

10. ECOLOGY

10.1 Introduction

10.1.1 The aim of this Chapter is to assess the impact of the proposed development on the terrestrial ecology of the development site and surrounding areas of ecological interest.

10.1.2 Assessment of the site involved consultation with the statutory agencies, a desktop study to review existing ecological data available for the site and surrounding area, and extensive field surveys of the application site and its immediate environs. Ecological Surveys were carried out to identify habitats of nature conservation value on the site, and to determine whether there were likely to be any species of conservation concern on the site or in the vicinity which might potentially be affected by the proposed development.

10.2 Site Description

10.2.1 Barton Farm comprises approximately 93ha of agricultural land and highway along the Andover Road North, located to the north of Winchester city centre. The site is bordered to the east by the London to Southampton railway line, which runs along a steep embankment. The site is adjoined by residential development to the south and west; to the north east lies the outskirts of the settlement of Headbourne Worthy. Open agricultural land extends away to the north and across the railway embankment to the east, the latter also within the applicants ownership.

10.3 Assessment Methodology

10.3.1 The assessment method for this Ecological Assessment is based on guidance issued by the Institute of Ecology and Environmental Management (IEEM 2006). The method involves four key stages:

- Baseline studies;
- Identification of Valued Ecological Receptors;
- Identification and characterisation of potential impacts, and
- Assessment of impact significance.

Baseline Studies

10.3.2 Baseline information about ecological features including sites of importance for nature conservation, species populations, species assemblages and habitats is obtained from several key sources including:

- Consultation;
- Existing data records from Hampshire Biodiversity Information Centre, and
- Ecological surveys.

Consultations

10.3.3 Consultation with Natural England and the Environment Agency was undertaken during the assessment process.

10.3.4 The scoping opinion of Winchester City Council dated the 21 April 2009 was also considered within the assessment process.

Background Data Search

10.3.5 The Hampshire Biodiversity Information Centre (Hbic) was asked to provide details of all statutory and non-statutory conservation sites and of records of species of conservation importance within 2km of the proposed development site.

Ecological Baseline Surveys

10.3.6 The following surveys were carried out to provide the baseline data for the Ecological Assessment

- i) Phase 1 Habitat and Ecological Scoping Surveys, including Badger Survey: 2008
- ii) Hedgerow Survey: 2002
- iii) Breeding Bird Surveys: 2002, updated 2008
- iv) Bat Activity Surveys: 2002, updated 2008
- v) Retile Survey, 2008

10.3.7 A brief summary of the methodologies used in these surveys is given below. More details are provided in Appendices 10.1–10.7.

10.3.8 All survey work detailed here was undertaken to cover the land both within the application site boundary (the redline on Figure 10.1) and the land also in the Applicant's ownership to the east of the railway (the blue line on Figure 10.1). While the baseline surveys for the land to the east of the railway are not described fully here, in line with the requirements of WCC in their scoping opinion, they are referenced where applicable.

Phase 1 Habitat and Scoping Surveys

10.3.9 Phase 1 Habitat and Ecological Scoping surveys of the site were originally carried out in 2001; the site was revisited and the survey updated on the 22 August 2008. The objective was to map the habitats currently within the survey area and identify potential habitat for species of conservation importance (eg legally protected or locally, regionally or nationally scarce, or UK Biodiversity Action Plan (BAP) priority species). The Phase 1 Habitat Survey was undertaken according to JNCC (2003). The survey included a search for evidence of badgers. Further details of these surveys are given in Appendix 10.1.

Hedgerow Survey

10.3.10 All the hedgerows on the site were surveyed to determine their status with respect to the Hedgerow Regulations (1997) in 2002 (Appendix 10.2). The site was revisited on 22 August 2008, as part of the updating of the Phase 1 Habitat survey, to confirm that the status of the hedgerows had not changed (Appendix 10.1). The Hedgerow Survey only evaluated the hedgerows against the wildlife and landscape criteria of the Hedgerow Regulations (1997) and did not assess archaeological and historical records or determine the age of the hedgerows.

10.3.11 The methodology for carrying out the survey followed the framework set by the Hedgerow Regulations 1997 (DOE, 1997).

10.3.12 Countryside hedgerows include those on or adjoining common land, village greens, Sites of Special Scientific Interest, National Nature Reserves, Special Protection Areas under the Bird's Directive, Special Areas of Conservation under the Habitats Directive, Local Nature Reserves or land used for agriculture, forestry or breeding or keeping horses, ponies or donkeys. Garden hedges and hedges around industrial developments are excluded from the Hedgerow Regulations (1997).

10.3.13 Gaps in hedges were defined as the distance between the closest woody stems.

10.3.14 Standard trees were defined as:

- In the case of single stemmed trees, one with a diameter of at least 20cm measured at a point 1.3m above natural ground level; and
- In the case of multi-stemmed trees, one with at least two stems whose diameters are at least 15cm measured at a point 1.3m above natural ground level.

10.3.15 The number and location of 30m hedgerow sections surveyed for woody species was identified using the formulae set out in Paragraph 7(3) of Schedule 1, Part II of the Hedgerow Regulations:

- If the hedgerow is <30m the number of woody species present along the whole length was recorded.
- If the hedgerow is >30m and <100m the number of woody species present along the central 30m was recorded.
- If the hedgerow is >100m and <200m the hedgerow was divided into two and the average number of woody species present in the central 30m of the first half and the number of woody species present in the central 30m of the second half was recorded.
- If the hedgerow is >200m the hedgerow was divided into three and the average number of woody species present in the central 30m of the first half, in the central 30m of the second half and the central 30m of the third half was recorded.

10.3.16 The number of woody species listed in Schedule 3 of the Hedgerow Regulations present within the 30m sections was recorded and the presence of any of the four woody species (black poplar, small-leaved lime, large-leaved lime and wild service-tree) listed in Paragraph 7(1) of Schedule 1, Part II of the Hedgerow Regulations was noted. The number of standard trees was also recorded.

10.3.17 The presence of the following associated features was recorded:

- A bank or wall which supports the hedgerow along at least one half of its length;
- Gaps which in aggregate do not exceed 10% of the length of the hedgerow;
- Where the length of the hedgerow does not exceed 50m, at least one standard tree is present;
- Where the length of the hedgerow exceeds 50m but does not exceed 100m, at least one standard tree is present per 50m section, when averaged out over its total length;
- At least three ground flora woodland species listed in Schedule 2 of the Hedgerow Regulations are present within 1m in any direction from the outermost edges of the hedgerow;
- A ditch along at least half its length;
- Connections scoring four or more points, where a connection to another hedge scores one and connection to a woodland in which the majority of the trees are broad-leaved scores two;
- A parallel hedge within 15m of the hedgerow.

Bird Surveys

10.3.18 A Breeding Bird Survey was carried out in 2002, involving five survey visits (Appendix 10.3). The survey was updated in 2008 with a further two survey visits to determine whether the breeding bird community on the site had changed significantly (Appendix 10.4). The survey methodology involved standard territory (registration) mapping techniques as detailed in Bibby *et al.* (2000). The further survey visits were undertaken on the 12 and 22 June 2008. Further information on the methodology used in both surveys is provided in Appendices 10.3 and 10.4.

Bat Activity Surveys

10.3.19 A Bat Activity Survey was carried out in 2002, involving five survey visits (Appendix 10.5). The survey was updated in 2008 with a further two survey visits to determine whether the bat community on the site had changed significantly (Appendix 10.6). The 2008 survey visits were undertaken on the 30 July and 15 August 2008. Further information on the methodology used in both surveys is provided in Appendices 10.5 and 10.6.

Reptile Survey

10.3.20 A reptile survey was carried out in 2008, involving seven survey visits between September and October 2008. Further information on the methodology used in the survey is provided in Appendix 10.7 following Gent & Gibson, 1998).

Limitation of Surveys

10.3.21 The surveys were carried out at appropriate times of year for the species being surveyed. The railway line through the centre of the site could not be accessed and therefore could not be checked for the presence of badger setts. However, the railway line is fenced with rabbit fencing and the lack of evidence of badgers pushing under the fence suggests that setts within the railway embankment are unlikely.

