other retained tree belts, proposed woodland edge and grassland habitats, will be managed to promote thriving and diverse populations of bats, badgers, invertebrates, reptiles, birds and other small mammals. Species of locally indigenous trees and shrubs of particular value to birds and invertebrates and suited to their location, will be planted in strategic areas, including oak, ash, field maple, hornbeam, hazel, holly, honeysuckle, dog rose, crab apple and hawthorn, with native willows, dogwood and alder close to the northern stream.

- Retain, restore and manage a functional network of existing hedgerows / tree belts / stream and ditch corridors within the site and around its periphery, to provide strong and effective wildlife corridors. These are strategically located to optimise their value for protected and other species of wildlife.

- Enhance the value of the retained habitat through ensuring that the provision of a complementary mosaic of other more open habitats, including wild flower grassland, glades and woodland edge, is sustained in the long term.

- Implement a regime of monitoring populations of protected species within the site and associated receptor sites. It will be necessary to ensure that the favourable conservation status (FCS) of reptiles, bats and badgers is maintained or enhanced in the long term, in accordance with principles set out in the accompanying protected species reports (Appendix A) and with agreement from Natural England and other environmental consultees, as appropriate.

- There will need to be a watching brief to ensure that the badger colony flourishes on site without threat or interference and to ensure that the undisturbed nature of the new artificial and existing main badger setts and dedicated badger corridors remains fully functional, through regular checking and repair of setts, fencing, tunnels etc. Similarly, it will be necessary to ensure full compliance with stipulations with regard to lighting in the vicinity of the retained bat roost and badgers corridors on site. Protected species surveys should be undertaken every 2-3 years following any habitat management for the duration of the Management Plan.

Appendix A

LAND AT HAWKWELL, ESSEX

1. Survey and Assessment for Protected Species of Animals, The Robert Stebbings Consultancy Limited, October 2008 and updated August 2009

2. Re-Assessment for Bats and Badgers, The Robert Stebbings Consultancy, January 2011

March 2011

LizLake

Doc. Ref. 080/09 01625/E/0809 Issued 19 August 2009

LAND AT HAWKWELL

ESSEX

STATEMENT ON THE SURVEY AND ASSESSMENT FOR PROTECTED SPECIES

Project co-ordinator and assessor Robert E Stebbings PhD., F.I.Biol., C.Biol., F.Z.S., F.L.S., M.I.E.E.M.

Client:

Barratt Eastern Counties Limited
7 Springfield Lyons Approach
Chelmsford
Essex
CM2 5EY

Telephone: 01245 232476
Facsimile: 01245 232496

The Robert Stebbings Consultancy Limited
91 Thorpe Road
Peterborough
Cambridgeshire
PE3 6JQ

Telephone: 01733 340318
Facsimile: 01733 897018

LAND AT HAWKWELL, ESSEX

PROTECTED SPECIES

1. EXECUTIVE SUMMARY

1.1 Land at Hawkwell is to be subject to planning applications and, as part of that process to conform with PPS9, it was necessary to develop detailed surveys to establish whether protected species occur.

1.2 There is various wildlife legislation which control the treatment of different species and the principal statutes are the *Wildlife and Countryside Act 1981* (*WCA 1981*) as amended by the *Environmental Protection Act 1990* and *The Countryside and Rights of Way Act 2000* and *Natural Environment and Rural Communities Act 2006.* Also, the Habitats and Species Directive lists species and habitats which have international protection once the resource has been identified. The provisions contained within the *WCA 1981* and Habitats Directive are embodied in *The Conservation (Natural Habitats, &c.) Regulations 1994.* In addition, the *Protection of Badgers Act 1992* protects the animals and their resting places (Setts) but this is because the animals have been subject to cruelty, not because of rarity.

1.3 Following a desk study examining county and national biological data bases and in consultation with local naturalists, the area was assessed as likely to contain bats, badgers, birds and reptiles.

1.4 As a result, surveys were planned using accepted standard methods and using nationally acknowledged specialist experts. The field work allowed for the possible discovery of other protected species but none was found or suspected.

1.5 The results of surveys have been written up into four separate reports as presented below but the principal conclusions were:

- **Bats**: there is a colony of brown long eared bats in one house. The building is to be retained together with the lines of trees on both sides which bats need for shelter and dispersal.
- **Badgers**: There is a small population of badgers living in the area and these will be accommodated in the area with access to appropriate foraging habitat.
- **Birds**: A variety of common and widespread species nest in the area each year. There were no specially protected Schedule 1 species. The retained wildlife corridors and other open spaces will allow nesting and maintain food sources.
- **Reptiles**: A substantial survey has shown the slow worm is present in large numbers. The viviparous lizard similarly occurs across the area but in much smaller numbers and grass snakes live in the area in relatively small numbers. Some of these various animals will be accommodated within the site but some will need to be relocated. Seven potential release sites, all within 2.5km, have been identified and will be investigated to see if the displaced animals might be released in them with suitable habitat enhancements and protection of the sites.

SURVEY AND ASSESSMENT FOR BATS

1. BACKGROUND

1.1 All species of bat are protected under Section 9 of the *Wildlife and Countryside Act 1981* (Schedule 5)(*WCA 1981*) as amended by the *Environmental Protection Act 1990* and *The Countryside and Rights of Way Act 2000* and *Natural Environment and Rural Communities Act 2006.* Indeed, roosts are protected at all times irrespective of whether bats are present. Also, the Bonn Convention gives further weight to the importance of protecting bats and the Habitats and Species Directive lists four (of Britain's 16 resident species) on Annex II requiring *inter alia* setting up Special Areas of Conservation (SACs) to aid their conservation. The provisions contained within the *WCA 1981* and Habitats Directive are embodied in *The Conservation (Natural Habitats, &c.) Regulations 1994.* The *UKs Biodiversity: Action Plans* lists all British bat species, which serves to highlight the requirements to protect nursery and hibernation roosts (which may be in the same site e.g. a built structure) as well as foraging habitat. Roosts in buildings and trees may be used by bats in any season.

2. AIM

2.1 To survey all the trees and structures (subject to proposed demolitions), for the presence of bats and their roosts.

2.2 To assess the significance of the findings.

2.3 To make recommendations on any requirements for licencing and mitigation in the proposed re-development of the area.

3. METHODS

3.1 **Buildings:** A full and close survey of all external parts of the buildings was followed, where possible, by examination of all places where experience has shown bats might select for roosting internally. The aim was to search for bat roosts and signs of entrances and of bat occupation. Inspection involved searching all areas for signs of use by animals, e.g. presence of scratches, obvious signs of wear, staining by oils rubbed off fur, droppings etc. and any place where bats might gain entry. If droppings were found they could be distinguished from birds or other animals which also utilise holes for roosts or nest sites. The history of any bat occupation can be deduced from a variety of micro-evidence which is central to the detailed surveys conducted by this Consultancy.

3.2 The survey used high-resolution binoculars and high-powered hand-held lighting as well as access equipment such as ladders. High quality endoscopes were available but their use was not required.

3.3 **Trees:** All the trees were carefully examined to search for holes and crevices. The search involved the use of close focussing high definition binoculars and a 5,000,000lux spot light was available, if required, with access equipment.

3.4 The appraisal of potential bat roosts involves assessing its shape, size and position relative to other features; whether it shows signs of use by animals, eg. presence of scratches, obvious signs of wear, staining by oils rubbed off fur, droppings, lack of dust or cobwebs etc. When droppings are found they are distinguished from birds or other animals which also, utilise holes for roosts or nest sites.

3.5 Tree hole roosts are themselves of transient character so that bats are constantly on the lookout for new holes which may present suitable conditions. Some holes are lost each year by decay or branches breaking off, while new holes are made by woodpeckers and by natural decay.

3.6 Surveys were undertaken on 22 September and 15 October 2008 with an update on 11 August 2009.

4. RESULTS

4.1 **Trees:** All the trees within and around the study area were closely examined for any feature which could give shelter to bats. Apart from an active woodpecker nest hole (where bats would get eaten if they visited the site) there were no holes of a kind which bats might use. Most of the trees on the site were too young and too small to be of interest to bats for roosting.

Conclusion: There were no bat roosts in the trees.

4.2 **Buildings**: There was only one building which had any prospect of being used by bats. This was the house, formerly occupied by Mrs Beecham which opens onto Rectory Lane.

4.3 Survey: The house was built of bricks with cavity walls and had a single ridge running more or less east - west with gables at each end and two dormer windows facing south. The dormers had mono-pitch roofs sloping to the south. The roof was covered with concrete tiles and under-felted with hessian strengthened bitumastic felt. There were gang-nailed trusses with no ridge board. It was thought the house was built in the 1970s.

4.4 On entering the roof on 15 October, two brown long-eared bats were already flying (early afternoon) and immediately it was obvious there was an established colony dependant on the house. Droppings were distributed along the length of the roof with a line of concentrated droppings to one side of the apex which coincided with the edge of the roof felt where bats often roosted. In addition, the gable end walls were splattered with droppings suggesting the bats roosted in the hollow walls and probably also above the roof felt and beneath the tiles (a typical roost for brown long-eareds). The droppings were estimated as number about 12,000 and clearly included recent as well as broken down droppings from several years previous.

4.5 **Conclusion**: It appeared there was a small to medium sized colony of brown long-eared bats which probably live in the building throughout the year and breed there.

5. MANAGEMENT PROPOSALS

5.1 There was no change across the site which has changed the assessment for bats between 2008 and 2009. There were no bat roosts or potential roosts in any of the trees. The only site of significance for bats was the house formerly owned by Mrs Beecham.

5.2 The proposal is to retain the house within its surrounding context of tree belts to the east and west. This solution will not require any further work or observations to be made on the resident brown long-eared bat colony.

5.3 The treed dispersal routes which these bats use to access foraging areas are to be maintained.

SURVEY AND ASSESSMENT FOR BADGERS IN 2008 AND UPDATED IN 2009

1. BACKGROUND

1.1 Badgers and their setts have statutory protection under the *Protection of Badgers Act 1992*. Prior to implementation of the Act, badgers themselves were protected from being cruelly treated and could only be killed by licence using certain methods. Under the Act (Section 3) a person is guilty of an offence if he damages, destroys or obstructs access to a sett or disturbs a badger when occupying a sett. Also, any reckless actions which result in any of the above now constitute an offence. Therefore, great care needs to be exercised in carrying out any works which may be near badger setts.

1.2 An additional element of the protection afforded badgers is anything done to habitat important to their foraging needs, whose loss through management or development, would cause hardship and potential starvation ie could be classed as an act of cruelty.

2. AIM

2.1 To examine whole area proposed for development to discover the extent of badger use and especially to search for setts.

2.2 To assess the significance of findings and comment on any possible planning constraints.

2.3 Make recommendations on mitigation where appropriate.

3. METHODS

3.1 Within the area to be affected by development, a search was made for holes, footprints, pathways, feeding sites, territorial markings and dung deposition sites and to discover the extent of the badger setts.

3.2 The position of each entrance would be located by the various features shown on the maps.

3.3 It is usual for badger setts to be used by foxes and rabbits, even simultaneously, therefore, if badgers have been absent for a long time it can be difficult to interpret whether or not holes were originally dug by badgers. Also, it is important to be aware that badger setts and territories are dynamic features which are constantly changing. In effect, setts found to be unoccupied could be re-occupied at any time. Similarly, peripheral setts (annexe, outlier or subsidiary) can become disused for short or long periods. Main setts, by definition, are used continuously. Badgers appear to 'enjoy' digging holes and enlarging setts.

