

ECOLOGICAL ASSESSMENT

LAND EAST OF TYE LANE, WALBERTON

JUNE 2017

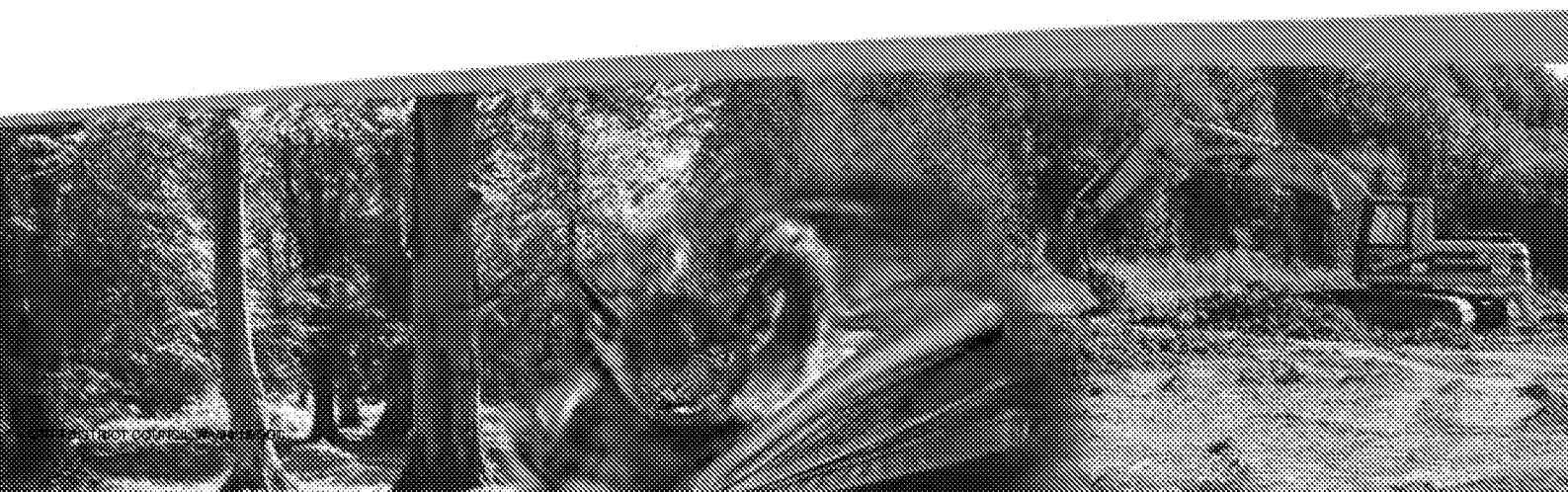


Land East of Tye Lane, Walberton, West Sussex

Ecological Assessment

Final Report
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Land East of Tye Lane, Walberton, West Sussex

Ecological Assessment

Executive Summary

EPR was commissioned by Wates Developments to undertake an Ecological Assessment of proposals for residential development at Land East of Tye Lane, Walberton (SU 97328 06230). The draft proposals are illustrated in **Appendix 1**.

The proposed development is likely to trigger the following biophysical changes: vegetation clearance, lighting, increased recreational demand, increased predation/disturbance and landscape planting.

The potential for these changes to affect important ecological features has been investigated through review of local biological records, biodiversity policy and strategy and site survey.

The Site is situated to the north of Walberton village in West Sussex, on relatively flat land at the base of a hill that rises to the north-east. Most of the Site is an arable field, with little marginal habitat but a small number of scattered mature trees. There is a mown species-poor grassland field to the north-east and a small area of non-native broad-leaved woodland on part of the western boundary. The other boundaries are marked by scattered scrub and trees and hedgerows in various states of management, although most of these trees are outside the site boundary.

The important ecological features considered in detail are: woodland, hedgerows, tree-lines and individual trees; the assemblage of birds; bats; reptiles; and the local population of Hedgehogs.

Apart from the arable land and species-poor grassland, most of the other habitats will be largely retained, with very small losses to the woodland and hedgerows for the installation of footpaths and an access road.

The proposed development includes extensive green infrastructure which will extend and improve the retained features. The scheme therefore has the potential to deliver biodiversity gain.