Identification of Valued Ecological Receptors

10.3.22 From amongst the sites of known importance for nature conservation, species populations, species assemblages and habitats present within the zone of influence of the proposed development, Valued Ecological Receptors (VER) were identified. VERs are habitats and species that are valued in some way, and could be affected by the proposed development.

10.3.23 The value of sites, populations of species, species assemblages and habitats was principally evaluated with reference to their importance in terms of biodiversity conservation value (which relates to the need to conserve representative areas of different habitats and the genetic diversity of species populations). Any social benefits that species and habitats deliver (eg relating to enjoyment of flora and fauna by the public), and economic benefits that they provide were also considered.

10.3.24 For the purposes of this assessment, sites, species populations, species assemblages and habitats have been valued using the following scale:

- International;
- UK;
- National;
- Regional;
- County;
- District; and
- Parish.

10.3.25 The valuation of sites made use of established value systems (eg SSSIs are all of national importance, County Wildlife Sites are of County value), although judgement is required for the valuation of sites of less than District value.

10.3.26 The valuation of species populations, species assemblages and habitats used accepted criteria where possible; examples include:

- Species populations. The importance of populations is evaluated on the basis of their size, recognised status (eg published lists of species of conservation concern, BAP status) and legal protection status. Bird populations, for example, exceeding 1% of published biogeographic populations are considered to be of international importance, those exceeding 1% of published national populations are considered to be of national importance, and so forth.
- Habitats. Criteria for the evaluation of habitats and plant communities include Annex III of the EC Habitats Directive, UK and Hampshire BAPs, and guidelines for the selection of biological SSSIs. Legal protection status is also a consideration for certain habitats.

10.3.27 In this assessment, sites, species populations, species assemblages and habitats were considered to be VERs if they are of at least District value. However, impacts on UK or Hampshire BAP priority habitats/species, species and habitats listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and on protected species (primarily those species listed on Schedules 1 and 5 of the Wildlife and Countryside Act 1981, as amended) were evaluated irrespective of their level of importance.

10.3.28 Where possible, the assessment considered both existing and future predicted baseline conditions. The description and valuation of ecological features took account of any likely changes, including for example, trends in the population size or distribution of species, likely changes to the

extent of habitats and the effects of other proposed developments or land-use changes. Unless otherwise stated, no significant changes in the baseline conditions are predicted.

Identification and Characterisation of Potential Impacts

10.3.29 The likely effects of the proposed development during construction and operation, and the potential ecological impacts arising from them were identified and characterised taking into consideration the following parameters:

- Positive or negative – whether the effect will result in net loss or degradation of a VER or whether it will enhance or improve it;
- Magnitude – the size or intensity of the effect measured in relevant terms eg area of habitat lost or created or the degree of change to existing conditions (eg noise or lighting levels);
- Extent – the spatial scope of the effect, for example the physical area affected or the geographical pattern of the effect;
- Duration – the length of time over which the effect occurs: short-term impacts were considered to be those of five years duration or less; long-term impacts were considered to be those of greater than five years duration.
- Reversibility – the extent to which effects are reversible either spontaneously or through active mitigation.
- Timing and frequency – consideration of the timing of events in relation to ecological change, some effects may be of greater significance if they take place at certain times of year (eg breeding season). The extent to which an effect is repeated may also be of importance.

10.3.30 Potential impacts were characterised initially in the absence of any mitigation. Any mitigation or compensation proposed was identified and its likely effectiveness was assessed. The residual impact on a given VER was then determined.

10.3.31 An indication of the confidence with which predictions of potential impacts were made was given (Certain, Probable, Unlikely or Extremely Unlikely) as defined in IEEM (2006).

Assessment of Impact Significance

10.3.32 The significance and scale of the predicted impacts on a VER arising from the identified effects of the proposed development, including designed-in mitigation measures, were assessed. Significance was assessed as Negative, Positive or Not Significant. An ecologically significant impact was defined as an impact (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area.

10.3.33 Conservation status is defined by IEEM (2006) as follows:

- Habitats – *“conservation status is determined by the sum of the influences acting on the habitat and its typical species, that may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area”.*
- Species – *“conservation status is determined by the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area”.*

10.3.34 The integrity of a site is defined by IEEM (2006) as the coherence of ecological structure and function, across a site's whole area, that enable it to sustain the habitat, complex of habitats and/or levels of populations of species for which it was classified.

10.3.35 To provide consistency with other Chapters within the Environmental Statement, the significance of residual impacts was summarised as:

- Minor significance not noteworthy or material (significant at Parish level or below)
- Moderate significance noteworthy, material (significant at District or County level)
- Major significance extremely noteworthy/ material (significant at Regional level or above)

10.4 Planning Policy

10.4.1 The following policy and emerging documents are relevant or could be relevant in respect of the ecological aspects of the proposal:

- South East Plan;
- Hampshire County Structure Plan 1996-2011;
- Winchester District Local Plan Review, adopted 2006;
- Winchester Core Strategy Preferred Options, published May 2009;
- Planning Policy Statement 9; and
- UK and Hampshire Biodiversity Action Plans.

South East Plan

10.4.2 The South East Plan has recently been adopted and includes the following relevant policy in its Core Document:

10.4.3 Policy NRM5 Conservation and improvement of Biodiversity states that:

“Local planning authorities and other bodies shall avoid a net loss of biodiversity, and actively pursue opportunities to achieve a net gain across the region:

- Providing the highest level of protection for nationally and internationally designated sites*
- Ensuring plans and projects are in accordance with the EU Habitats Directive*
- Ensuring that unavoidable damage to wildlife interest is minimised through mitigation and that any damage is compensated for.*
- Ensuring damage to wildlife sites is avoided including the edges of any site that supports features for which that site is designated.*
- Ensuring appropriate access to areas of wildlife importance, identifying areas of opportunity for biodiversity improvement and setting targets reflecting those in the Plan. Opportunities for biodiversity improvement, including large-scale habitat restoration, enhancement and re-creation in the areas of strategic opportunity for biodiversity improvement (Map NRM3) should be pursued*
- Influencing agri-environment schemes, forestry, flood defence, restoration of mineral extraction sites and other land management practices to deliver biodiversity targets*
- Promote policies that integrate the need to accommodate the changes taking place in agriculture with the potential implications of resultant development in the countryside*
- They shall require green infrastructure to be identified, developed and implemented in conjunction with new development”.*

Hampshire County Structure Plan 1996-2011

10.4.4 None of the “saved policies” are relevant.

Winchester District Local Plan Review, Adopted 2006

10.4.5 Winchester District Local Plan Review includes the following relevant nature conservation policies:

10.4.6 Policy CE.7 states that:

“Development likely to harm a European site, a proposed European site or a Ramsar site (either individually or in combination with other plans or projects) will not be permitted, unless:
(i) it is directly connected with or necessary to the management of the site for the particular

features giving rise to the designation, or (ii) there is no alternative solution, and (iii) there are imperative reasons of overriding public interest for the development. Where the site hosts a priority habitat or species (listed in the EC Habitats and Birds Directives), development will not be permitted unless it is needed for imperative reasons of human health, public safety or for benefits of primary importance for the environment. Where development is permitted that is likely to result in harm to a European site, the Local Planning Authority will require appropriate compensatory measures”.

10.4.7 Policy CE.8 states that:

“Development likely to harm a Site of Special Scientific Interest (SSSI) will not be permitted unless the reasons for the development clearly outweigh the harm to the special nature conservation value of the site. Where development is permitted that is likely to result in harm to a national site, the Local Planning Authority will need to be satisfied that there is sufficient provision to minimise the damage and to provide appropriate compensatory measures”.

10.4.8 Policy CE.9 states that:

“Development likely to harm a Site of Importance for Nature Conservation (SINC) will not be permitted unless it can be demonstrated that the need for the development outweighs the harm to the nature conservation value of the site. Where a development is permitted that is likely to result in harm to a SINC, the Local Planning Authority will need to be satisfied that there is sufficient provision to minimise the damage, and to provide appropriate compensatory measures”.