3.4 In the course of the survey, notice was made of the habitats which are well known to be beneficial to badgers both in digging setts and potential for food and areas which are poor providers of those resources.

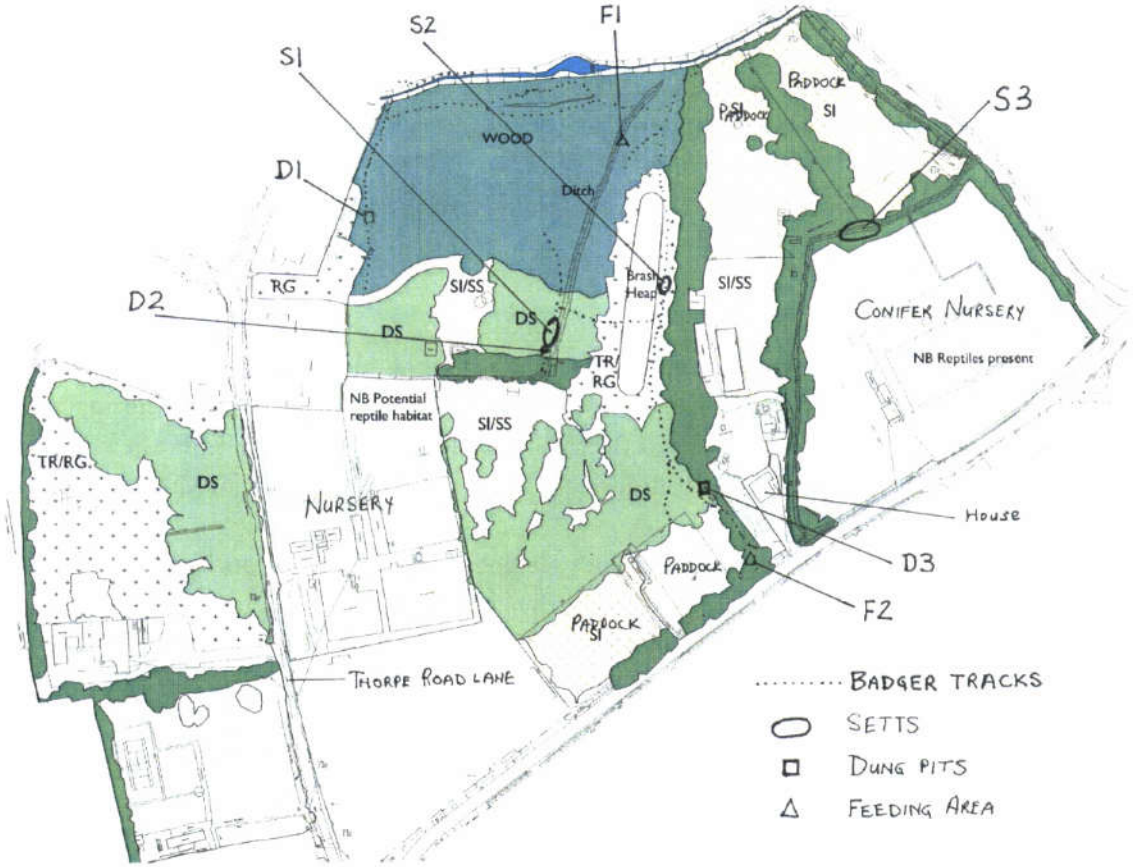

Figure 1 Areas mentioned in the text (numbered)

4. RESULTS IN 2008

4.1 There was no visible badger activity west of the Thorpe Road Lane (crossing through the proposed development site on the west side and running from north to the south) or in the conifer nursery on the east side, or the nursery east of the lane or the paddock area at the southern end.

4.2 Overall, the area appears to contain a small number of badgers with three setts (S1, S2 & S3) the first two comprising nine holes and three more that were collapsed tunnels, two were outliers (S2) and only three were active in S1. The S3 sett, classed as the main sett, contained 11 entrances of which 7 were in current use. The active holes were all well trodden, with fresh soil being evident at two setts and bedding had been dragged from all the active tunnels. There were no significant tracks leading into the large brash heap so other 'hidden' setts seem unlikely. The outlier sett was being used by foxes.

4.3 The main badger activity is through the central area of the proposed development area, from north to south. The tracks lead off the site along the stream in the northwest corner and no surveys were undertaken beyond this point. This comment applies also to tracks leading into the north-east paddocks and the one leaving the southern boundary, west of Mrs Beecham's garden.

4.4 Dung pits were found in three areas; one along the west track with nine pits (D1), one south of the main sett with eleven pits (D2) and one with fifteen pits near the north-east corner of the south paddocks (D3). Such aggregations of dung pits some distance from setts often denote boundary demarcations to territories

4.5 Two locations were identified as recent feeding areas (see F1and F2, Figure 1).

5. RESULTS 2009

5.1 The site has become more overgrown since the last survey in 2008. Part of the Nursery has been kept mown as with the frontage of Mrs Beecham's house and the horse grazing has been extended into the north end of Mrs Beecham's garden. Some of the trees have been removed in the Conifer Nursery near the badger sett (S3) and along the boundary of Mrs Beecham's

5.2 Feeding areas: The badgers are presently feeding on fallen plums in Mrs Beecham's garden and rummaging in the bottom of the damp ditch between there and the Conifer Nursery. A badger has started to dig a hole in one of the woodchip piles in the Conifer Nursery.

5.3 The badger activity is evident in the same areas as in 2008 see Figure 1.

Table 1 Summary of badger use in 2008 and 2009

Sett No.	Sett type	2008	2009
S1	Subsidiary sett	Total of 7 open entrances and 3 more collapsed. Three entrances were being used.	One hole is active with bedding near the entrance, with one entrance being used occasionally.
S2	Outlying sett	Two entrances disused in 2008	These two holes are no longer being used by badgers or foxes
S3	Main sett	Contained 11 entrances of which 7 were in current use. The active holes were all well trodden, with fresh soil being evident at two and bedding had been dragged from all the active entrances	These holes remain the same as 2008. Three are active, two have bedding near the entrance and two holes are used occasionally.

Note: Essentially, Sett No.2 has not been used for over a year and can be described as no longer part of the sett resource for this group of badgers.

6. CONCLUSIONS AND MANAGEMENT PROPOSALS

6.1 Clearly, there is a small population of badgers which survive in the study area. There was no substantial sign around the boundaries which suggest there might be larger populations living elsewhere. Certainly, there seemed to be reasonably good habitat for badgers to live within the site, including short grazed pastures as well as woodland, ditches and some wetter habitats. All these are sought after by badgers.

6.2 The intention is to maintain the main sett (S3) in the present location complete with present trees and scrub, suitably screened by supplementary planting where appropriate and this area is linked through wildlife corridors with foraging habitat both within and beyond the site. Although the little used Sett S1 falls within the edge of a wide area of open space, consideration is being given to the provision of a new sett towards the north of the site.

6.3 These animals can be persuaded to adopt new artificial setts which should be specially constructed close to good foraging habitat. This Consultancy has had much success in providing setts which badgers preferred to their own traditional sites, resulting in badgers quickly abandoning their old setts.

6.4 The requirement is to accommodate the animals more or less within the proposed development area with access to sufficient foraging area (a mixture of short grass and woodland/scrub). The proposed management will achieve that requirement.

SURVEY AND ASSESSMENT FOR BIRDS

1. BACKGROUND

1.1 Within the proposed development area there were a variety of habitats which included former nurseries, domestic gardens, young woodland, hedgerows and small grazed pastures as well as a variety of buildings. These kinds of habitats, which were surrounded by urban areas, were likely to support the widespread and relatively common species of birds. Species with specialised habitat requirements could not be expected. However, although rare species would not be present on the site, it was important to investigate what species occur and whether any special mitigation might be needed.

1.2 All birds are protected by the *Wildlife and Countryside Act 1981* (*WCA 1981*) especially when nesting although a few birds are classed as 'game' species and may be killed seasonally. Rare and threatened species are included in a special category known as Schedule 1 species. It was unlikely any of these might be found within the study area except perhaps the barn owl and kingfisher along the water course marking the northern boundary to the site.

1.3 For the rare and declining species, frequently the reasons for the declines are not clearly understood, but general loss of certain types of habitat and food sources as part of changes in land management (agricultural practices especially) is usually cited as an underlying cause.

2. AIM

2.1 To examine the proposed development area to discover what species of birds were present and what use they made of the habitats.

2.2 To assess the significance of findings and comment on any possible planning constraints.

2.3 Make recommendations on mitigation where appropriate.

3. METHODS

3.1 A bird specialist made observations from before dawn, through the day and again until after dark. The procedure involved slowly quartering the area making direct observations using binoculars combined with listening to the sounds birds make to identify species and nesting territories.

3.2 The surveys were conducted on 28 May and 17 June 2008.

4. RESULTS

4.1 Early spring was cold (similar to the previous two years) and the migrant species were late arriving in much of Britain. On the first survey on 28 May a total of 33 species was recorded (Table 1). The locations are shown on Figure 1.

Table 1 Birds recorded within the study site with details of activity

28 May 2008 Bird Species List							
	Conservation Status		Breeding	Passage	Feeding young	Singing male	Nest found
1	Sparrowhawk	*Accipiter nisus*					
2	Kestrel	*Falco tinnunculus*					
3	Wood pigeon	*Columba palumbus*	Y				Y
4	Collared dove	*Streptopelia decaocto*	Y				Y
5	Cuckoo	*Cuculus canorus*	?				
6	Tawny owl	*Strix aluca*					
6A	Green woodpecker	*Picus viridis*					
7	Great spotted woodpecker	*Dendrocopos major*	Y				Y
8	Swallow	*Hirundo rustica*	Y				Y
9	Pied wagtail	*Motacilla alba*	Y				
10	Wren	*Troglodytes troglodytes*	Y				Y
11	Dunnock	*Prunella modularis*	Y			Y	
12	Robin	*Erithacus rubecula*	Y			Y	Y
13	Blackbird	*Turdus merula*	Y			Y	Y
14	Song thrush	*Turdus philomelos*	Y			Y	
15	Reed warbler	*Acrocephalus scirpaceus*	?				
16	Whitethroat	*Sylvia communis*	Y			Y	
16A	Blackcap	*Sylvia atricapilla*	Y				
17	Chiffchaff	*Phylloscopus collybita*	?				
18	Willow warbler	*Phylloscopus trochilus*	?				
19	Goldcrest	*Regulus regulus*			Y		
20	Long-tailed tit	*Aegithalos caudatus*			Y		
21	Blue tit	*Parus caeruleus*			Y		
22	Great tit	*Parus major*	Y		Y	Y	Y
23	Jay	*Garrulus glandarius*					
24	Magpie	*Pica pica*	Y				Y
25	Jackdaw	*Corvus monedula*					
26	Carrion/hooded crow	*Corvus corone*					
27	Starling	*Sturnus vulgaris*	Y				
28	Chaffinch	*Fringilla coelebs*	Y		Y	Y	
29	Greenfinch	*Carduelis chloris*	Y			Y	
30	Goldfinch	*Carduelis carduelis*			Y		
31	Linnet	*Carduelis cannabina*	?			Y	

Key:

Red - indicates the most threatened species

Amber - indicates species undergoing moderate decline

Green - indicates widely breeding species in UK not presently showing any significant population change

Figure 1 Locations where the various species were found (See Table 1) Numbers refer to species numbers in the table.