Further actions are identified, including the production of a Landscape and Ecological Management Plan, which will include methods to protect features during site preparation and construction and a long-term management plans for the green infrastructure.

The proposed development is unlikely to cause a significant negative effect on the conservation status of any European Protected Species. It is considered that habitat creation within the proposed open space areas and subsequent management of existing and newly created habitats in the Site will have a positive effect on wildlife including bats and birds within the Zone of Influence.

Land East of Tye Lane, Walberton, West Sussex

Ecological Assessment

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Land East of Tye Lane, Walberton, West Sussex

Ecological Assessment

1 INTRODUCTION

Commissioning

- 1.1 Ecological Planning & Research Limited (EPR) was commissioned by Wates Developments to carry out an Ecological Assessment (EA) of proposals for residential development at Land East of Tye Lane, Walberton, West Sussex (SU 97328 06230), hereafter referred to as 'the Site'.

Background

- 1.2 Proposals are for a residential development of up to 175 dwellings, new vehicular access, together with associated car parking, landscaping and community facilities to include allotments, play space and community orchard, as illustrated in **Appendix 1**.

Study Area

- 1.3 The Site is located to the north of Walberton village in West Sussex, below the foothills of the South Downs. Most of the Site is an arable field with a small scatter of mature trees. There is a small mown grass field to the north-east and a narrow woodland along part of the western boundary. The other boundaries comprise tree-lines, hedgerows and fencing. There is a golf course to the north, housing to the east, south-east and south-west, the village school, community centre and playing field to the south and Tye Lane to the west, with agricultural land beyond.

Scope

- 1.4 EPR's approach takes account of the Chartered Institute of Ecology and Environmental Management's (CIEEM) advice in Guidelines for Ecological Impact Assessment in the UK and Ireland (January 2016).
- 1.5 As summarised on the Biodiversity Checklist included at **Appendix 2**, this EA provides the ecological information that the Local Planning Authority (LPA) requires to:
- Determine whether the proposals accord with national and local planning policies; and
 - Allow it to discharge its Biodiversity Duties under the NERC Act 2006 and the Conservation of Habitats and Species Regulations 2010 (as amended).

Planning Context

- 1.6 Arun District Council sets out its environmental policies in Chapter 17 of the emerging Local Plan for 2011 – 2031, which was published in October 2014. This Local Plan is yet to be adopted but is still considered as part of this assessment. The most relevant policy is:

Policy ENV DM5: Development and Biodiversity

Development shall, in the first instance, seek to achieve a net gain in biodiversity and protect existing habitats on site. They shall also however incorporate elements of biodiversity including green walls, roofs, bat and bird boxes as well as landscape features, minimising adverse impacts on existing habitats (whether designated or not). Development schemes shall also be appropriately designed to facilitate the emergence of new habitats through the creation of links between habitat areas and open spaces. Together, these provide a network of green spaces which serve to reconnect isolated sites and facilitate species movement.

Where there is evidence of a protected species on a proposed development site, planning applications shall include a detailed survey of the subject species, with details of measures to be incorporated into the development scheme to avoid loss of the species. This involves consideration of any impacts that will affect the species directly or indirectly, whether within the application site or in an area outside of the site, which may be indirectly affected by the proposals. All surveys shall be carried out at an appropriate time of year and shall be undertaken by a qualified and, where appropriate, suitably licensed person. All developments shall have regard to Natural England's standing advice for protected species.

- 1.7 There are no proposals for the modification of this policy. The saved policy from the 2003 Adopted Local Plan is:

Policy GEN29: Nature Conservation Across the District

Development will only be permitted on sites which contain semi-natural habitats, features of nature conservation interest, or within wildlife corridors, where these can be largely retained and sympathetically incorporated into the scheme. Legal agreements may be used to offset the loss of, or impact on, any nature conservation resource present on the site prior to development.