10.4.9 Policy CE.10 states that:

“Where sites, other than those subject to Policies CE.7- CE.9 are found to support habitats or species of nature conservation interest, the Local Planning Authority will have regard to their nature conservation value when assessing development proposals that affect them. Where development is permitted that would result in harm to these habitats or species, provision should be made to minimise such harm or to replace/relocate them elsewhere in the locality”.

10.4.10 Policy CE.11 states that:

“When granting permission for development, the Local Planning Authority will have regard to opportunities to create or improve habitats and features of nature conservation interest”.

Winchester Core Strategy Preferred Options, published May 2009

10.4.11 Policy CP5 Green Infrastructure states that:

“The City Council will support development that incorporates provision for multifunctional well managed Green Infrastructure to meet recognised standards”

10.4.12 Policy CP6 Biodiversity states that:

“The City Council will support development which protects and delivers net gain for biodiversity. New development will be required to show how conservation of biodiversity is taken into account in its design and implementation and, in particular, how priority habitats and species as identified in the (Hampshire/Winchester) Biodiversity Action Plans will be safeguarded”

10.4.13 Also that:

“Planning proposals that have the potential to affect priority habitats and/or species, as defined in the Hampshire/Winchester BAP, or sites of geological importance, will be required to undertake the relevant assessments or surveys. The City Council will adopt the precautionary principle to avoid adverse impacts or, where adverse impacts are unavoidable, require

appropriate mitigation and compensatory measures”

10.4.14 Policy CP7 Flooding, Flood Risk and the Water Environment states that the Council will support developments that:

“Maximises opportunities for biodiversity, green infrastructure creation gain in association with the water environment.”

10.4.15 Policy CP11 Ensuring high quality sustainable design states that developments should clearly layout

“How the accompanying landscape framework has been developed to enhance both the natural and built environment and maximise the potential to improve local biodiversity”

10.4.16 Policy SS2 Requirements for major large scale developments states that:

“Assessment of the impact on biodiversity, both of the development alone and ‘in-combination’ with other proposed development. Developments must be designed firstly to avoid harmful impacts, especially on habitats of national and international importance, and to include measures to mitigate local and wider impacts of the development”

Planning Policy Statement 9: Biodiversity and Geological Conservation (2005)

10.4.17 PPS 9: Biodiversity and Geological Conservation sets out key principles which Local Planning Authorities should adhere to, to ensure that the potential impacts of planning decisions on biodiversity are fully considered. It includes a number of relevant policies, including the following:

10.4.18 Ancient Woodland and Other Important Natural Habitats: *“Through policies in Plans, Local Authorities should conserve other important natural habitat types that have been identified in the Countryside and Rights of Way Act 2000 Section 74 list, as being of principal importance for the conservation of biodiversity in England and identify opportunities to enhance and add to them”.*

10.4.19 Species protection: *“Other species have been identified as requiring conservation action as species of principal importance for the conservation of biodiversity in England. Local Authorities should take measures to protect the habitat of these species from further decline through policies in local development documents. Planning Authorities should ensure that these species are protected from the adverse effects of development, where appropriate, by using planning conditions or obligations. Planning Authorities should refuse permission where harm to the species or their habitats would result unless the need for, and benefits of, the development clearly outweigh that harm”.*

UK and Hampshire Biodiversity Action Plans

10.4.20 The UK Biodiversity Action Plan (UK BAP) was drawn up in response to the Government’s commitment to the Convention on Biological Diversity 1992. The Hampshire BAP implements the UK BAP at the local level, and:

- Identifies habitats and species most at threat within the county,
- Defines objectives and targets to conserve those habitats and species,
- Requires members of the partnership to implement actions and monitoring to achieve those objectives and targets.

10.4.21 It is the duty of Local Authorities to further the conservation of UK BAP priority habitats and species under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, and to protect these habitats and species from further decline, and identify opportunities to enhance and add to the habitats under PPS9

10.5 Baseline Conditions

Sites of Nature Conservation Importance

Statutory Sites of Nature Conservation Importance

10.5.1 The proposed development site itself is not designated as a Statutory Site of Nature Conservation Importance (see Appendix 10.8). However, the River Itchen Site of Special Scientific Interest (SSSI) and the River Itchen Special Area of Conservation (SAC) are within 2km of the site (Appendix 10.8).

10.5.2 The River Itchen SSSI is approximately 630 m from the proposed development site at its closest point. It is designated for its chalk stream and river, fen meadow, flood pasture and swamp habitats, riparian vegetation communities (including wet woodlands) and side channels, runnels and ditches. The site supports populations of nationally rare and scarce species including southern damselfly *Coenagrion mercuriale* and white-clawed crayfish *Austropotamobius pallipes*.

10.5.3 The River Itchen Special Area of Conservation (SAC) is approximately 900m from the proposed development site at its closest point. The Annex 1 habitats that is a primary reason for selection of the SAC is:

- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. The Itchen is a classic example of a sub-type 1 chalk river. The river is dominated throughout by aquatic *Ranunculus* species. The headwaters contain pond water-crowfoot *Ranunculus peltatus*, while two *Ranunculus* species occur further downstream: stream water-crowfoot *R. penicillatus* ssp. *pseudofluitans*, a species especially characteristic of calcium-rich rivers, and river water-crowfoot *R. fluitans*.

10.5.4 No Annex I habitats, not a primary reason for selection of this site, are present as a qualifying feature for the SAC.

10.5.5 The Annex II species that are a primary reason for selection of the site are:

- Southern damselfly *Coenagrion mercuriale*. Strong populations of southern damselfly occur here, estimated to be in the hundreds of individuals. The site in central Southern England represents one of the major population centres in the UK. It also represents a population in a managed chalk-river flood plain, an unusual habitat for this species in the UK, rather than on heathland.
- Bullhead *Cottus gobio*. The Itchen is a classic chalk river that supports high densities of bullhead throughout much of its length. The river provides good water quality, extensive beds of submerged plants that act as a refuge for the species, and coarse sediments that are vital for spawning and juvenile development.

10.5.6 The Annex II species present as a qualifying feature, but which are not a primary reason for site selection are:

- White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes*.
- Brook lamprey *Lampetra planeri*
- Atlantic salmon *Salmo salar*
- Otter *Lutra lutra*

Non-Statutory Sites of Nature Conservation Importance

10.5.7 The proposed development site is not designated as a non-statutory Site of Importance for Nature Conservation (SINC; Appendix 10.8) but there are four such sites within 2km (Table 10.1).

Table 10.1 Details of Sites of Importance for Nature Conservation (SINCs) Within 2km of the Site

Site Name	Area (ha)	Interest Features	Distance from Site (km)
1. Royal Winchester Golf Course (Teg Down) SINC	75	Unimproved grassland, supports chalk milkwort <i>Polygala calcarea</i> and bastard-toadflax <i>Thesium humifusum</i>	1.3
2. Flowerdown, Littleton SINC	6.5	Grassland	0.3
3. St. Swithun, Headbourne Worthy SINC	0.5	Unimproved grassland	0.25
4. Easton Down SINC	0.5	Unimproved grassland	0.7

Protected or Otherwise Notable Species within 2km of the Site

10.5.8 The records of protected and notable species received from Hbic from within 2km of the site are detailed in Appendix 10.1 and discussed where relevant in Appendix 10.1. None of the records derives from within the site boundary.

Habitats

10.5.9 The Phase 1 Habitat survey results are presented in the form of a Phase 1 Habitat Map (Figure 10.1), with the various habitat types marked. Note that the locations and numbers of trees marked on the map are only indicative.

10.5.10 The 2008 update survey indicated that the same habitats were present as in 2001. The site principally comprises six arable fields (F1-F6 on Figure 10.1) of which three have set-aside or buffer strips. Except where there is set-aside, the fields have generally been cultivated close to the boundaries and the fields appear to be intensively farmed with few weed species present. The fields are generally bounded by fences and/or hedgerows.