4.2 The variety of species was as expected except the number of blackcaps (only one pair) was far fewer. That species was generally under-recorded in 2008 in the east of England.

4.3 In June, the total number of species recorded was one fewer than in May with 32 species. The blackcap was missing

Table 2 Birds recorded within the study site with details of activity

17 June 2008 Bird Species List							
	Conservation Status		Breeding	Passage	Feeding young	Singing male	Nest found
1	Sparrowhawk	*Accipiter nisus*					
2	Kestrel	*Falco tinnunculus*					
3	Wood pigeon	*Columba palumbus*	Y				Y
4	Collared dove	*Streptopelia decaocto*	Y				Y
5	Cuckoo	*Cuculus canorus*	?				
6	Tawny owl	*Strix aluca*					
6A	Green woodpecker	*Picus viridis*					
7	Great spotted woodpecker	*Dendrocopos major*	Y				Y
8	Swallow	*Hirundo rustica*	Y				Y
9	Pied wagtail	*Motacilla alba*	Y				
10	Wren	*Troglodytes troglodytes*	Y				Y
11	Dunnock	*Prunella modularis*	Y			Y	
12	Robin	*Erithacus rubecula*	Y			Y	Y
13	Blackbird	*Turdus merula*	Y			Y	Y
14	Song thrush	*Turdus philomelos*	Y			Y	
15	Reed warbler	*Acrocephalus scirpaceus*	?				
16	Whitethroat	*Sylvia communis*	Y			Y	
17	Chiffchaff	*Phylloscopus collybita*	?				
18	Willow warbler	*Phylloscopus trochilus*	?				
19	Goldcrest	*Regulus regulus*			Y		
20	Long-tailed tit	*Aegithalos caudatus*			Y		
21	Blue tit	*Parus caeruleus*			Y		
22	Great tit	*Parus major*	Y		Y	Y	Y
23	Jay	*Garrulus glandarius*					
24	Magpie	*Pica pica*	Y				Y
25	Jackdaw	*Corvus monedula*					
26	Carrion/hooded crow	*Corvus corone*					
27	Starling	*Sturnus vulgaris*	Y				
28	Chaffinch	*Fringilla coelebs*	Y		Y	Y	
29	Greenfinch	*Carduelis chloris*	Y			Y	
30	Goldfinch	*Carduelis carduelis*			Y		
31	Linnet	*Carduelis cannabina*	?			Y	

Key:

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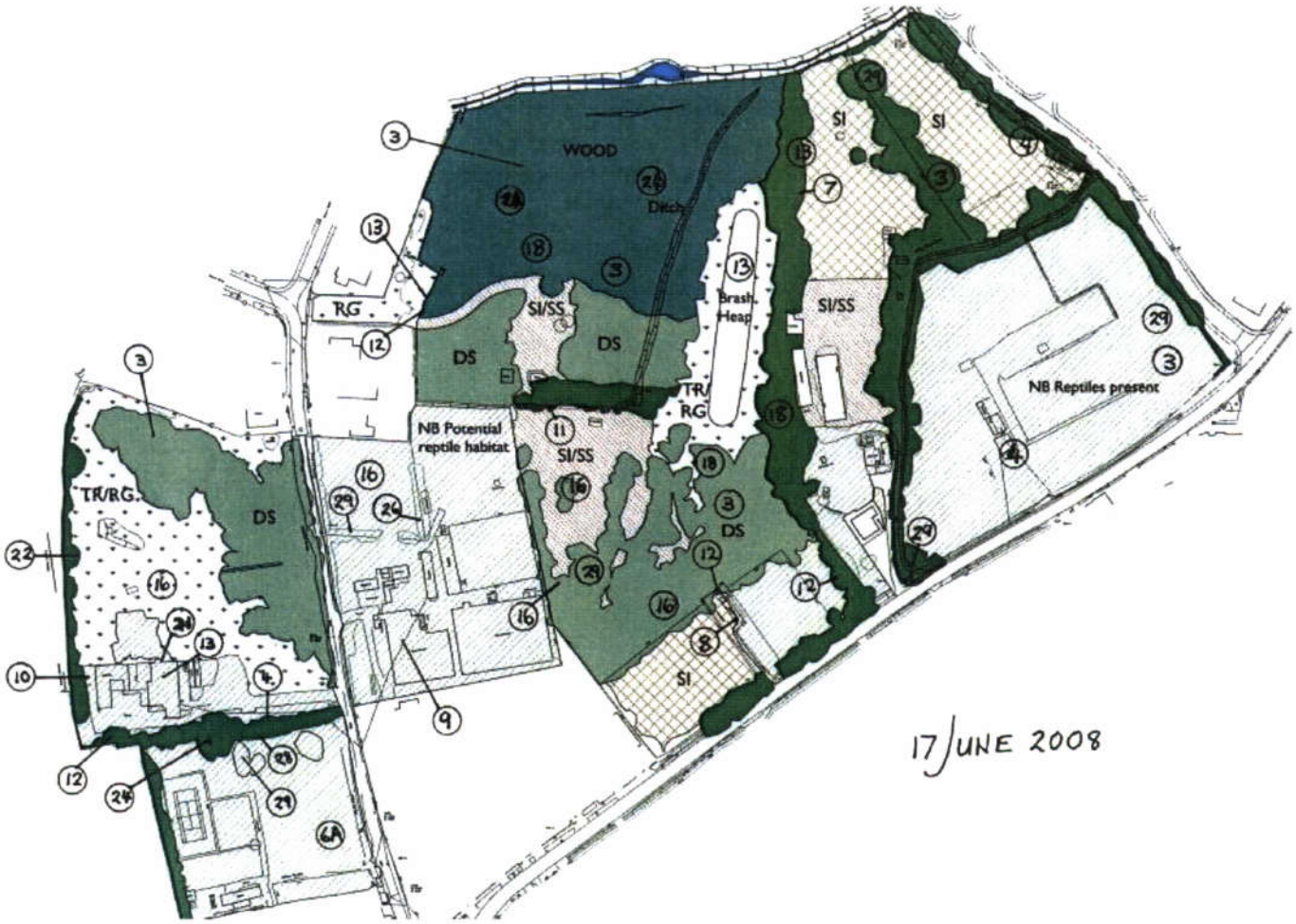

Figure 2 **Locations where the various species were found (See Table 2) Numbers refer to species numbers in the table.**

4.4 **Notes on each species (numbers as per Tables) amalgamated records for the two surveys**

1 Sparrowhawk - one seen hunting over the brash heap.
2 Kestrel - one seen hovering over the conifer nursery.
3 Wood pigeon - probably about 50 pairs breeding in the whole study area.
4 Collared dove - 3-4 pairs breeding on site.
5 Cuckoo - one heard calling near brash heap.
6 Tawny owl - one disturbed from wood.
6A Green woodpecker - feeding on lawn of tennis court area.
7 Great spotted woodpecker - nest in tree northeast of brash heap.
8 Swallow - low numbers feeding in the area and only one nest found in the south stable block.
9 Pied wagtail - two pairs, one in the west nursery and one in the conifer nursery.
10 Wren - low number of wrens, mostly around the buildings.
11 Dunnock - five breeding areas located on the site.
12 Robin - good numbers of breeding pairs within the proposed development area.
13 Blackbird - males heard singing and birds carrying food.
14 Song thrush - only two singing males heard on site.
15 Reed warbler - a pair seen in the west area in May but not seen in June.
16 Whitethroat - good numbers of these for the area.

16A Blackcap - only the female was seen and the male heard singing. Only one pair located on site in May only.
17 Chiffchaff - numbers low but would have expected more of these.
18 Willow warbler - more of these than chiffchaff, but usually, the opposite is true.
19 Goldcrest - seen feeding fledglings on the conifer hedge on the west side south boundary.
20 Long-tailed tit - family group feeding in the tennis court area.
21 Blue tit - some birds were seen carrying food and others with fledglings.
22 Great tit - two nests were found, one in a nest box northwest of the site but adults were catching food within the site, the other nest was in a woodpecker hole west of Mrs Beecham's garden.
23 Jay - seen collecting food then flying away beyond the east corner of the conifer nursery site.
24 Magpie - this bird after wood pigeon was the most numerous and several young birds out of their nests were heard calling.
25 Jackdaw - a bird was seen gathering food in the nursery area.
26 Carrion crow - a single bird was seen basking in the sun on the east conifer boundary of Mr G Keyes' nursery plot.
27 Starling - seen collecting food near the stables on the northeast boundary.
28 Chaffinch - males were heard singing.
29 Greenfinch - a mixture of males singing, some collecting food and family groups.
30 Goldfinch - seen feeding near the brash heap.
31 Linnet - only one pair was seen but did not appear to be nesting.

5. CONCLUSIONS

5.1 The birds found within the survey area were unremarkable and were species to be expected in the available habitats.

5.2 There were no specially protected Schedule 1 species (*WCA 1981*).

5.3 The number and variety of birds will vary a little each year but it can be expected the species composition will remain similar each year. The greatest variation tends to occur amongst the migrant summer species.

5.4 There were no 'special' habitats of a kind which could attract significant populations of winter visitors although there will be influxes of transient birds passing through, often depending on the weather.

6. MANAGEMENT RECOMMENDATIONS

6.1 There were no 'special' species which need consideration in a proposed development.

6.2 All site clearance must avoid the bird nesting season from March to August inclusive.

6.3 The several wildlife corridors with their trees and scrub will provide nesting and foraging opportunities for many of these birds.

SURVEY AND ASSESSMENT FOR REPTILES 2008 WITH UPDATE IN AUGUST 2009

1. BACKGROUND

1.1 All British reptiles are protected from being 'killed or injured' under the *Wildlife and Countryside Act 1981* (Schedule 5)(*WCA 1981*) as amended by the *Environmental Protection Act 1990* and *The Countryside and Rights of Way Act 2000* and *Natural Environment and Rural Communities Act 2006.*

1.2 An area of land located in Hawkwell near Rectory Road is being investigated for the purpose of redevelopment. The site contains a mixture of different land uses and habitats such as woodland, scrub, grassland, gardens, grazed meadows and other features which are considered to be important wildlife habitats.

1.3 The presence of reptiles from the general area is well known. Species include all four widespread species – adder, grass snake, slowworm and viviparous lizard.

1.4 The above widespread reptiles together with the common toad are designated priority species under the *UK Biodiversity Action Plan.*

1.5 It was important to assess the current status of each species within the site. Determining the distribution and the relative abundance of each species on site helps inform the design of the proposed development.

1.6 Under PPS 9 consideration of 'protected species' and the protection of species of conservation importance are necessary for a local authority to consider in planning applications.

1.7 This report details the survey which was carried out on the Hawkwell site in 2008 and provides suggestions on how any future development or land use changes can be carried out while protecting and conserving the reptiles.

2. AIMS

2.1 To carry out a detailed survey to find what reptile species are present, together with their relative abundance and distribution.

2.2 To recommend measures to protect and conserve the conservation status of reptile populations within the site during any development or land use changes.

3. METHODS

Reptile Habitat Assessment

3.1 The habitats found around the different areas of the Hawkwell site were visually assessed for their suitability to support widespread reptile species (adder, grass snake, slow-worm and viviparous lizard).

3.2 The likely presence of reptiles can be based on the habitat structure, vegetation, levels of disturbance, aspect and other factors which would be suitable for reptiles to live within. Hibernacula, potential breeding areas and foraging areas were noted within the assessment.