- 1.8 The emerging policy is substantially more ambitious than the saved one, but is in keeping with national Government's advice in the NPPF.
- 1.9 The Walberton Neighbourhood Development Plan (2015) also sets out relevant policies:

Policy VE 3: Protection of Trees and Hedgerows

Development that damages or results in the loss of ancient trees/trees of arboricultural and amenity value or loss of hedgerows or significant ground cover and habitat will be resisted. Development proposals must be designed to retain wherever possible ancient trees, trees of good arboricultural and amenity value and hedgerows. Proposals should be accompanied by a survey that establishes the health and longevity of any affected

trees or hedgerows and a management plan to demonstrate how they will be so maintained.

Policy VE 10: Biodiversity & Archaeology

Proposals that have a positive impact on heritage and ecology will be encouraged, subject to other policy constraints. Conversely, proposals with a negative impact on the Parish's heritage and ecology will not be supported, unless sufficient mitigation measures are proposed.

- Proposals will be required to be accompanied by an appraisal from a respected independent body*
- Protected species and habitats will receive unfettered support, and those of lesser but still relevant classifications will be acknowledged by the appropriate degree of support recommended by statutory consultees and other bodies*

1.10 The EA comprises the following main elements:

- Review of the ecological policy context;
- Assessment of the changes which are likely to affect biodiversity; and
- Survey of the development site and, where possible, any other areas likely to be affected.

1.11 As advised in paragraph 118 of the National Planning Policy Framework, the resulting information is used to:

- Characterise potentially significant effects (including cumulative effects);
- Avoid or minimise those effects through scheme design;
- Design appropriate compensation for residual effects, if necessary; and
- Incorporate biodiversity gains (where possible).

1.12 Where relevant, legislative and policy considerations are highlighted, including:

- The Conservation of Habitats and Species Regulations 2010 (as amended);
- The Wildlife and Countryside Act 1981 (as amended); and
- The Protection of Badgers Act 1992.

1.13 This includes advice on further work to provide the information that:

- Natural England may require to determine an application for a European Protected Species Licence;
- The applicant needs to conform with other biodiversity legislation.

Pre-Application Consultation

- 1.14 Pre-application advice was sought by Wates Developments from Arun District Council with a response provided on 27 March 2017. The following response related to biodiversity was provided by the Greenspace Officer:

A habitat survey would need to be commissioned and any recommendations of the report included within the conditions of any planning approval. Clearing of any vegetation must not be carried out during the bird nesting season. A reptile survey would need to be carried out prior to works commencing on site. Vegetation to the boundaries to be retained. Bat and bird boxes to be provided to enhance the ecological potential of the site and mitigate for the loss of any mature vegetation.

- 1.15 Wates Developments held a public consultation event on 8 May 2017. Few ecological issues were raised, but the presence of Hedgehogs in the locality was mentioned.

Methods and Constraints

- 1.16 Information on the ecological context was gathered from Sussex Biodiversity Records Centre (SxBRC) and relevant biodiversity policies and strategies. These are mentioned where relevant within this report.
- 1.17 The Site was surveyed as set out in **Table 1.1**, using good practice survey methods as set out in **Appendix 3**. All surveys were conducted within the appropriate season.

Table 1.1: Ecological surveys within the Site

Survey	Date of Survey	Methodology
Habitat appraisal	6 March 2017	Phase 1 survey – survey methodology adapted from the Handbook of Phase 1 Habitat Survey, JNCC 2010
Botanical grassland survey	5 April 2017	Walkover quadrat survey
Ground level bat tree inspection survey	12 April 2017	Habitat appraisal including tree inspections – survey methodology is consistent with the Bat Conservation Trust Good Practice Guidelines 2016
Breeding bird survey	13 April, 27 April, 8 May and 15 May 2017	Breeding bird survey – survey methodology adapted from Gilbert et al. 1998
Great Crested Newt survey	13 April 2017	Pond assessment – survey methodology followed Habitat Suitability Index (Oldham et al. 2001)
	26/27 April, 2/3 May, 9/10 May and 18/19 May 2017	Pond survey – survey methodology followed Great Crested Newt Mitigation Guidelines (English Nature, 2001)

2 NATURE AND EXTENT OF PREDICTED BIOPHYSICAL CHANGES

- 2.1 Certain activities associated with the preparation, construction and occupation/operation of the proposal are likely to generate biophysical changes. These changes, and the Zone of Influence over which they are likely to occur, are summarised in **Table 2.1 and 2.2** below.