10.5.11 The areas of set-aside are generally dominated by ruderal weeds, but some species characteristic of calcareous grasslands, such as bird's-foot trefoil *Lotus corniculatus var sativus*, common knapweed *Centaurea nigra*, and field scabious *Knautia arvensis*, were present in some areas (see Appendix 10.1). Although outside of the current application site boundary, one notable species found in the set-aside in one of the fields directly to the east of field F3 was corn marigold *Chrysanthemum segetum*.

10.5.12 There is a strip of woodland, dominated by mature beech trees *Fagus sylvatica* with an understorey of privet *Ligustrum vulgare*, sycamore *Acer psuedoplatanus*, hawthorn *Crataegus monogyna* and occasional yew *Taxus bacatta*, running between Fields F4 and F5/F6 (Target Note 8, Figure 10.1) and a small area of woodland adjacent to the western boundary of the site (Target Note 9, Figure 10.1).

Boundary Features

10.5.13 Information on each of the main boundary features is provided below. Boundary and hedgerow numbers refer to Figure 10.1 and further details are provided in Appendix 10.1.

10.5.14 Hedge H1 is a species-rich hedgerow running parallel with the Andover Road (with a line of ornamental trees on the wide road verge, outside the site boundary). The hedgerow is tall, bushy and untrimmed with young sycamore and Norway maple *Acer platanoides* trees and occasional ash *Fraxinus excelsior* and silver birch *Betula pendula*.

10.5.15 Hedge H2 is species-poor, tall, bushy, untrimmed hedgerow with standard trees running alongside Well House Lane; very gappy towards the eastern end.

10.5.16 Hedge H3 is a defunct, species-poor hedge. It consists of an incomplete line of bushes grading into scrub.

10.5.17 Hedge H4 is a species-poor hedgeline consisting only of scattered elder *Sambucus nigra* bushes.

10.5.18 Hedge H5 is a short, species-poor continuous bushy hedgerow, mainly comprising hawthorn.

10.5.19 Hedge H6 is a very gappy, species-poor hedgerow, dominated by elder with occasional hawthorn, and dogwood *Cornus sanguineus*. A small standard walnut *Juglans regia* was present at the eastern end.

10.5.20 Hedge H7 comprises a very short, species-rich section of tall hedgerow alongside the railway, with a mature ash tree in the northern-most corner and other tall trees.

10.5.21 Hedge H8 comprises a short, relatively species-rich, continuous hedgerow which adjoins scrub alongside the railway.

10.5.22 Hedge H9 is a species-rich hedge that runs alongside the northern side of the beech wood strip and tends to merge with it.

10.5.23 Hedge H10 (also species-rich) runs parallel with Hedgerow H9 along the south side of the beech wood and is similar.

10.5.24 Hedge H11 comprises a relatively species-rich hedgerow with a line of semi-mature copper beech *Fagus sylvatica purpurea* trees planted along the southern side.

10.5.25 Hedge H12 comprises a species-rich hedgerow and includes two semi-mature trees: an ash and a common whitebeam *Sorbus aria*.

10.5.26 Hedge H13 is species-poor with some gaps, with sections dominated by bramble. No hedgerow trees were present.

10.5.27 Hedge H14 is a short, species-poor discontinuous garden edge hedgerow with occasional mature sycamore and young ash trees.

10.5.28 Field boundaries B1 and B2 comprise a post and wire fence with occasional patches of blackthorn *Prunus spinosa*, privet and hawthorn scrub. At the southern end of Boundary B2 a small number of immature sycamores were growing along the fenceline. Mature, regularly-spaced sycamore standards were present along the road edge.

10.5.29 Field Boundary B3 comprises a mix of trees and shrubs (mostly immature beech trees, elder and leyland cypress x *Cupressocyparis leylandii*) around Barton Farm (outside site boundary).

10.5.30 The southern boundary of Field F1 (Boundary B4) comprises a bank vegetated with a mix of scrub and tall ruderal vegetation with occasional immature and mature trees, along the edge of the gardens. Mature trees included sycamore, horse chestnut *Aesculus hippocastanum*, and ash.

10.5.31 Boundary B5 comprises a mix of woodland and scrub along the railway, behind a fence.

Target Notes (see Figure 10.1):

- Target Note 1: Areas of set-aside.
- Target Note 1a: Set-aside with calcareous grassland species.
- Target Note 2: Set-aside with corn marigold.
- Target Note 4: Dead hedgehog.
- Target Note 5: Common blue butterfly seen within set-aside.
- Target Note 6: Location of badger latrine.

- Target Note 8: Line of mature beech and ash trees with privet, sycamore, hawthorn and occasional yew understorey. The trees could support bat roosts and provide valuable wildlife habitat.
- Target Note 9: Small patch of mature beech and sycamore trees, with an understorey dominated by ivy; field maple, holly, hawthorn and privet also present. The trees could support bat roosts and provide valuable wildlife habitat.

Hedgerow Survey

10.5.32 The hedgerows within the current application site boundary are in a similar condition to when they were surveyed in 2002 to determine whether they met the landscape and wildlife criteria for important hedgerows under the Hedgerow Regulations 1997 (Appendix 10.1 and 10.2). Hedgerow 11 (see Figure 10.1 for location) alongside the public footpath is the only hedgerow which qualifies as an “important” hedgerow under the Hedgerow Regulations 1997. It meets the minimum requirement (for hedgerows running alongside footpaths) of an average of four woody species per 30m surveyed section and two associated features (Table 10.2). The associated features were: less than 10% gaps, three connections with other hedgerows and two connections with small woods (copses) at either end (ie good connectivity).

Table 10.2: Results of Hedgerow Survey of Hedgerow H11

Woody Species	Section 1	Section 2	Section 3
Field Rose <i>Rosa arvensis</i>		x	
Hawthorn <i>Crataegus monogyna</i>	x	x	x
Blackthorn <i>Prunus spinosa</i>	x	x	x
Elder <i>Sambucus nigra</i>	x	x	
Privet <i>Ligustrum vulgare</i>	x	x	x
Dogwood <i>Cornus sanguinea</i>			x
Totals:	4	5	4
Average:	4		
Associated Features:			
1) Gaps of less than 10% length			
2) Connections with three hedgerows and two woods			

Habitat Evaluation

10.5.33 All hedgerows are a habitat of principal importance for the conservation of biodiversity in England, listed on Section 41 of the NERC Act 2006. Under Section 41(3) of the NERC Act the Secretary of State must take steps (where they are reasonably practicable), and promote the taking of steps by others, to further the conservation of the habitats and species on the list. Hedgerows are also a UK BAP priority habitat and identified as a Priority Habitat in the Hampshire BAP.

10.5.34 Only hedgerow H11 met the criteria for “important hedgerow” under the Hedgerow Regulations. However, Hedgerows 1, 8, 9, 10, and 12 were also considered to be hedgerows of particular ecological value on account of their species diversity and associated features (Appendix 10.2).

10.5.35 Arable field margins are a UK BAP priority habitat and listed on Section 41 of the NERC Act 2006. These field margins refers to strips of land lying between cereal crops and the field boundary, and extending for a limited distance into the crop, which are deliberately managed to create conditions which benefit key farmland species. The strips of set-aside, for example along the southern edge of field F5, would be included in this UK BAP priority habitat type. Arable land is a Hampshire BAP priority habitat.

10.5.36 An area of set-aside present at the northern end of Field F5 (Target Note 1a on Figure. 10.1) contains species associated with calcareous grassland such as field scabious. Areas of set-aside are an important resource for biodiversity, particularly invertebrates. These set-aside areas could also provide foraging habitats for birds, reptiles, amphibians, bats and other mammals, such as badgers.

Species

10.5.37 This section evaluates the value of the site in terms of the populations of plants and animals that it supports, based on the results of the desk study and field survey.

Lower Plants

10.5.38 The site was considered unlikely to support notable bryophytes (mosses and liverworts) on account of the habitats present (in particular no metalliferous mining remains or clay pits). Consequently, a bryophyte survey was not carried out. There are no records of notable bryophytes in the local area.