3.3 Photographs were taken to illustrate the different types of habitats which are found on the site and will be listed for each distinct survey area (Appendix 1).

Visual Assessment or Visual Encounter Surveys

3.4 Over periods of suitable weather, suitable habitat was walked to try and spot any basking reptiles. This method is very important for the spotting lizards and snakes basking away from the sun traps or Artificial Refuges (ARs). Transects between the artificial cover objects and other features will be made to try and establish the presence of reptiles through direct field observation.

3.5 Each reptile sighting was to be recorded and logged using a hand held GPS and along with the weather conditions, the species, age and sex of the animal.

Artificial Refugia (ARs)

3.6 In order to sample a reptile population it is useful to employ ARs (see Appendix 3). The ARss can be laid out within habitats being surveyed to help attract reptiles to the area. Adders, grass snakes, slowworms and to a lesser degree viviparous lizards may use these objects for basking.

3.7 During the survey visit, a transect was walked around suitable habitats. Each was checked for basking animals or sheltering animals underneath. Each sighting will be logged using a hand held GPS and air temperatures and ground temperatures will be recorded during each survey.

Presence/Absence Survey

3.8 Current best practice and guidance on reptile surveys suggests that up to seven non consecutive survey visits are required to determine the presence of reptiles (Froglife, 1999 & English Nature 2004). The distribution of reptile sightings can be determined from these standard reptile surveys.

Population Estimates (relative)

3.9 The future development of the site will lead to direct and indirect impacts on the reptile populations found within the different environs found within the site. In order to properly assess the likely impact of future development a detailed survey of 20 to 25 survey visits is required to gain an idea of the population size within the survey area (Froglife 1999 & English Nature 2004).

Survey areas

3.10 The survey areas were divided on the basis of the different owners and these areas were divided by habitats which may act as a natural barrier to reptiles (mainly slowworms and common lizards).

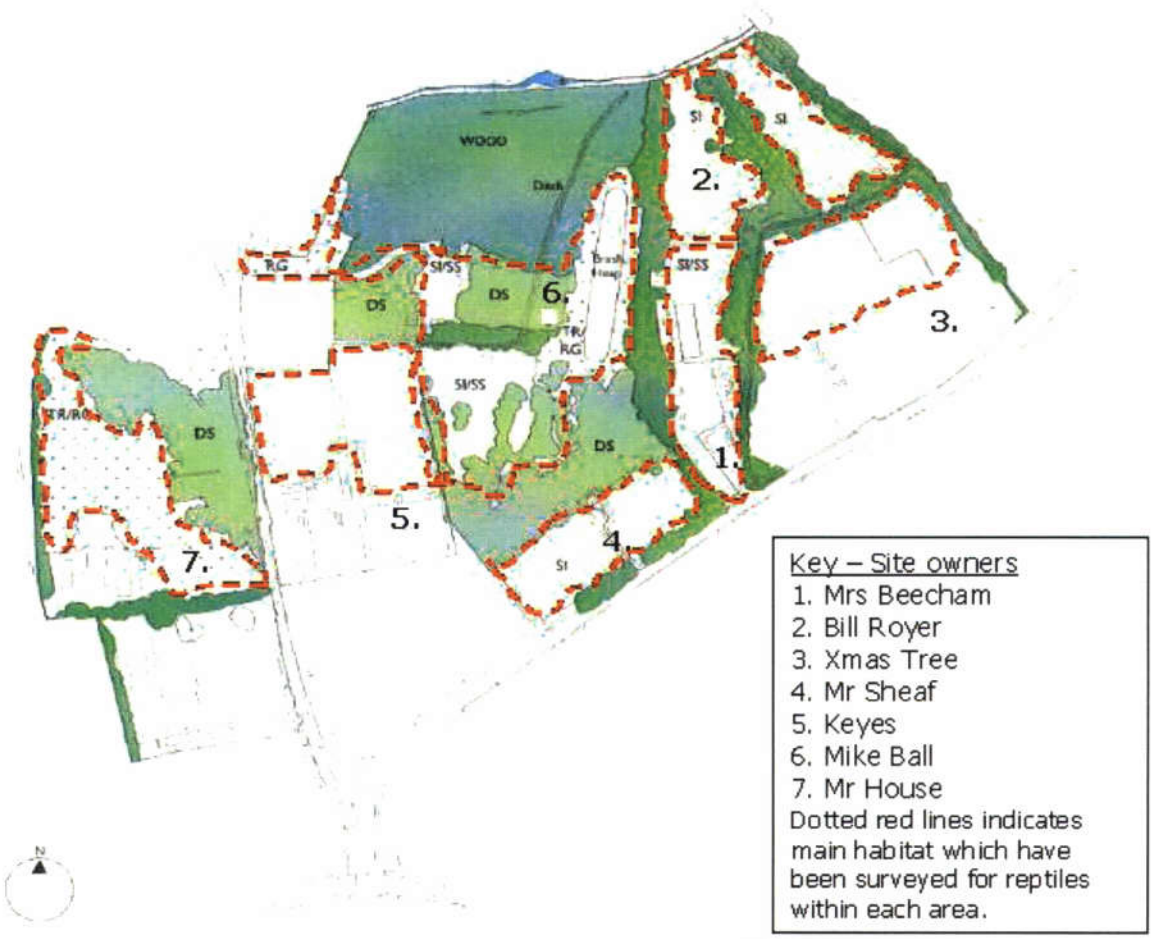

Figure 1 Areas mentioned in the text (numbered)

3.11 Semi natural habitat was surveyed which from experience was most likely to support reptiles. Dense scrub, hard standings, buildings, woodland were not surveyed for reptiles due to it being mainly unsuitable for reptiles.

3.12 The area of each reptile habitat was estimated by using the GIS program www.magic.gov.uk. The area was then used to calculate the density at each locality to ensure that the survey exceeded the standard for a reptile investigation (Froglife 1999).

3.13 The AR density for the total survey area (3.48ha) was 166 ARs per ha which far exceeds the recommended density of 5 to 10 ARs per ha recommended by Froglife 1999. The reason was because of prior knowledge of nearby sites, suggested there was likely to be many reptiles in that area and full details would be needed prior to development.

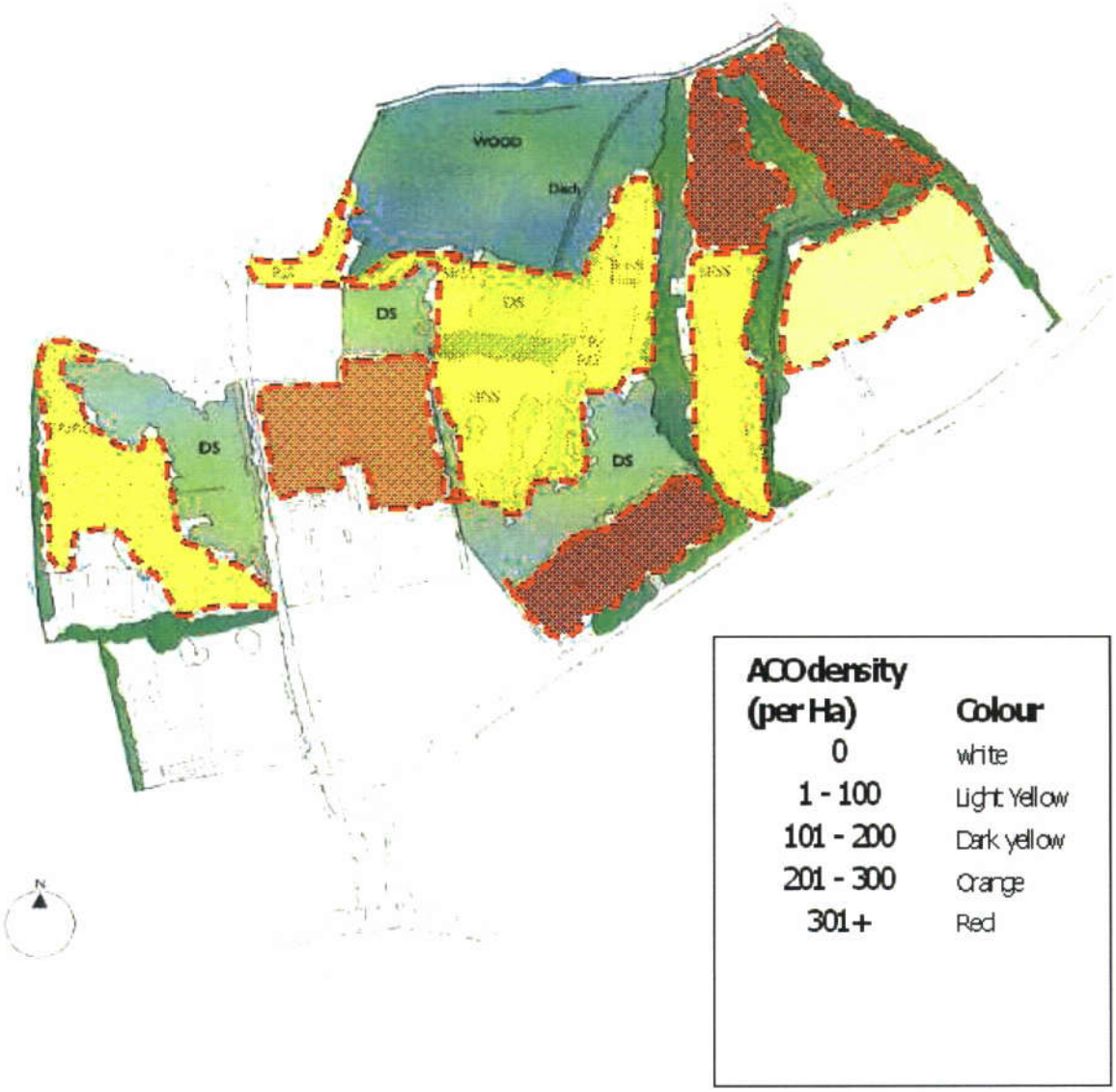

Figure 2 – ARs or ACO (Artificial Cover Objects) density at each survey area

4. RESULTS

4.1 Results of the surveys undertaken in July, August and September have been collated and presented in separate tables for each month (Tables 1, 2 & 3).

Table 1 Summary of reptile sightings in July 2008

Date		Slowworm			Lizard		Grass	Total
2008	Male	Female	Juvenile	Male	Female	Juvenile	snake	
22-Jul	3	10	9	0	1	0	0	23
23-Jul	0	19	3	1	6	0	0	29
24-Jul	0	31	20	2	5	0	1	59
25-Jul	2	22	13	3	3	0	0	43
28-Jul	1	16	17	3	2	1	0	40
31-Jul	14	38	23	5	6	6	0	92
Totals	**20**	**136**	**85**	**14**	**23**	**7**	**1**	**286**

Table 2 Summary of reptile sightings in August 2008

Date		Slowworm			Lizard		Grass	Total
	Male	Female	Juvenile	Male	Female	Juvenile	snake	
01-Aug	5	17	15	0	9	8	0	54
04-Aug	9	28	9	1	6	2	0	55
05-Aug	6	23	10	8	9	10	0	66
07-Aug	9	48	13	4	0	10	0	84
08-Aug	29	80	14	3	7	26	1	160
11-Aug	25	55	16	3	7	26	3	135
22-Aug	25	42	48	3	6	18	1	143
29-Aug	28	78	79	1	3	10	5	204
Totals	**136**	**371**	**204**	**23**	**47**	**110**	**10**	**901**

Table 3 Summary of reptile sightings in September 2008

Date		Slowworm			Lizard		Grass	Total
	Male	Female	Juvenile	Male	Female	Juvenile	snake	
04-Sep	34	8	74	4	20	26	1	207
08-Sep	41	71	87	1	13	25	1	239
09-Sep	29	44	67	3	15	30	1	189
10-Sep	11	47	38	4	6	4	0	110
11-Sep	37	75	61	3	15	19	1	211
12-Sep	22	50	47	0	7	13	2	141
Totals	**174**	**335**	**374**	**15**	**76**	**117**	**6**	**1097**

4.2 The survey findings show that September was the most productive month with 1097 reptile sightings. In August there were 901 reptile sightings while in July there were only 286 reptile sightings.