Table 2.1: Activities that can generate biophysical changes

Preparation/construction phase
• access and travel on/off-site, including temporary access routes for construction vehicles and vessels; • areas for plant maintenance and for storage of oils, fuels, and chemicals; • acoustic disturbance and vibration from construction activities; • dust generation; • soil stripping; • environmental incidents and accidents e.g. spillages, noise, and emissions; • lighting; • storage areas for construction/excavated materials; and • vegetation/habitat clearance including tree felling.
Occupation/operational phase
• access to site; • drainage; • implementation of landscape design and habitat management; • presence of people, vehicles and their activities e.g. increased public access and recreational pressure; • lighting; • presence of pets; and • site operation and management e.g. maintenance operations, lighting, noise, use of a road by traffic.

- 2.2 **Table 2.2** details those biophysical changes predicted to be caused by the activities listed above and the Zone of Influence over which the changes are likely to occur. These are mostly confined to the Site and its immediate surrounding area, except for the risks of increased recreational demand and increased pet predation/disturbance. The Zone of Influence specific to important ecological features identified further within this assessment is described in more detail in the relevant appendices that support this assessment.

Table 2.2: Summary of predicted changes likely to cause biophysical changes

Predicted Biophysical Change	Zone of Influence
Vegetation clearance	Within the site and immediate surrounds only
Lighting (during construction and operation)	Within the site and immediate surrounds only
Increased effects arising from recreational pressure	Considered up to 5km
Increased predation/disturbance from pets	Within 400m
Landscape planting	Within the site only

3 IDENTIFICATION AND CHARACTERISATION OF IMPORTANT ECOLOGICAL FEATURES VULNERABLE TO DEVELOPMENT

Geographic and Historic Context

- 3.1 The proposal is for land on the northern edge of the village of Walberton which lies below the South Downs. The Site is on relatively flat land at the base of a hill that rises to the north-east. The Site is surrounded by a school and houses to the south and east, a golf course to the north and a mixture of arable and pasture to the west.
- 3.2 The South Coast Plain and Hampshire Lowlands Natural Area Profile (Cox 1997) notes that there is a long history of agricultural production in this area. The area also contains Ancient Woodlands that are largely confined to the foot of the South Downs, as clearly illustrated on **Map 1**. The Natural Area Profile also notes that the long history of arable farming in this area, between Chichester and Brighton, has left little space for wildlife habitats. In this area, hedges are in a poor state of repair or have been removed and other wildlife habitats such as farm ponds, patches of rough grassland and scrub are now rare.
- 3.3 From the old land utilisation maps (Land Utilisation Survey of Britain 1936), it appears that the Site was formerly meadow and permanent grassland that formed part of a larger estate.

Geology and Soils

- 3.4 The soils belong to the Soilscape 6: freely draining slightly acid loamy soils (Cranfield University). This soil typically supports neutral and acid pastures and deciduous woodlands. The underlying bedrock geology is London Clay Formation; clay, silt and sand.

Important Ecological Features

Arable Land

- 3.5 As shown on **Map 3**, most of the Site is arable land, with narrow margins. The arable land is intensively farmed with limited value for wildlife. The loss of this habitat will therefore not cause a significant ecological effect and this feature is not considered further in this assessment.

Grassland

- 3.6 The Natural Area Profile identifies Neutral Grassland as one of the Key Wildlife Features of the area. The grass field within the north-east of the Site was therefore surveyed, but was found to support a species-poor vegetation community, which does not qualify as a Priority Habitat (see **Appendix 4** for results of the survey). The loss of this vegetation will therefore not cause a significant ecological effect and this feature is not considered further in this assessment.