Vascular Plants

10.5.39 White helleborine *Cephalanthera damasonium* was previously located in the line of beech trees to the north of Field F4 (Ecoscope, 2001). It was not re-found in the 2008 update survey. This species is classified as Nationally Rare. No other rare or otherwise notable species were found as part of the extended Phase 1 Habitat surveys. No Japanese knotweed, giant hogweed or any other notable non-native invasive plants was found on the application site

Invertebrates

10.5.40 The intensive arable farming regime on the application site renders it unlikely to support significant populations of invertebrates of conservation importance. The habitats considered to be of value to invertebrates are the mature trees, the more species-rich, mature hedgerows and the areas of set-aside, on account of the abundance of flowering plants.

10.5.41 Stag beetles have been recorded in the locality. This species is generally found in broadleaved woodland, parks, other pasture woodland and gardens. The larvae live in the decaying wood of deciduous trees, often in roots and stumps. The amount of woodland and dead wood present on the site is probably insufficient to support it on-site and therefore no site-wide survey was undertaken.

Amphibians

10.5.42 Common frog *Rana temporaria*, common toad *Bufo bufo* and smooth newt *Lissotriton vulgaris* (previously classified as *Triturus vulgaris*) have been recorded within 2km of the site. No records of great crested newts *Triturus cristatus* were provided within 2km of the site. No ponds occur within the site boundary which could provide aquatic habitat for amphibians. On this basis it was decided that it was not necessary to undertake an amphibian survey. Common toads have been recorded on the site during the reptile survey (Appendix 10.7).

Reptiles

10.5.43 A small population of slow-worm *Anguis fragilis* and occasional individual viviparous lizard *Zootoca vivipara*, formerly *Lacerta vivipara*, were identified within the application site, concentrated around the rough grassland at the northern end (see Figure 10.2, Appendix 10.7). The site is not considered to provide suitable habitat for adders or grass snakes, nor the European protected species, sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca*.

10.5.44 All reptiles are listed under Sub-Section 9(1) and all of Sub-Section 9(5) of the Wildlife and Countryside Act 1981, as amended. This makes it an offence to:

- Deliberately, intentionally or recklessly kill and capture, or injure (Sub-Section 9 (1));

- Keep, transport, sell or exchange; offer for sale or advertise (Sub-Section 9(5)).

10.5.45 Both reptile species that have been recorded on-site are UK BAP priority species.

10.5.46 Based on the availability of similar habitats in the local area and the low quality of the existing habitat, the potential reptile habitat on-site is considered likely to be of Parish importance.

Birds

10.5.47 All birds, their nests and eggs are afforded protection under the Wildlife and Countryside Act 1981, as updated by the CRoW Act 2000. It is an offence to:

- Intentionally kill, injure or take any wild bird;
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; and
- Intentionally take or destroy the egg of any wild bird.

10.5.48 Special penalties are available for offences related to bird species listed on Schedule 1 of the Wildlife and Countryside Act, for which there are additional offences of disturbing these birds at their nests, or their dependent young.

10.5.49 A total of 37 species was recorded during the surveys for breeding birds in 2008 that covered the application site, railway line and land to the east of the railway. Of these, within the survey area, seven species were confirmed to be breeding, five species considered to be probably breeding and seven species possibly breeding, resulting in a breeding bird assemblage of 19 species. For some of these species, they were considered likely to be holding territories extending within the survey area though at the time of the surveys were recorded outside its boundary. The latter category includes swift and house martin which, while nesting off-site, were regularly noted feeding over the survey area. A further species, grey wagtail, was recorded in the survey area and considered to be a non-breeding record.

10.5.50 Of the 19 species identified as breeding or possibly breeding in 2008, 11 are covered by one or more of the conservation status criteria. Table 10.3 summarises the breeding status of these 11 species, together with the conservation status assigned to them. Two further bird species of specific conservation value (green woodpecker and mistle thrush) were recorded breeding at the Barton Farm site during previous surveys in 2002, but were not recorded by the surveys in June 2008. Both species are on the Birds of Conservation Concern Amber list.

10.5.51 No specially protected species were recorded on the site, although six species on the Red List of BoCC (grey partridge, skylark, song thrush, house sparrow, linnets and yellowhammer) and seven listed in Section 41 of the NERC Act (grey partridge, skylark, dunnock, song thrush, house sparrow, linnets and yellowhammer) were confirmed or considered likely to be breeding on-site. Four species included in the Hampshire Biodiversity Action Plan List of Priority Species were also recorded on the site (Table 10.3).

Table 10.3: Summary of Breeding Bird Species of Specific Conservation Value Recorded at the Barton Farm Survey Area, June 2008

Species	Breeding Status ¹			Annex 1 EU Birds Directive ²	Schedule 1 Wildlife & Countryside Act 1981 ³	NERC Act Section 41 species ⁴	Birds of Conservation Concern ⁵	Hants. BAP Priority species ⁶
	Conf	Prob	Poss					
Kestrel			■				Amber	
Grey Partridge		■				■	Red	■
Skylark		■				■	Red	■
Swallow	■						Amber	
House Martin			■				Amber	
Dunnock		■				■	Amber	
Song Thrush			■			■	Red	■
Goldcrest			■				Amber	
House Sparrow			■			■	Red	
Linnet		■				■	Red	■
Yellowhammer			■			■	Red	

Notes on Table 10.3:

¹ Conf = confirmed breeding, Prob = Probable breeding, Poss = Possible breeding.

² Species included on Annex 1 of the EU Birds Directive (79/409/EEC).

³ Species protected by Schedule 1 of the Wildlife & Countryside Act 1981.

⁴ Species listed through Section 41 of the Natural Environment and Rural Communities Act 2006 as being of principal importance for the conservation of biodiversity in England.

⁵ Species on the Birds of Conservation Concern Red and Amber lists (Gregory et al., 2002).

⁶ Species included in the Biodiversity Action Plan for Hampshire (Johnston, 1998).

10.5.52 The number of species recorded in an area is a simple measure of diversity that can indicate its importance at each season of the year. Based on Fuller's criteria (see Appendix 10.4), the breeding bird assemblage of the survey area is of Local Importance (presumed to equate approximately to Parish Importance). Although the site supports some species of Conservation Importance, these are relatively few and are not considered to occur in breeding numbers of more than Local Importance.

10.5.53 The features of particular importance within the site boundary for the birds of conservation concern were the hedgerows (particularly Hedgerows H12 and H13 for linnet, Hedgerows H12 and H13 for song thrush, and Hedgerows H10 and H11 for yellowhammer) and the arable fields for skylark (particularly Field F5 which supported six skylark territories in the 2002 survey).

Mammals

Badgers

10.5.54 Badgers *Meles meles* and their setts are protected under the Protection of Badgers Act 1992. This makes it a criminal offence to:

- wilfully kill, injure, take, possess, or cruelly ill-treat a badger, or to attempt to;
- to interfere with a sett by damaging or destroying it;
- to obstruct access to, or any entrance of, a badger sett;
- to disturb a badger when it is occupying a sett.

10.5.55 This legislation effectively prevents development on a site, or within 30m of a site, occupied by badgers without mitigation being agreed and carried out prior to construction works.

10.5.56 Although no badger setts were found on site as part of the scoping survey, badger dung (latrines) was found in three parts of the site (Target Note T6 on Figure 10.1) and the site provides

potential foraging habitat. No fresh digging could be found to indicate recent badger sett construction activity or foraging.

10.5.57 It is likely that badger populations are reasonably high in the region as a whole due to the large areas of farmland, woodland and grassland present. The foraging habitat on the application site is not exceptional in the local context, and is considered to be of Parish Importance. However, due to the protection badgers receive through the Protection of Badgers Act 1992, potential impacts will still be assessed.

Bats

10.5.58 All British bat species are fully protected under Section 9 of the Wildlife and Countryside Act 1981, as updated by the CRow Act 2000. All bat species are also included on Schedule 2 of the Conservation (Natural Habitats etc) Regulations 1994. Taken together, these pieces of legislation make it an offence to:

- Intentionally kill, injure or capture bats;
- Deliberately or recklessly disturb bats (whether in a roost or not); and
- Damage, destroy or obstruct access to bat roosts.