4.3 The survey results confirm the presence of three reptile species within the site. The adder was not recorded and it was likely this species was absent from the survey area.

4.4 In order to properly plan the future development of the site it is important to know the best reptile areas. The site was divided into smaller survey sites using boundaries and barriers (woodland, hedgerows, fences and unsuitable reptile habitats).

4.5 There were seven areas which were sampled for reptiles, Figure 1.

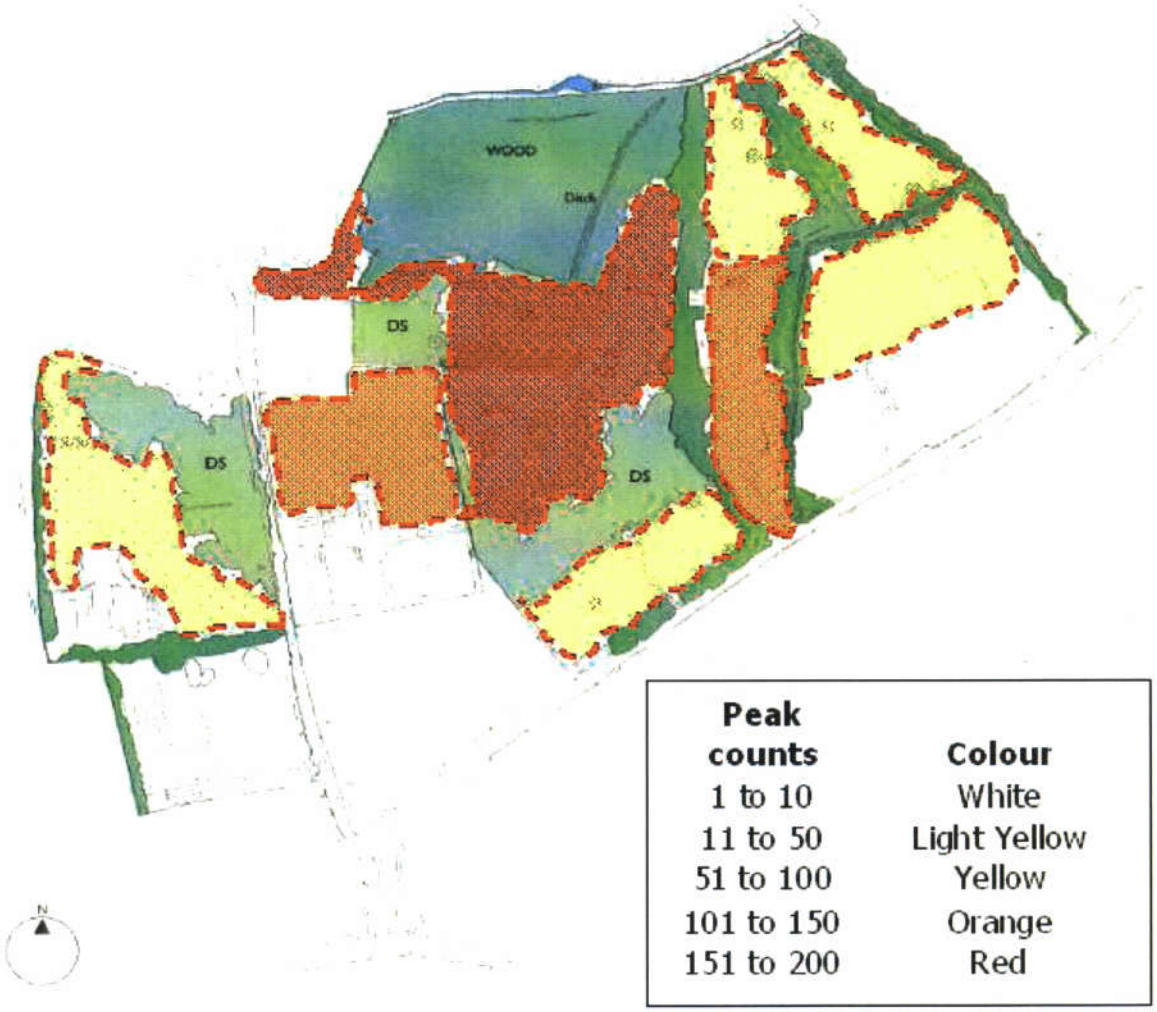

Figure 3 Map of slowworm results (peak counts) from each survey site (July to September)

4.6 The most important sites for slowworms were areas 6, 5 and 1 with the highest number of slowworms recorded from Site 6. The middle of the site has the largest amount of suitable habitat and the largest number of AR's which reflects in the results (Appendices 1 and 3).

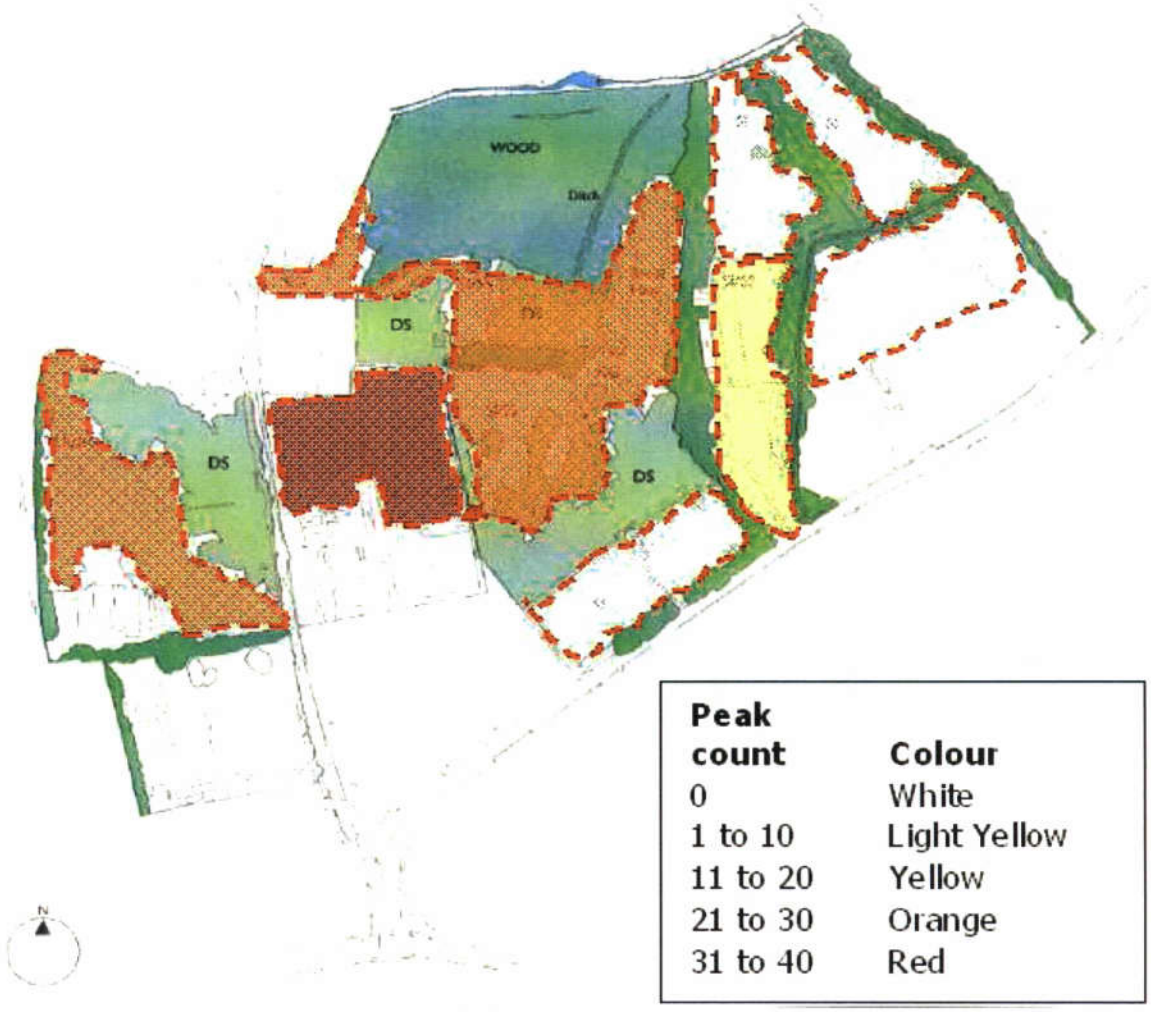

Figure 4 Map of viviparous lizard sightings from each survey site (July to September)

4.7 The highest number of lizards was recorded from site 5 with 6 and 7 having good populations. Site 5 had more open grassland which was better suited to the ecology of the viviparous lizard (Appendices 1 and 3).

4.8 The lizard is found over most of the site in smaller numbers and can be found in any small pocket of suitable habitat.

4.9 The grass snake was found in small numbers over the most suitable areas of the site which included Sites 5, 6 and 7. The presence of grass snakes seems to be associated with the previous or continuing use of the site as a garden or nursery.

Figure 5 Areas where grass snakes were found during the survey (July to September 2008) All areas enclosed by the red dashed lines

4.10 The grass snake has been reported from the Norway spruce plantation and when moving around would probably use the hedgerows, ditches as well as the bramble and scrubland edges.

4.11 Clearance of the woodland has provided a potential hibernation and egg laying site within Area 6, a large mound of tree roots, brash and other materials would be a likely egg laying site.

5. PROPOSALS FOR MANAGEMENT OF REPTILE POPULATIONS

5.1 It is proposed some reptile interest will be retained within the proposed development. Reptiles can be accommodated within developments and the most important areas for the different species need to be protected as much as possible. However, inevitably there will be a need to relocate a significant proportion as development proceeds. Areas for redeployment will be subject to careful management to ensure all the key elements needed for their survival is prepared before releasing animals. The key elements being adequate shelter and hibernation sites and food resources.

Lizard conservation measures

5.2 Slowworms were found in the highest numbers within grassland and scrub which borders woodland and it should be possible to maintain these animals in green corridor through the development.

5.3 It is certain there will be a few thousand slowworms on the whole site and the clearance of specific areas would need to follow an extensive capture and relocation programme. They are likely to be translocated around the site to suitable enhanced areas but also, some will need to be moved off site to other sites which have been prepared.

5.4 The viviparous lizard population is estimated to be some hundreds but unlike the slowworm which can survive within human habitations (as they hide in vegetation and under materials) the lizard will be adversely affected by development due to the inevitable increase in domestic predators, mainly cats and disturbance by people.

5.5 A population can be maintained within the site following suitable habitat management on currently unsuitable habitats.

Grass snake conservation measures

5.6 Grass snakes are free ranging typically radiating 1 - 2km each season and will occur throughout the site at low density. It tends to survive within suburban and urban areas. Grass snakes would not be subjected to any translocation off site, but would be conserved using habitat enhancements to the existing retained corridor habitats.