Woodland, Hedgerows, Tree-lines and Individual Trees

- 3.7 The Site's boundary features generally comprise relatively recently planted tree-lines and garden hedges, although the hedge along Tye Lane is older. This hedge is associated with a dry ditch, which also runs through a small strip of planted non-native woodland along the western boundary.
- 3.8 None of these features are species-rich or managed to promote biodiversity. Species present include Poplar, Sycamore, Beech, Field Maple, Blackthorn, Elm (young only) and Hawthorn. There is also Holly in the woodland strip. The hedges and tree-lines are fragmentary, and do not form good corridors, or link to a wider network, being species-poor, narrow and isolated by roads, urban development and the intensively managed golf course.
- 3.9 Mature trees, including Pedunculate Oak are scattered along the boundaries, and in the south-eastern part of the arable field. Their potential for bats has been assessed below. They are isolated from each other and other vegetation by ploughed land.
- 3.10 These features currently contribute little to biodiversity beyond the Site, but have the potential to form a framework for the establishment of larger, more diverse and better connected vegetation corridors, which would deliver wider biodiversity gains. This would be in accordance with the Walberton Neighbourhood Development Plan (2015), which has identified the need to restore and improve hedgerows in the parish. This is discussed further in the following sections.

Birds

Desktop Study

- 3.11 The farmland habitat within the Site can support farmland species including a characteristic assemblage of birds. **Map 2** shows that many farmland birds have been recorded within 2km of the Site.

Breeding Bird Survey

- 3.12 A series of breeding bird surveys were conducted on the Site during Spring 2017, the results of which are set out in **Appendix 5** and shown in **Map 4**. The only truly farmland bird recorded was Linnet (Red-listed Birds of Conservation Concern (BoCC)), which was seen on the adjoining golf course. This species feeds almost entirely on seeds and therefore requires areas of grassy and scrubby vegetation where the plants are allowed to seed.
- 3.13 The other species of conservation concern recorded during the surveys were Starling (Red-listed BoCC), House Sparrow (Red-listed BoCC), Dunnock (Amber-listed BoCC), Kestrel (Amber-listed BoCC) and Mallard (Amber-listed BoCC). These are urban and sub-urban species, not necessarily connected with farmland. Starling, House Sparrow, Dunnock and Linnet are Priority Species. No birds listed under Schedule 1 of the Wildlife and Countryside Act 1981 or Annex 1 of the EU Birds Directive were recorded.
- 3.14 A total of 27 bird species were recorded from within the Zone of Influence (taken to be the Site and immediate surrounds) during the breeding bird surveys in 2017. In line with the

precautionary principle, species recorded as breeding 'confirmed', 'probable' or 'possible' are considered as 'breeding species' within this report, a total of 18 species.

- 3.15 Starling and House Sparrow were recorded using the Site in relatively low numbers to feed but are likely to be nesting in buildings offsite. Kestrel and Mallard were observed on a single occasion flying over the Site.
- 3.16 Bird territories were concentrated around boundary tree-lines, hedgerows and woodland. The boundary habitats in general contained a range of common species including Dunnock, Green Woodpecker, Blackbird, Wren and Chiffchaff.

Evaluation

- 3.17 The breeding bird assemblage within the Zone of Influence is made up of largely common and widespread species, with species of heightened conservation importance present in low numbers. Nesting birds are confined to the boundary habitats (tree-lines, hedgerows and woodland) with no evidence of ground-nesting birds seen in the fields, although these were used for foraging by some species in low numbers.
- 3.18 The overall assemblage of birds recorded within the Zone of Influence is valued at **Local** importance.

Bats

Desktop Study

- 3.19 There are records of eleven species of bat within 2km of the Site between 1999 and 2015 (see **Map 2**). The nearest record is an unspecified Brown Long-eared roost approximately 10m to the south of the Site boundary in 2012.
- 3.20 The Walberton Neighbourhood Development Plan mentions a Pipistrelle maternity roost in St Mary's Church and two Barbastelle colonies on the Fontwell Estate, to the west.

Ground Level Tree Survey

Thirteen trees were considered to have low potential to support bats (see **Map 5** for tree locations and **Appendix 6** for more detailed results). With relation to the masterplan, one tree with low potential (Tree 1) may potentially require removal as part of the proposed scheme. The remaining trees within the Site identified as having potential to support roosting bats are to be retained.

Evaluation

- 3.21 The boundary habitats are considered to have low potential to act as an important commuting and foraging feature for bats because they are fragmented and do not form an optimal connective corridor.
- 3.22 Most of the Site comprises intensively farmed arable land, likely sprayed with pesticides, which is of relatively little value as a foraging resource for bats.