10.5.59 A roost is defined as **“any structure or place which [a bat] uses for shelter or protection”**. As bats tend to reuse the same roosts, legal opinion is that a roost is protected whether or not bats are present at the time of survey.

10.5.60 The Barton Farm site is considered to support a relatively species-poor bat community, with only three species recorded on the application site in the 2008 surveys: brown long-eared, common pipistrelle and noctule bats. All three species are widespread throughout the county (Richardson, 2000) and are typical of the species encountered in the habitats present on the site. Soprano pipistrelle was also recorded in the 2002 surveys but not recorded in 2008.

10.5.61 Generally, bat activity across all 13 transects within the present application site boundary, on both sets of surveys (2002 and 2008), was low suggesting that all species recorded during the survey occur at relatively low density. The number of bat passes recorded during each survey was particularly low early on in the surveys, with greater numbers of bats recorded later in the evenings. The majority of bats were heard at least 45-50 minutes after sunset, which implies that the majority of bats recorded are using the site for foraging and not roosting.

10.5.62 All the bats recorded were flying along the linear features on the site, i.e. the hedges and tree lines. None were recorded over the fields. The habitat features of most value to bats, as foraging habitat and commuting routes (defined as features along which bats were recorded on every survey), were the tree line at Target Note 8, Hedgerow H1 and the western boundary of the railway embankment (Figure 10.1). However, bats were recorded along the majority of hedgerows and tree/scrub lines were used at some time during the surveys, and all hedgerows and tree/scrub lines are likely to be of value to bats.

10.5.63 Of the species recorded on site, soprano pipistrelle and noctule bats are UK BAP priority species. Both pipistrelle species are Hampshire BAP priority species.

10.5.64 The number and species diversity of foraging bats recorded on site was low but typical of grassland/arable farmland in the local area. The foraging habitat within the application site is considered to be of Parish Importance.

Other Mammals

10.5.65 The hedgerows on the site were considered unlikely habitat for dormice (listed on Section 9 of the Wildlife and Countryside Act 1981, as updated by the CRoW Act 2000), as they are regularly cut. In addition, there are no records of dormice in the local area and no significant areas of suitable habitat nearby which could provide source populations of dormice to colonise the hedgerows. There is no suitable habitat for otter or water vole (Appendix 10.1).

10.5.66 The application site was not considered to provide potential habitat for any other protected mammal species due to the nature of the habitats it comprises. However, hedgehogs were reported on site during the bat surveys and brown hares have been seen previously on site, in 2002, but not reported in 2008. Both hedgehog and brown hare are UK BAP priority species, and species of principal importance for the conservation of biodiversity in England, listed on Section 41 of the NERC Act, 2006.

10.5.67 The site and its environs are considered unlikely to support significant numbers of brown hare as none were observed during the surveys undertaken in 2008. The brown hare habitat within the application site is therefore considered to be of Parish Importance.

10.5.68 The site is considered unlikely to support significant numbers of hedgehogs as arable habitats generally provide low quality foraging habitat for this species. They may occur in small numbers along the woodland and hedgerows. The habitat within the application site is of poor quality and considered to be of Parish Importance.

Summary of Valued Ecological Resources

10.5.69 Table 10.4 below summarises the Valued Ecological Resources identified during the baseline surveys.

Table 10.4 Summary of Valued Ecological Resources

Resource Type	Valued Ecological Resource (VER)	Importance
Statutory designated conservation sites	River Itchen SAC	International
	River Itchen SSSI	National
Non-statutory conservation sites	Four sites listed in Table 10.1	County
Habitats	Hedgerows	Parish/District
	Set-aside calcareous grassland	Parish
	Set-aside arable habitat	Parish
Species	Invertebrate habitat	Parish
	Reptile habitat	Parish*
	Breeding/wintering bird assemblage	Parish*
	Badger foraging habitat	Parish*
	Bats foraging and potential roosting habitat	Parish*
	Brown hare habitat	Parish*
	Hedgehog habitat	Parish*

Notes * Although these species/groups are of less than District importance, they are still considered VERs due to their being protected and/or UK/Hampshire BAP priority habitat/species status.

10.6 Identification and Evaluation of Key Impacts (Construction and Operational)

Construction

10.6.1 This section identifies the key potential ecological impacts of the construction phase of the development in the absence of mitigation.

10.6.2 The impacts of the following activities have been assessed in this section:

- Permanent loss of natural or semi-natural habitats;

- Temporary loss of natural or semi-natural habitats;
- Permanent loss of habitat that supports species of conservation importance;
- Temporary loss of habitat that supports species of conservation importance;
- Temporary disturbance to wildlife, e.g. from noise or light pollution, human activity and vehicular movements;
- Soil compaction, resulting in changes to flora and fauna;
- Accidental release of pollution from the application site;
- Clearance of existing semi-natural habitats as necessary for site construction; and/or,
- General construction and earthworks activities, including traffic movements and stripping of top soil.

Designated sites – River Itchen SAC

10.6.3 The application site boundary is a considerable distance (over 900m) away from the River Itchen SAC. There will be no direct impacts during the construction phase of the proposed development on the application site and it is considered to be **not significant**.

10.6.4 Standard best practice methodologies will be employed to ensure no indirect impact from dust creation, accidental release of pollutants etc. from the application site in accordance with legislative requirements and Environment Agency guidance. The site will not be linked directly hydrologically to the Itchen during construction. Therefore, there will be no indirect impacts during the construction phase of the proposed development on the application site and it is considered to be **not significant**.

10.6.5 Details of the assessment of impacts on the SAC under the Habitats Regulations are provided in Chapter 15.

Designated sites – River Itchen SSSI

10.6.6 The application site boundary is over 600m away from the River Itchen SSSI. There will be no direct impacts during the construction phase of the proposed development on the application site and it is considered to be **not significant**.

10.6.7 Standard best practice methodologies will be employed to ensure no indirect impact from dust creation, accidental release of pollutants etc from the application site in accordance with legislative requirements and Environment Agency guidance. The site will not be linked directly hydrologically to the Itchen during construction. There will be no direct impacts of the construction phase of the proposed development on the application site and it is considered to be **not significant**.

Designated Sites Listed in Table 10.1

10.6.8 The application site boundary is over 250m away from the sites listed in Table 10.1 and is not linked ecologically with any of them. Therefore, any direct impacts during the construction phase of the proposed development on the application site are considered to be **not significant**.

10.6.9 Standard best practice methodologies will be employed to ensure no indirect impact from dust creation, accidental release of pollutants etc from the application site in accordance with legislative requirements and Environment Agency guidance. There will be no direct impacts of the construction phase of the proposed development on the application site and it is considered to be **not significant**.

Hedgerows

10.6.10 The majority of the 7392m of hedgerows on the application site will be retained.

10.6.11 However, 1,083m of hedgerow will be lost during site preparation works. This habitat loss of District value is considered to result in a **minor negative impact** and will be **permanent**.

Set-Aside Calcareous Grassland

10.6.12 Of the set-aside calcareous grassland habitat on site, 5ha will be lost during site clearance, with a small area (approximately 0.7ha) retained in the extreme north of the site (area of Natural Green Space Figure 4.1). The loss of this habitat of Parish importance is considered to be a **minor negative impact**.

Set-Aside Arable Habitat

10.6.13 Set-aside habitat associated with the field margins within the development site will be lost during site preparation works (1.2ha in total).

10.6.14 This loss of habitat of Parish importance is considered to be **not significant** in the context of a largely arable landscape where such habitat is common.

Invertebrate Habitat

10.6.15 The majority of the habitat considered to be of importance for invertebrates (mature hedgerows, treelines and more species-rich grasslands) will be retained within the development Masterplan.

10.6.16 Therefore, the small loss of habitat of Parish importance that will occur during site clearance is considered to be **not significant** in the context of the application site as a whole.