Post development management of the natural habitats.

5.7 A management plan will need to be developed for any retained natural habitats to provide a structure suitable for the reptiles including grass snakes. Egg laying sites, ponds for foraging and log piles for hibernation should be maintained each year in an agreed pattern.

5.8 Spencers Park is located to the north of the site and is currently managed by the Hawkwell Parish Council. Before development begins, it is desirable to undertake further surveys to select suitable off site receptor areas around Hawkwell.

Monitoring of reptile populations

5.9 The protection and enhancement of the conservation status of the reptile populations within this local area of Hawkwell is an important task for the development.

5.10 In order to fulfil this objective, a monitoring survey would need to be implemented after completion of the development. The management plan for the site would include any necessary

monitoring. The surveys would be undertaken every two to three years following any habitat management and this should continue for the life of the agreed management plan.

5.11 Reptile surveys could be undertaken by local reptile specialists and should aim to determine the distribution and relative abundance of species and the results would help inform future habitat management.

6. CONCLUSIONS

6.1 The presence of slowworms, viviparous lizards and grass snakes has been confirmed within the mixture of habitats located within the proposed development area surrounding Thorpe Road, Hawkwell.

6.2 The populations of slowworm and viviparous lizard were considered to be 'exceptional' or high classes while the grass snake population was 'low' to 'good'.

6.3 Some degree of relocation of the reptiles will be required with the number being dependant on the final design of the development and the open spaces including wildlife corridors.

6.4 Identification of external receptor sites needs to be determined a year prior to any development to ensure that the reptile interests are protected and enhanced.

6.5 The monitoring of the reptile populations post development would need to be agreed and carried out over the life time of any future habitat management plan to ensure reptiles are maintained in a *favourable conservation status* (FCS).

7. UPDATE AUGUST 2009

TABLE 4 SUMMARY OF SURVEY FINDINGS IN AUGUST 2009 COMPARED WITH SURVEY FINDINGS IN 2008

Site No.	HABITAT DESCRIPTION 2008	HABITAT DESCRIPTION 2009
1	Old disused garden, good rough areas of grassland and scrubby areas bordered by hedgerows.	Grassland area in front of the house/dwelling has been tidied up and mown – most of the site has become more overgrown but is still a good reptile habitat.
2	Grassland areas bordered by scrub and hedgerows, the grass is regularly grazed by horses.	Grassland area still being grazed by horses and is of limited value for reptiles but still provides border habitats – eg hedges etc
3	Old Christmas tree nursery which has extensive hard standings and compact ground with overgrown trees.	Works have been carried out on this site which has created new potential habitats in the form of piles of debris etc from chipped old Christmas trees.
4	Heavily grazed fields bordered by hedgerows and woodland.	Same condition as 2008.
5	Old nursery buildings and hard standings plus nice varied structured grassland areas with interspersed scrub bushes bordered by hedgerows and woodland.	Same condition as 2008.
6	Large area of mixed woodland, scrub and rough scrubby grassland.	Same condition as 2008.
7	Rough grassland mixed with dense scrub and active garage plus tennis courts.	Same condition as 2008.
Whole site	Varied uses of the mixture of different habitats creates a mosaic of habitats which are important for local wildlife	Slightly over grown areas still largely the same condition as found in 2008.

8. POTENTIAL RECEPTOR SITES (see Table 5 below)

8.1 The use of external receptor sites will be inevitable even with a designed layout which provides some retention of animals on site. The reduction of the habitat would mean that animals would need to be thinned out to prevent overcrowding and lack of food for their survival.

8.2 Surveys need to undertaken at possible release sites to discount those which are found already to have reptile populations. Habitat enhancements to some sites will be an ideal compensation measure to ensure that no net loss of conservation status is achieved.

8.3 There are a number of sites which have been considered within the local area which could be considered for providing suitable habitats for rescued lizards from the Hawkwell site.

8.4 At least seven survey visits to each site would be necessary to assess the distribution and relative abundance of each species and this must be in the active season for reptiles from mid April to mid September (exceptionally to the end of September when the weather is above average temperatures).

8.5 Sites with very low counts or no animals would be selected as release sites and would be prepared over the winter months.

8.6 All the release sites would be highlighted and details sent to the Local Authority and the local recorder so they should not be considered for other releases. (Having found a site it would be important that other people should not take advantage of the knowledge gained nor introduce animals in advance of ones from Hawkwell.) Also, the sites would be flagged as potential County Wildlife Sites (CWS) which should receive protection within the local plan.

8.7 It is very important to get the sites properly managed and monitored to ensure that the conservation status of the local reptiles are not harmed as a result of the development – a key action within the National UK BAP (Biodiversity Action Plans).

TABLE 5 POTENTIAL RECEPTOR SITES FOR REPTILES TRANSLOCATED FROM HAWKWELL

(All these require negotiation with land owners and investigation for possible presence of reptiles. It is known some of the owners will be sympathetic to an approach for the purpose of receiving reptiles from another nearby site.)

LOCATION	COMMENT
1700m south	Farm fields owned by Public body – good potential.
2500m south west	Potential on farm landscape.
1300m north east	Site suitable for small numbers of reptiles – plus breeding habitat for grass snakes.
700m west	Good opportunity to provide an educational resource.
1800m north	Farmland with lots of potential for new habitat and small releases.
1500m north east	A good opportunity to enlarge a conservation area.

9. MONITORING AND FUTURE MANAGEMENT

9.1 Any reptile mitigation strategy would need to have a management plan (preferably aimed at a period of over 20 years) with funding for future monitoring of the reptile population over the life of the management plan.

9.2 Funds can be paid to local surveyors through organisations like the Essex Amphibian and Reptile Group (EARG) for an initial 3 to 5 year period of surveys carried out by professional surveyors. Initial training of volunteers can be achieved in this initial survey.

9.3 Management and legal agreements need to be signed to ensure the medium term future of reptiles and their habitats.

9.4 This aspect can be clarified after the receptor site surveys.

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APPENDIX 1

Summary of the survey areas at the Hawkwell site.

Area of suitable reptile habitat size and AR density

Table 6 Summary of Survey area information at the Hawkwell site 2008

Site No.	Site Area (ha)	Suitable reptile habitat (ha)	AR density (per ha)	Habitat Description
1	0.6	0.6	168.3	Old disused garden, good rough areas of grassland and scrubby areas bordered by hedgerows.
2	1	0.06	350	Grassland areas bordered by scrub and hedgerows, the grass is regularly grazed by horses.
3	1.5	0.04	100	Old Norway spruce nursery which has extensive hard standings and compact ground with overgrown trees.
4	0.6	0.03	333.3	Heavily grazed fields bordered by hedgerows and woodland.
5	1.2	0.8	207.5	Old nursery buildings and hard standings with good structured grassland interspersed with scrub bushes bordered by hedgerows and woodland.
6	3.7	1.22	147.5	Large area of mixed woodland, scrub and rough scrubby grassland.
7	2.2	0.73	134.2	Rough grassland mixed with dense scrub and active garage plus tennis courts.
Total for site	10.8	3.48	166.7	Varied uses of the mixture of different habitats creates a mosaic of habitats which are important for local wildlife.

APPENDIX 2

Peak counts and estimated population sizes of slowworms, viviparous lizards & grass snakes at the Hawkwell site

Table 7 Summary of the peak counts from the Hawkwell site and the estimated population sizes assuming that between 5 and 10% of population has been seen on the peak survey count.

Month	Slowworms	Lizards	Snakes	Estimated population sizes (for each month)	
July	52	11	1	Slowworm	520 to 1040
				lizard	110 to 220
				grass snake	10 to 20
August	109	17	3	Slowworm	1090 to 2180
				lizard	170 to 240
				grass snake	30 to 60
September	112	24	2	Slowworms	1120 to 2240
				lizard	240 to 480
				grass snake	20 to 40

APPENDIX 3

Summary of the reptile survey and its results 2008 (per survey area for each month and species)

Table 8 Summary of reptile sightings in each survey area in July 2008

Site	♂ SW	♀ SW	Juv SW	♂ L	♀ L	Juv L	GS	Total
1	3	19	22	1	2	2	0	49
2	0	3	7	0	0	0	0	10
3	0	4	1	0	1	0	0	6
4	0	0	2	0	0	0	0	2
5	8	61	23	10	18	5	0	125
6	9	46	29	2	0	0	1	87
7	0	3	1	1	2	0	0	7

Table 9 Summary of reptile sightings in each survey area in August 2008

Site	♂ SW	♀ SW	Juv SW	♂ L	♀ L	Juv L	GS	Total
1	25	56	43	1	1	9	0	135
2	5	9	6	0	0	0	0	20
3	6	11	3	0	0	0	0	20
4	5	26	21	0	0	0	0	52
5	29	114	57	10	15	60	0	285
6	54	119	44	6	7	25	8	263
7	7	19	15	6	15	8	2	72

Table 10 Summary of reptile sightings in each survey area in September 2008

Site	♂ SW	♀ SW	Juv SW	♂ L	♀ L	Juv L	GS	Total
1	42	74	116	1	6	14	0	261
2	8	6	3	0	0	0	0	17
3	23	16	7	1	0	1	0	14
4	11	20	25	0	0	0	0	56
5	32	106	63	6	30	62	3	302
6	59	87	106	4	26	29	3	314
7	12	37	45	3	13	10	0	120

Key SW = Slowworm, VL = Viviparous lizard and GS = Grass snake
♂ - male ♀ - female Juv - juvenile

The Robert Stebbings Consultancy Limited

Species Ecologists and Habitat Assessors

91 Thorpe Road, Peterborough, Cambridgeshire PE3 6JQ Tel: 01733 340318
Fax: 01733 897018

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LAND AT HAWKWELL

ESSEX

RE - ASSESSMENT FOR BATS AND BADGERS

JANUARY 2011

Client:

Barratt Eastern Counties Limited
7 Springfield Lyons Approach
Chelmsford
Essex
CM2 5EY

Telephone: 01245 232476
Facsimile: 01245 232496

The Robert Stebbings Consultancy Limited
91 Thorpe Road
Peterborough
Cambridgeshire
PE3 6JQ

Telephone: 01733 340318
Facsimile: 01733 897018

HAWKWELL, ESSEX

SURVEY AND ASSESSMENT FOR BATS AND BADGERS

BATS

1. BACKGROUND

1.1 All species of bat are protected under Section 9 of the *Wildlife and Countryside Act 1981* (Schedule 5)(WCA 1981) as amended by the *Environmental Protection Act 1990* and *The Countryside and Rights of Way Act 2000* and *Natural Environment and Rural Communities Act 2006.* Indeed, roosts are protected at all times irrespective of whether bats are present. Also, the Bonn Convention gives further weight to the importance of protecting bats and the Habitats and Species Directive lists four (of Britain's 16 resident species) on Annex II requiring *inter alia* setting up Special Areas of Conservation (SACs) to aid their conservation. The provisions contained within the WCA 1981 and Habitats Directive are embodied in *The Conservation (Natural Habitats, &c.) Regulations 1994.* The *UKs Biodiversity: Action Plans* lists all British bat species, which serves to highlight the requirements to protect nursery and hibernation roosts (which may be in the same site e.g. a built structure) as well as foraging habitat. The only roost discovered on site is in the house formerly owned by Mrs Beecham.