- 3.23 Most of the features of potential value to bats, i.e. the south-western woodland, will be retained along with the majority of the boundary habitats. However, some minor loss of trees and boundary vegetation is necessary for the installation of infrastructure and access points.
- 3.24 The Site is within the core sustenance zone of the Brown Long-eared bat roost and possibly the other roosts. However, currently there are no features on the Site in optimal condition for these bats, as they ideally require continuous flight lines to complex habitats which provide their invertebrate prey.
- 3.25 Overall, the local assemblage of bats is likely to be of **Local-District** importance.

Amphibians

Desktop Study

- 3.26 The Natural Area Profile mentions that Great Crested Newts are a key wildlife feature and are present in many ponds in the South Coast Plain and Hampshire Lowlands area. However, the local Biodiversity Action Plan states that populations within the Coastal Plain west of Worthing (including Walberton) and the whole of Chichester District appear to be scarce, although viable populations do still exist. The intensive agricultural landscape of the Coastal Plain and the lack of large numbers of suitable ponds are thought to be the main reasons for this.
- 3.27 The nearest record of Great Crested Newt returned by the local biodiversity records centre was 515m south of the Site in 2005 (see **Map 2**). There is a network of minor roads and the residential dwellings of Walberton village separating the location of this record from the Site. However, there are a series of five ponds in the golf course to the north that were identified within the Zone of Influence (taken to be up to 250m from the Site).

Field Survey

- 3.28 The five ponds within the Zone of Influence were assessed through a Habitat Suitability Index survey as having potential to support Great Crested Newt (see **Map 6**) and therefore were subject to further presence/likely absence surveys, with the results set out in **Appendix 7**. No Great Crested Newt were found, but Smooth Newt, Palmate Newt and Common Frog are present within the ponds surveyed. The low value boundary features and arable field do not provide amphibians with good opportunities for foraging, shelter or movement during their terrestrial phase.

Evaluation

- 3.29 It is considered reasonable that Great Crested Newt are absent from within the Zone of Influence, and therefore the proposal is unlikely to result in any significant effects on Great Crested Newt populations. Great Crested Newt will therefore not be considered further within this assessment.
- 3.30 Smooth Newt, Palmate Newt and Common Frog are not of sufficient conservation status to be considered explicitly in the remainder of this assessment, but they do have some local value. The proposals for biodiversity gain set out in the following sections will benefit these amphibians.

Reptiles

Desktop Study

- 3.31 Records of Adder and Grass Snake within approximately 600m of the Site were returned from SxBRC, with a record of Adder being the closest record at approximately 200m to the south of the Site from 2002 (see **Map 2**).

Site Survey

- 3.32 The woodland, scattered scrub and western and north-eastern hedgerow within the Site may provide refuge and hibernating habitat for common reptiles such as Slow Worm, Grass Snake and Common Lizard, albeit to a limited extent. The majority of these habitats within the Site will be retained as part of the proposal. However, a very small section of the woodland and western and north-eastern hedgerow will be cleared for installation of pathways and an access road.

Evaluation

- 3.33 As the area of habitat to be lost will be minimal it is considered that clearance works would have limited impact on the conservation status of any local reptile populations should they be present. Given the limited extent of suitable habitat within the Site, it is very unlikely that the assemblage of reptiles could be sufficiently important to trigger a significant ecological effect.

Hazel Dormice

Desktop Study

- 3.34 Hazel Dormice have been recorded in Potwell Copse, approximately 500m to the west in 2011. Whilst there are no records, it is possible that this species may also occur in woodland nearer the Site given the connectivity to habitats known to support this species.

Site Survey

- 3.35 The absence of continuity in the boundary vegetation around the Site with areas of woodland likely to support Hazel Dormice suggests that Hazel Dormice are not likely to be present on Site.

Evaluation

- 3.36 This species is susceptible to predation and may occur within the 400m Zone of Influence within which cats introduced by new residents are likely to roam from the Site. Although the more suitable habitat is located at the further reaches of the perceived cats' range, reducing the likelihood of predation. However, it is considered that pet cats rarely predate on Hazel Dormice and are not a significant threat to local populations, as the cats are usually hunting at ground level whilst the Hazel Dormice are inhabiting the canopy/shrub layer (Bright and Morris 1993, Bright et al 2006, Morris 2004, Woods *et al* 2003). Therefore, a significant negative impact is unlikely and this species will not be considered further within this assessment.