Reptile Habitat

10.6.17 The small reptile population on the application site was concentrated towards the north, in the grassland areas of field F6 and along the railway embankment (Figure 10.2). These areas of habitat are being retained within the final development Masterplan.

10.6.18 However, some small areas of habitat (<1ha) will be lost with the result of a **minor negative, permanent** impact on a VER of Parish importance.

Breeding Bird Assemblage

10.6.19 The majority of the habitat identified as being of importance for breeding birds have been retained within the development Masterplan. Therefore, any impacts on the assemblage of Parish importance of site clearance are considered to be **not significant**.

10.6.20 Yellowhammer was considered to rely particularly on hedgerows (including H11) and skylark on field F5 for breeding habitat, both of which will be lost. Therefore, this will result in a **minor negative, permanent** impact on a VER of Parish importance.

Badger Foraging Habitat

10.6.21 The site represents badger foraging habitat of limited quality in the local context. Therefore, loss of 5.6ha of such foraging during site clearance is considered to be **not significant** in the context of the wider area.

Bats Foraging and Potential Roosting Habitat

10.6.22 Bat foraging activity on the application site was concentrated around the hedgerows and treelines on site the majority of which are being retained within the development Masterplan. Any essential lighting during development will be directional, leaving the commuting routes unlit.

10.6.23 All of the potential roosting sites identified are within the woodland on site, all of which is being retained.

10.6.24 Therefore, any impacts on bats during the construction phase through the small loss of commuting habitat are considered to be **not significant**.

Brown Hare Habitat

10.6.25 The construction phase of the development will result in the loss of 74ha of brown hare habitat (ie the areas of arable fields within the development boundary). Although observed in 2002, no animals were seen during any of the surveys in 2008. It is therefore assumed that if they do occur in the area it is in low numbers and in the context of the wider area where such habitat is abundant, this is considered to be **not significant**.

Hedgehog Habitat

10.6.26 The majority of the hedgehog activity on site was confined to the hedgerows and woodland edges, the majority of which are being retained in the final development Masterplan. The small loss that will occur during site clearance is therefore considered to be **not significant** within the context of the wider site.

Operation

10.6.27 This section identifies the key potential ecological impacts of the operational phase of the development in the absence of mitigation.

10.6.28 Operational activities may potentially cause:

- Degradation and loss of habitats eg from pollution and lack of or inappropriate management;
- Degradation to habitats that support species of conservation importance eg from pollution and lack of or inappropriate management; and
- Disturbance to wildlife eg from noise or light pollution, human activity and vehicular movement.

Designated Sites – River Itchen SAC

10.6.29 Due to the distance of the SAC from the proposed development and the implementation of all standard best practice guidelines in the design to avoid pollution etc, it is considered that no direct impacts on the SAC will occur during site operation as there will be no direct outfall into the river from the site (see Chapter 15 – Hydrology and Drainage).

10.6.30 The principal threat to the interest features of this site is seen as decreased water flow due to abstraction and concurrent silting, neither of which will increase as a result of the proposed development.

10.6.31 Although current recreational access to the River Itchen is very high, mostly along existing rights-of-way, and there is no direct access from the proposed development, an increase in the population associated with 2,000 new dwellings within 900m of the River Itchen SAC may result in increased recreational pressure on this site.

10.6.32 The Annex I habitat that is a principal reason for site selection is “Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation”, ie the aquatic vegetation within the river itself. The majority of recreational use within the SAC would come from walkers (including dog walking) along the existing routes (for example, the Itchen Way running from the Solent to the source of the river at Hinton Ampner). While it is acknowledged that dog swimming may cause local damage to the habitat, it is considered that this would be negligible. Therefore, the majority of any increase will be terrestrial and it is considered that recreational pressure is unlikely on this feature and is **not significant**.

10.6.33 The Annex II species that are a primary reason for site selection include southern damselfly. As with many such rivers, much of the length of the Itchen is subject to grazing to manage the wet grassland communities. It is this grazing that creates the open habitat necessary for the southern damselfly to breed and the principal threat to the species is from the removal of this grazing (Brooks 2007). Therefore, increased recreational pressure on this qualifying feature as a result of more walkers is unlikely to remove the grazing or further fragment the existing habitat and therefore is considered to be **not significant**.

10.6.34 The Annex II features for which the SAC is designated include bullhead, salmon, brook lamprey. The Itchen is renowned for fly fishing and is considered one of the finest rivers in the country, particularly for salmon and trout, and therefore commands an associated premium. With the majority of the fishing rights along the length of the SAC in private ownership, fishing on the Itchen is tightly controlled (day licenses can cost upwards of £500). Increased recreational pressure on these SAC features as a result of fishing is therefore considered unlikely and **not significant**.

10.6.35 The other Annex II species that are present but are not reasons for selection include otter and white-clawed crayfish. Otters are present along many rivers where human presence is considerably higher than the Itchen (the Stour through Kidderminster, for example), while white-clawed crayfish are

aquatic and not subject to terrestrial disturbance. Therefore, increased disturbance of either species is considered unlikely and **not significant**.

10.6.36 Therefore, overall, given that none of the qualifying features or other features of interest of the SAC are considered likely to be subject to increased recreational use, any impacts on the SAC are considered **not significant**.

Designated Sites – River Itchen SSSI

10.6.37 Due to the distance of the SSSI from the proposed development and the implementation of all standard best practice guidelines in the design to avoid pollution etc, it is considered that no direct impacts on the SSSI will occur.

10.6.38 While there is no direct access from the proposed development, an increase in the population within 600m of the River Itchen SSSI may result in increased recreational pressure with associated disturbance issues.

10.6.39 Walking within the SSSI is already highly managed, especially along the lengths in the Hampshire Wildlife Trust's ownership to the north of Winchester. There are several existing public rights of way, including the St Swithun's Way and Itchen Way, all of which run along the edges of the SSSI. However, there may still be increased off-path walking within the habitats for which the SSSI is designated (especially the meadows during dry periods) as a result of the development which may result in habitat degradation.

10.6.40 Therefore, this is considered to be a **major negative** unmitigated impact on a nationally important VER.

Designated Sites Listed in Table 10.1

10.6.41 Due to the distance of these sites from the proposed development and the implementation of all standard best practice guidelines in the design to avoid pollution etc, it is considered that no direct impacts on these sites will occur.

10.6.42 While there is no direct access from the proposed development, an increase in the population within 250m of these sites may result in increased recreational pressure with associated disturbance issues.

10.6.43 The Royal Winchester Golf Club SINC has limited public access and therefore no recreational impacts on this VER are anticipated and are considered **not significant**.

10.6.44 The Easton Down SINC is located on the far side of the River Itchen and the A34 to the application site. Therefore, casual walkers (including dog walkers) are unlikely to move across these features, likely to prefer using the River Itchen or other, closer recreational features. As such, increased recreational pressure on this VER as a result of the proposed development is unlikely and considered **not significant**.

10.6.45 The other sites listed in Table 10.1 are both within 300m of the application site and therefore increased disturbance may occur as a result of recreational use. This is considered to be a **moderate negative** unmitigated impact on a county importance VER.

Hedgerows

10.6.46 There will be no impact on the hedgerow from the proposed development and the impact is considered to be **not significant**.

Calcareous Grassland

10.6.47 The retained calcareous grassland on site may be subject to increased recreational activity and associated disturbance as a result of the final development. However, given the proximity of other recreation sites included within the site Masterplan, any impacts during operation are considered to be **not significant**.

Invertebrate Habitat

10.6.48 The retained invertebrate habitat (grassland, hedgerows and woodland) on site may be subject to increased recreational activity and associated disturbance as a result of the final development. However, given the proximity of other, more attractive recreation sites (for example the River Itchen), any impacts during operation are considered to be **not significant**.

Reptile Habitat

10.6.49 The retained reptile habitat (grassland, hedgerows and woodland) on site may be subject to increased recreational activity and associated disturbance as a result of the final development. However, given the proximity of other, more attractive recreation sites (for example the River Itchen), any impacts during operation are considered to be **not significant**.