AIM

2.1 To survey the house for the current presence of bats.

2.2 To assess the significance of the findings.

2.3 To make recommendations on any requirements for licencing and mitigation in the proposed re-development of the area.

2. RESULTS

3.1 Surveys were undertaken on 22 September and 15 October 2008, 11 August 2009 and 13 January 2011.

3.1 **Building**: The one building was the house, formerly occupied by Mrs Beecham which opens onto Rectory Lane.

3.3 2010 appears to have been a good year for bats using the house. There are more fresh droppings than in previous surveys. The bats hang from the edge of the sarking felt along the northwest side of the roof and 300mm down from the ridge (no ridge board). Both gable end walls have bat droppings stuck on the inside none were found on the external ends. Bat access into the roof has not been determined.

3.4 **Conclusion**: It appeared there was a small to medium sized colony of brown long-eared bats which appeared to live and breed in the building throughout the year.

4. RECOMMENDATIONS

4.1 Work may occur within the ground and first floor of the building without any special licencing from Natural England. Work within the roof space would need to be done with all due care as it is an offence to disturb bats without considering their care.

4.2 Timing: It is essential for long-eared bats that they are not disturbed significantly so work should occur at seasons when either they are absent or would not be damaged. There are two short times when works would not be too disturbing such as April and May and September and October. A bat specialist should inspect immediately prior to any works and advise contractors on a safe way of working.

BADGERS

5. BACKGROUND

5.1 Badgers and their setts have statutory protection under the *Protection of Badgers Act 1992*. Prior to implementation of the Act, badgers themselves were protected from being cruelly treated and could only be killed by licence using certain methods. Under the Act (Section 3) a person is guilty of an offence if he damages, destroys or obstructs access to a sett or disturbs a badger when occupying a sett. Also, any reckless actions which result in any of the above now constitute an offence. Therefore, great care needs to be exercised in carrying out any works which may be near badger setts.

5.2 An additional element of the protection afforded badgers is anything done to habitat important to their foraging needs, whose loss through management or development, would cause hardship and potential starvation ie could be classed as an act of cruelty and hence a criminal act.

6. AIM

6.1 To re-examine the area proposed for development, to discover the current extent of badger use and especially to search for setts and to assess the significance of findings.

6.2 Make recommendations on mitigation, where appropriate, which could include licensing by Natural England.

7. RESULTS

7.1 A survey of the entire area took place on 3 January 2011. There had been a considerable increase in badger activity, possibly reflecting an increase in numbers of badgers living in the area. The detailed results are tabulated below.

7.2 Sett 1 (S1)
There are seven open entrances and four collapsed holes, four of the seven open entrances were flooded.

7.3 Sett 2 (S2)
There has been a dramatic change of badger use in this area. The two disused entrances were being used by foxes in 2009 these have now been repossessed by badgers. There are now 14 open entrances and one collapsed. Ten of the entrances are in current use. There could be more entrances under the adjacent brash heap.

7.4 Sett 3 (S3)
This remains similar to previous surveys with the exception of two entrances being filled in recently, one of them was very active during the previous survey. The active sett was probably flooded out and the spoil from the sett that had blocked the ditch was deliberately placed in the entrance when a trench was dug through the spoiling to allow the water to pass. There are nine open entrances, one collapsed and two filled in. Seven entrances remain in active use.

Figure 1 Location of setts S1, S2 & S3 related to the draft layout with the suggested location for an artificial sett accommodating setts 1 & 2

Table 1 Summary of badger use in 2008, 2009 and 2011

Sett No.	Sett type	2008	2009	2011
S1	Subsidiary sett	10 entrances 3 collapsed. 3 in use	10 holes 1 in use + 1 partly.	11 entrances 7 open, 2 in use 4 flooded
S2	Subsidiary sett	2 entrances disused	2 entrances disused	15 entrances 1 collapsed 10 in use
S3	Main sett	11 entrances 7 in use	11 entrances 7 in use	12 entrances 2 filled in 7 in use

7.5 S4 Fox earth

This site, near the west boundary, had previously been hidden by dense vegetation and has been exposed by the severe winter weather. There are two heaps of dumped soil that badgers probably dug in the long past but they have not visited in recent years. The smaller (southern heap) has two holes currently used by a fox and the larger heap has five holes and are currently being used by a family of foxes. There is a discarded enclosed lorry body east of the smaller spoil heap and has another fox earth beneath.

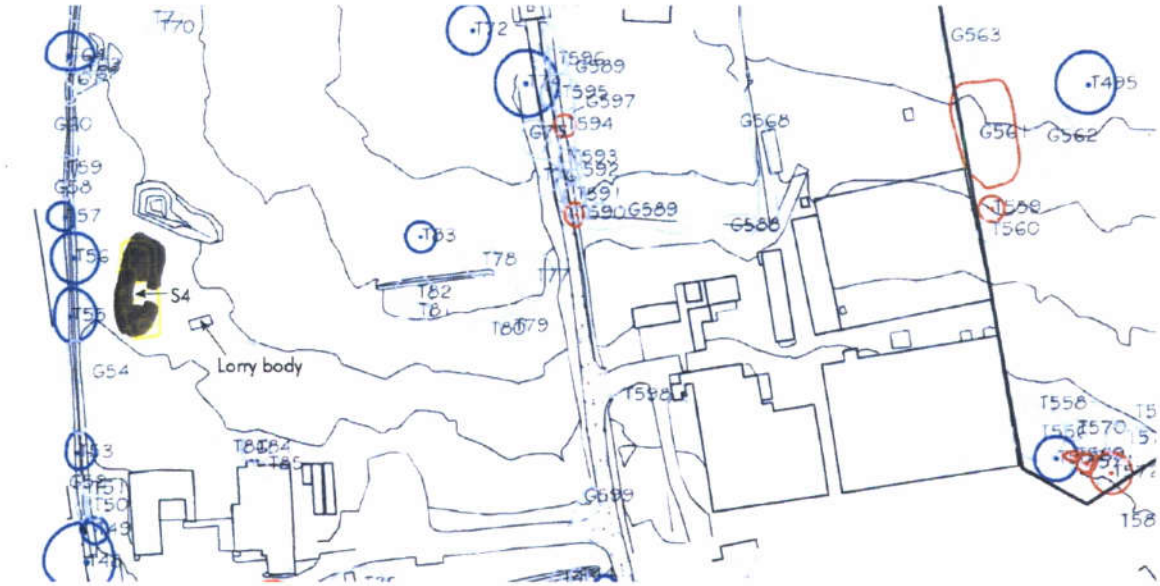


Figure 2 Location of sett S4 which now is a fox earth

8. SUMMARY AND RECOMMENDATIONS

8.1 Setts 1 and 3 have remained similar in size and use over the last three years. However, sett 2, which was never used and was insignificant, suddenly has been developed to an extraordinary extent. There is no known reason for this unless the sett 3 became flooded (as the adjacent ditch was dug out in the last year or so).

8.2 The general signs of foraging remains similar to previous surveys and that suggests the number of badgers living in the area may be similar to earlier years although it is possible the population has increased. Certainly the land use has remained similar and therefore, the amount of available food would be expected to have remained alike.

8.3 It is suggested the original main set, Sett 3, is maintained in the planned area. Setts 1 & 2 we believe could be relocated in the area formerly proposed for an Attenuation Pond near the northern boarder to the site (see Figure 1). This would give the badgers ready access to the foraging grounds to the north beyond the brook.

8.4 This Consultancy has had much success in creating artificial setts which have been quickly used by resident badgers. The setts take two days to build and on one occasion, a badger took up residence after the first day. That sett (built for Dudley Metropolitan Borough Council on a National Nature Reserve) has been in continuous occupation for eight years.

8.5 The proposed design (Figure 3) creates two separate setts in the same pile of soil with the ability for badgers to extend the setts as they will wish. The nest chambers are on four levels which is essential to allow natural ventilation within each sett. The tunnels and nest chambers must be above any potential flood level for the chosen area.

8.6 A licence from Natural England will be required to exclude and close down the two existing setts and this should be sought and obtained prior to works starting.

8.7 **Timing**: Artificial setts can be built at any time, but it is best to establish the new sett as long in advance as possible, of closing the old setts.

8.8 Fox earths are not protected, but these sites will need to be treated carefully to exclude the animals prior to destruction. Breeding is usually in spring (March - May) so that period should be avoided.

Figure 3 Proposed new sett

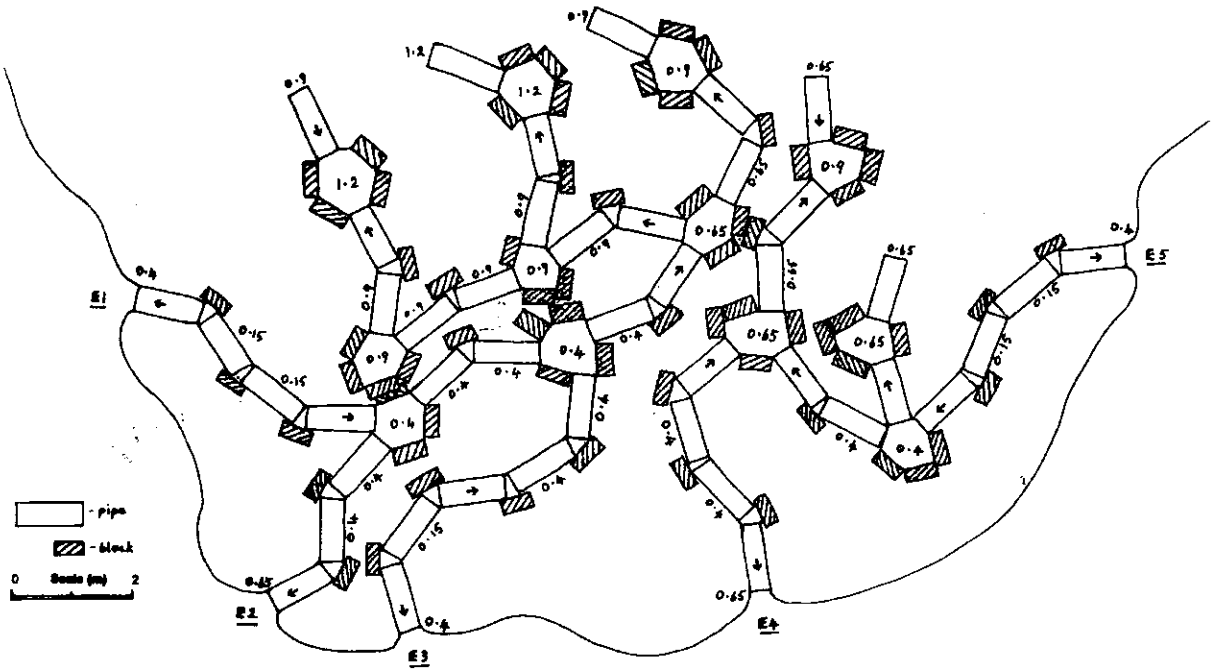
ARTIFICIAL BADGER SETT

Schematic layout for a five entrance and twelve nest chamber sett.

Arrows show pipes and direction sloping upwards.

Figures are relative levels in metres.

Span of illustration is 16 x 11 metres.