Water Voles

Desktop Study

- 3.37 There are records of Water Voles along Binsted Brook, 200m to the north-east and also to the south of the Site in 2015. Water Voles have declined throughout the UK in recent decades. However, this is due to the introduction of the American Mink and degradation of their habitat, neither of which effects will be triggered by this proposal.

Site Survey

- 3.38 There is currently no habitat on the Site which could be used by this species.

Evaluation

- 3.39 As there is no suitable habitat on the Site, this species will not be considered further within this assessment.
- 3.40 However, the proposals to create water features within a green infrastructure network will increase the potential for this species. Therefore, whilst not considered further in this assessment, they could benefit from the proposed biodiversity gain.

Badgers

Desktop Study

- 3.41 The data request from the Badger Trust West Sussex did not return any records of Badger from within the Site boundary. The closest record of Badger is approximately 500m to the south of the Site.

Field Survey

- 3.42 There is a single active mammal burrow with fresh spoil outside the entrance that is located next to the mature Pedunculate Oak within the south of the Site (TN1 on **Map 3**). This tree is noted to be retained. From inspection, the mammal burrow appears to be currently used by Fox (through presence of a Fox hair and paw print). No other signs or evidence of Badger was found within and immediately surrounding the Site.

Evaluation

- 3.43 It is considered reasonable that Badger are absent from within the Zone of Influence, and therefore the proposal is unlikely to result in any significant effects on Badger populations. Badgers will therefore not be considered further within this assessment.
- 3.44 However, in view of the likely timescales for the development, which could allow Badger to occupy this burrow or form new excavations within the Site, it is recommended that an update survey including a 2-week monitoring period of the identified burrow using remote cameras is undertaken at least 3 to 6 months prior to the start of construction works. This leaves sufficient time to close any Badger setts in current use that might be confirmed and could be negatively affected by the proposal.

Brown Hare

Desktop Study

- 3.45 The arable habitat within the Site can support Brown Hare. **Map 2** shows that Brown Hare, a Priority Species, has been recorded within 2km of the Site in 2000.

Site Survey

- 3.46 Brown Hare was not recorded during any of the surveys, many of which were early and late in the day, when Hares are most often seen.

Evaluation

- 3.47 No significant effects on this species are anticipated and it is not considered further in this assessment.

Hedgehog

Desktop Study

- 3.48 Hedgehogs, a Priority Species, have been recorded locally (see **Map 2**). This species is declining rapidly nationally. It is habituated to humans.

Site Survey

- 3.49 Currently the features on Site are in sub-optimal condition to support this species, which requires connected hedges or similar and diverse foraging opportunities.

Evaluation

- 3.50 While the features on Site are in sub-optimal condition, the loss of habitat as part of the proposals has the potential to fragment habitats used by this species.

Statutory Nature Conservation Sites

- 3.51 There are two nationally designated sites within 5km of the Site (see **Map 1**). Fairmile Bottom Site of Special Scientific Interest (SSSI) lies approximately 2.4km to the north-east and is designated for its Yew Taxus woodland and unimproved chalk grassland as well as the Silver-washed Fritillary butterfly.
- 3.52 Arundel Park SSSI lies approximately 3.9km to the east of the site. Arundel Park SSSI one of the most important sites in the country for invertebrates including a number of rare and notable species. The area has a particularly diverse breeding bird community and is important for overwintering species. The site also includes examples of species-rich chalk grassland containing several plants uncommon in Sussex.
- 3.53 There is also a locally designated site within 5km of the Site. Fairmile Bottom Local Nature Reserve (LNR) is part of the same area of land designated as a SSSI and lies approximately 2.4km to the north-east of the Site (see **Map 1**).

- 3.54 Having reviewed the citations and Condition Assessments for the designated SSSIs and LNR within 5km of the Site boundary, no particular vulnerability to public access and recreation is identified. As there are no other predicted biophysical changes which could affect these features, they are not considered further in this assessment.