Breeding Bird Assemblage

10.6.50 During the operational phase of the proposed development, breeding birds on site may be subject to increased disturbance from humans, dogs and domestic cats, the latter also preying on birds. However, this is unlikely to be on a scale that will impact the integrity of the assemblage. Therefore, any impacts are considered to be **not significant**.

Badger Foraging Habitat

10.6.51 Badgers are well known to adapt and utilise foraging habitat within an urban environment. Since no setts will be lost during the development (limiting the potential for disturbance), any impacts during operation are considered to be **not significant**.

Bats Foraging and Potential Roosting Habitat

10.6.52 Bat foraging activity on site was concentrated around the hedgerows and treelines on site the majority of which are being retained within the final development Masterplan. Any lighting during operation (eg street lighting) will be directional, leaving the commuting routes unlit.

10.6.53 All of the potential roosting locations identified are within the woodland on site, all of which is being retained. Any lighting during operation will be directional and away from potential roost sites.

10.6.54 Therefore, any impacts on bats during the operation phase are considered to be **not significant**.

Brown Hare Habitat

10.6.55 Brown hares are unlikely to use any of the land within the completed development site and therefore, any impact during operation is considered to be **not significant**.

Hedgehog Habitat

10.6.56 Hedgehog activity is often high in urban environments (more so than in arable fields), where the combination of gardens, domestic hedges and other associated features (such as leaf piles in autumn) provide both shelter and foraging habitat. Therefore any impacts on hedgehog during site operation are considered to be **minor positive**.

Summary of impacts

10.6.57 Table 10.5 provides a summary of the unmitigated impacts to VERs identified above.

Table 10.5 Summary of Impacts

Impact timing	Valued Ecological Resource (VER)	Significance of Impact
Construction	Hedgerows	Minor negative
	Set-aside calcareous grassland	Minor negative
	Reptile habitat	Minor negative
	Yellowhammer and Skylark	Minor negative
	River Itchen SSSI	Major negative
Operation	Four sites listed in Table 10.1	Moderate negative
	Hedgehog habitat	Minor positive
	River Itchen SSSI	Major negative
	Designated sites listed in Table 10.1	Moderate negative

10.7 Enhancement and Mitigation Proposals

10.7.1 The Masterplan provides for significant habitat creation through the use of Sustainable Urban Drainage Systems (SUDS), as described in Chapter 15 – Hydrology and Drainage, including an infiltration pond as well as swales to carry surface water run-off across and away from the application site. See the Land Use Parameters Plan (Figure 4.2) for indicative locations.

10.7.2 Significant new “green corridors” have been designed in to the Masterplan (Figure 4.2) and existing ones strengthened. These, along with that associated with the SUDS will provide enhanced reptile habitat (mitigating for the minor loss identified above), bat commuting and foraging habitat as well as invertebrate habitat through the provision of a greater diversity of habitat than is currently present on site.

10.7.3 The loss of 1,083 m of hedgerow will be mitigated with the planting of at least an equivalent length of species-rich hedgerow within the final development. This will also provide mitigation for the loss of the hedgerows used by yellowhammer. Provision of hedgerows along the footpath that runs between the application site, under the railway and linking to the B3047, as well as around the perimeter of all the allotment areas would mitigate for this loss of hedgerows on a 1:1 basis. Any additional hedgerow planting (around the application site boundary, for example) would be an enhancement measure. Therefore, there is some degree of flexibility over mitigation/enhancement that will be determined at the detailed design stage.

10.7.4 In order to ensure that the existing seed bank from the set-aside with calcareous grassland species is maintained on site (and to mitigate for the loss of current habitat), any top soil removed during site preparation works for this area (for the park and ride and recreational spaces for example) will be incorporated around the site in those areas designated as open/natural on Figure 4.1, especially the areas that are currently arable (for example, along the railway embankment to the east of the site).

10.7.5 While not part of the Masterplan, the land to the east of the railway is also owned by Cala Homes Ltd. Further to discussions with Natural England and Winchester City Council, this site will be taken out of agricultural use and managed for biodiversity possibly, by the Hampshire and Isle of Wight Wildlife Trust, and with additional recreational benefit via public access footpaths, with an on-going management strategy for the site under discussion.

10.7.6 The land that will be managed for biodiversity and recreation has been surveyed and Appendices 1-7 provide details of the ecological baseline. It is broadly similar in nature to that within the application site boundary (Figures 10.1 and 10.2) with similar characteristics although it lacks the species-rich hedgerows found within the application site. All features of current ecological significance will be retained within the management regime including H25 and areas with corn marigold.

10.7.7 The provision and management of this land will help avoid disturbance impacts on the designated sites identified in section 10.6 including the River Itchen by providing a closer “wild” alternative, thereby decreasing the number of occasional users (such as dog walkers) that might

otherwise have travelled to the River Itchen and other designated sites. Public access paths within the site will be routed to ensure they start and finish in the direction of the application site with the exception of the existing footpath that links through to the B3047. This will help direct casual walkers away from the River Itchen and other designated sites.

10.7.8 Taking the site out of agricultural land use will provide a more diverse range of habitats and an increase in several VERs, including grassland with calcareous species and hedgerows. Other habitats to be created will include scrub, areas of bare ground and longer, neutral grassland

10.7.9 These habitats will provide enhanced foraging through increased diversity for a range of other VERs including:

- reptiles through the provision of increased areas of rough grassland and scrub;
- badger and hedgehog through the provision of an increased quality of foraging habitat;
- invertebrates through the increased diversity of plants available;
- bats via the increased invertebrate population; and
- bird species (including skylark) through the provision of suitable ground nesting sites in the longer grass and tree/hedge nesting through suitable planting;

10.7.10 Suitable management regimes (currently under discussion) will be implemented to ensure that where conflicts arise between recreational and biodiversity aims (such as breeding skylark and dog walking), these are minimised (notices regarding dogs on leads during breeding bird season, for example).

10.8 Residual Effects and Mitigation

10.8.1 The residual effects of the proposed scheme, once mitigation measures have been applied, are summarised in Table 10.6 below. No significant negative impacts on VERs of International, National, Regional, County or District level are considered probable.

Table 10.6 Residual effects

Valued Ecological Resource (VER)	Mitigation summary	Residual Impact
River Itchen SAC	Provision of land east of railway as biodiversity/recreation resource	Neutral
River Itchen SSSI	Provision of land east of railway as biodiversity/recreation resource	Neutral
Four sites listed in Table 10.1	Provision of land east of railway as biodiversity/recreation resource.	Neutral
Hedgerows	Planting of at least 1,083 m of species-rich hedges	Neutral
Calcareous grassland	Land east of railway to contain calcareous grassland	Neutral/minor positive
Invertebrate habitat	Land east of railway to contain improved invertebrate habitat. Provision of numerous green corridors across site	Minor positive
Reptile habitat	Land east of railway to contain improved reptile habitat	Minor positive
Breeding/wintering bird assemblage	Land east of railway to contain habitat suitable for breeding birds, especially skylark. Creation of at least 1,083 m of improved hedgerow will provide for yellowhammer	Neutral
Badger foraging habitat	Land east of railway to contain improved badger foraging habitat	Minor positive
Bats foraging and potential roosting habitat	Land east of railway to contain improved bat foraging habitat. Improved "green corridors" across main site.	Minor positive
Brown Hare habitat	Land east of railway to contain brown hare	Neutral
Hedgehog habitat	Land east of railway to contain hedgehog habitat	Minor positive

10.9 Summary

10.9.1 Following a search for existing ecological information and extensive surveys of the application site and its immediate environs, the following Valued Ecological Resources were identified:

- River Itchen SAC
- River Itchen SSSI
- Four sites listed in Table 10.1
- Hedgerows
- Calcareous grassland
- Set-aside arable habitat
- Invertebrate habitat
- Reptile habitat
- Breeding/wintering bird assemblage
- Badger foraging habitat
- Bats foraging and potential roosting habitat
- Brown Hare habitat
- Hedgehog habitat

10.9.2 In conclusion, it is considered that once the proposed mitigation measures are taken into account, the development of the application site the residual impact would be neutral/minor positive.

10.10 References

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