ANNEXE 1

Hawkwell Badger Locations. 13/01/2011
Locations related to tree tag numbers

Area	Tag number	Entrance hole	Direction from tag	Distance from tag m	Condition
S1	OO261	11	SE	6.8	Active
S1	OO261	12	SE	4.6	Collapsed
S1	OO252	13	SSE	2.1	Collapsed
S1	OO252	14	SE	4.6	Flooded
S1	OO252	15 x 2	ESE	3.9	2 x Collapsed
S1	OO252	16	ESE	5.5	Flooded
S1	OO252	17	E	5.3	Flooded
S1	OO252	18	S	6.7	Flooded
S1	OO252	19	SE	7.9	Active
	Total	10			
S2	OO344	20	W	11.4	Active
S2	OO344	21	WSW	15.6	Active
S2	OO344	22	SW	17.0	Active
S2	OO344	23	SW	18.0	Active
S2	OO346	24	NNW	17.3	Active
S2	OO346	25	NNW	19.5	Active
S2	OO346	26	NW	19.4	Not used
S2	OO346	27	NW	16.0	Collapsed
S2	OO346	28	WNW	11.5	Active
S2	OO346	29 x 2	W	17.0	Not used
S2	OO346	30	WSW	19.0	Active
S2	OO346	31	WSW	21.5	Active
S2	OO346	32 x 2	SW	22.0	Active
	Total	15			
S3		1	SW	East side of shed	Active
S3	OO420	2	SE	1.0	Not used
S3	OO420	3	NNW	3.7	Active
S3	OO420	4	WNW	6.5	Active
S3	OO420	5	NE	7.0	Active
S3	OO420	6	NE	9.5	Not used
S3	OO420	7	NNW	9.5	Active
S3	OO414	8	NNW	4.8	Active
S3	OO414	9	NNW	6.1	Collapsed
S3	OO414	10	N	9.5	Active
S3	OO376			Near tag	Filled in
S3	OO376			Near tag	Filled in
	Total	12			

GPS entrance hole 2 - TQ 85169 91595 GPS entrance hole 10 - TQ 85156 91603

Triangulation:

OO420 to OO414 = 6m OO420 to entrance hole 6 = 9.5m OO414 to entrance hole 6 = 9.4m

Appendix B

LAND AT HAWKWELL, ESSEX

Figure 1 Habitat Overview Rev C

Figure 2 Ecology Strategy Proposals Rev E

March 2011

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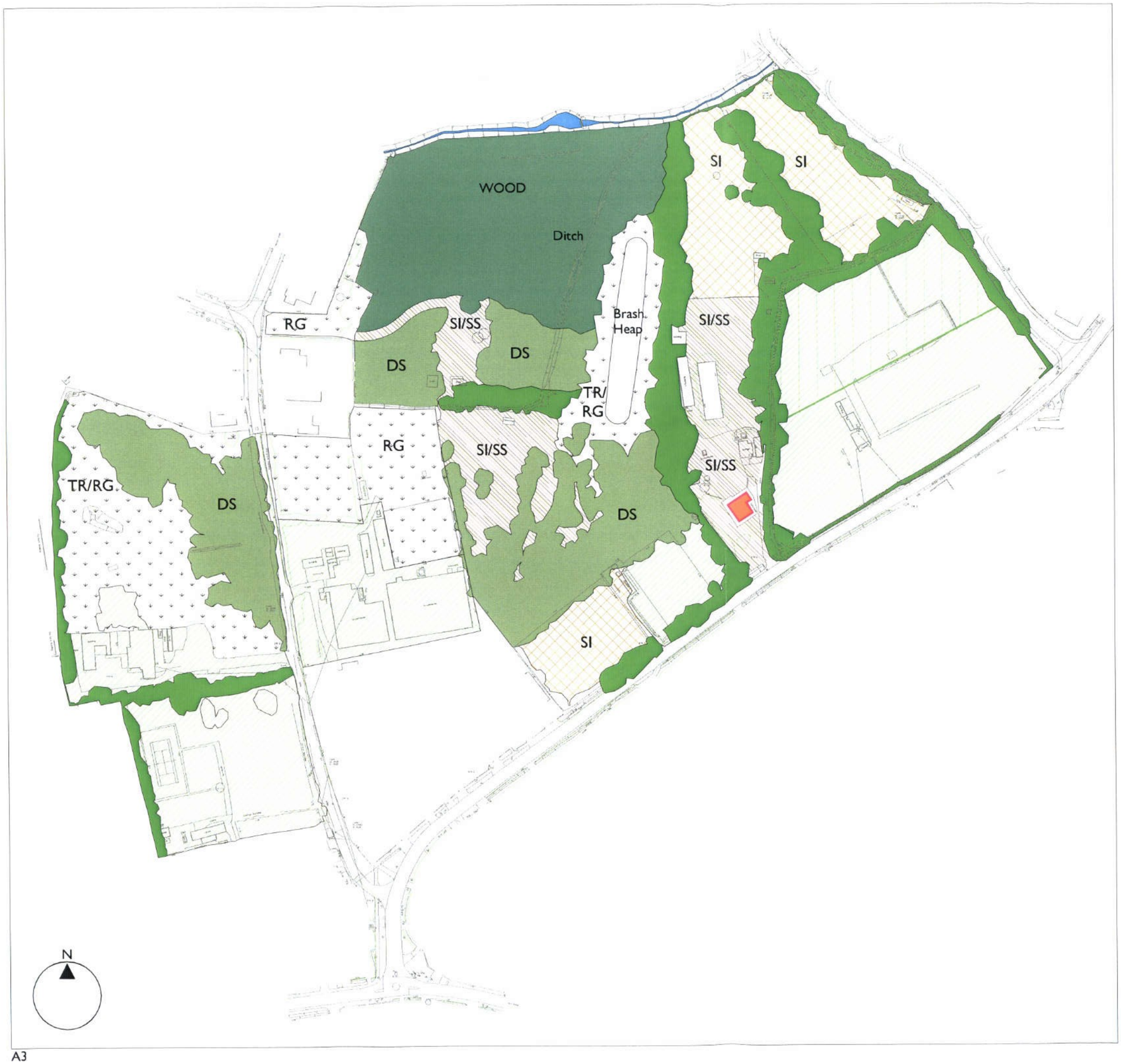

A3

LEGEND - INDICATIVE HABITAT ZONES

- Areas of generally low ecological value, including former horticultural land, improved grass and hard standing
- SI — Semi-improved grassland / paddocks
- DS — Dense scrub with scattered trees
- TR/RG — Tall ruderal / rough grass
- SI/SS — Semi-improved / rough grassland with scattered scrub / semi-mature trees
- WOOD — Area of immature woodland with regenerating trees and scrub
- Grown out hedgerows with trees
- Stream corridor
- Bat roost house
- Conifer (Christmas tree) plantation

Title: **HABITAT OVERVIEW**

Project: **Hawkwell**

Client: **Barratt Eastern Counties**

Date: **March 2011**

Scale: **1:2000 @ A3**

Drawing No: **1079 Figure 1 Rev C**

T+44 (0)1279 647044 E office@lizlake.com www.lizlake.com

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A3

LEGEND

- Existing woodland retained
- Meadow grassland, new and retained
- Existing tree retained
- Amenity grassland to be sown with native species
- Proposed tree planting
- Proposed mixed native hedge
- New woodland edge planting of particular value to range of wildlife
- Wildlife corridors with protective fencing
- Pasture Grassland (to be seeded with native mix grassland)

Title: ECOLOGY STRATEGY PROPOSALS

Project: Hawkwell

Client: Barratt Eastern Counties

Date: Aug 2009

Scale: 1:2000 @A3

Drawing No: 1079 Figure 2 Rev E

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www.lizlake.com

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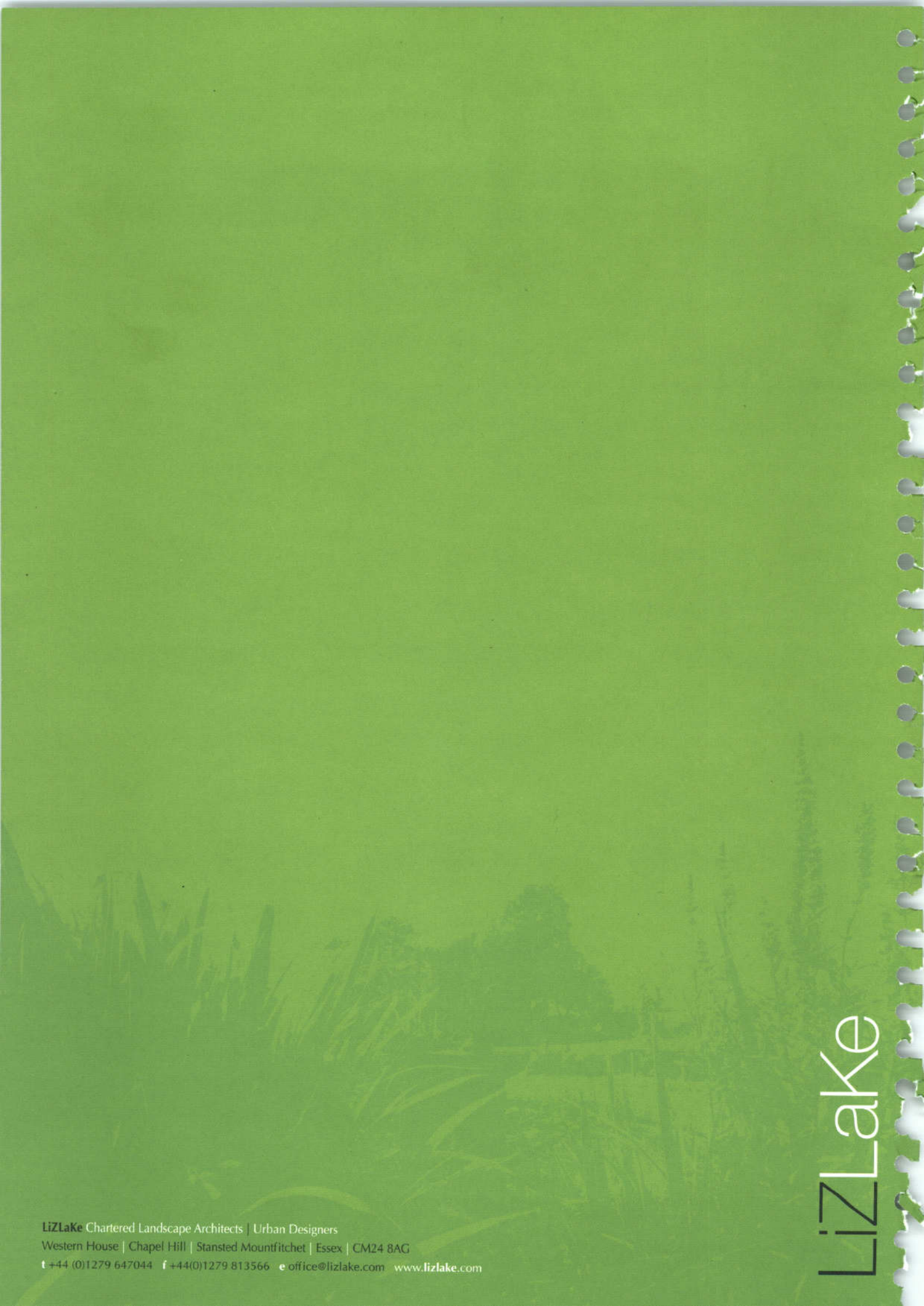

LiZLaKe Chartered Landscape Architects | Urban Designers
Western House | Chapel Hill | Stansted Mountfitchet | Essex | CM24 8AG
t +44 (0)1279 647044 **f** +44(0)1279 813566 **e** office@lizlake.com www.**lizlake**.com

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