Non-Statutory Local Wildlife Sites and Ancient Woodland

- 3.55 There are a number of non-statutory wildlife sites within 2km, most of which are protected because they support Ancient Woodland (see **Map 1**). The nearest is Rewell Wood Complex Local Wildlife Site (LWS) which lies approximately 300m to the north-east. This LWS is designated for its Ancient Semi-Natural Woodland.
- 3.56 The woodland is privately owned, but can be accessed by a Public Right of Way which passes through it. However, Ancient Woodland is not identified in local planning policy or strategy as being particularly vulnerable to increased recreational demand within the local area. No significant effects are therefore predicted and these features are not considered further in this assessment.

4 IDENTIFICATION OF POTENTIALLY SIGNIFICANT EFFECTS

- 4.1 During site preparation and construction, the birds, bats, reptiles and Hedgehogs which may use the Site are vulnerable to disturbance and harm.
- 4.2 In the longer term, the following features may be significantly affected (positively or negatively) by the proposal. Other effects that may trigger legislation are covered in **Section 7**.

Construction Phase

Woodland, Hedgerows, Tree-lines and Individual Trees

Habitat Loss

- 4.3 The proposed new access road and footpaths to Tye Lane and Yapton Lane will cause the loss of a limited number of trees, hedge and scrub and fragmentation of linear features. However, most of these features will be retained within substantial areas of green infrastructure which are larger, more diverse, more continuous and better managed than the current features. As habitat loss will be minimal and given the extensive habitat creation proposed which will more than compensate for habitat loss, this is considered to not cause a significant effect.

Birds

Habitat Loss

- 4.4 The vast majority of bird nesting habitat will be retained as part of the Site. Losses will be limited to a small number of trees and sections of hedgerow and woodland to be breached to create access roads and pathways. No birds of conservation concern were recorded as holding territory here and these breaches are not considered to be significant in terms of their potential to affect the conservation status of the breeding bird assemblage.
- 4.5 Some foraging habitat in the north-eastern grassland field will be lost to development, although this will be minimal and unlikely to have a significant effect upon the conservation status of the breeding bird assemblage as a whole.
- 4.6 The retention of most of the boundary habitats and creation of new habitat within the open space areas throughout the Site will provide additional foraging and nesting resources that will enhance the Site for the local bird assemblage and compensate for the loss of suitable habitat as part of the scheme.

Harm or Death to Individuals

- 4.7 The clearance of trees and vegetation has the potential to kill and injure nesting birds and destroy nests, eggs and dependent young. Given the small areas to be cleared, any losses of individual birds and/or nests would be minimal and unlikely to affect the conservation status of the overall breeding bird assemblage to the degree that the effect would be significant. However, this would constitute a legal offence under the provisions of the Wildlife and Countryside Act 1981 (as amended) and will therefore need to be avoided and mitigated.

Disturbance

- 4.8 Site clearance and construction activities may cause disturbance to key breeding bird species including Dunnock that occupy habitats on the boundaries of the Site through increased noise (heavy plant, generators etc.), activity (movement of vehicles and people) and through increased lighting (tower lights).
- 4.9 However, the disturbance effect would be short-term and reversible and the magnitude of the effect will vary, depending on the number and type of construction operations being undertaken at once, and their proximity to adjacent habitats. The extent of the disturbance effect, despite being widespread across the Site, is only likely to be at a level that would affect breeding birds at the very edge of these areas next to the construction boundary.
- 4.10 It is possible that disturbance will cause some stress to breeding birds and may result in the abandonment of breeding territories and nesting sites in localised areas. A short-term negative effect is therefore likely, but is unlikely to affect the conservation status of the breeding bird assemblage overall and is therefore considered to be not significant.

Bats

Harm or Death to Individuals

- 4.11 No tree's that are potentially required for removal were found to have more than low potential to support bat roosts. Unmitigated, there is the potential for harm or death to individual bats during the felling of Tree 1 assessed as having low potential to support bats. This would constitute an offence under the provisions of the Wildlife and Countryside Act 1981 (as amended) and Habitats Regulations 2010 (as amended). In the absence of mitigation, a significant negative effect of death and/or injury to bats is likely within the Zone of Influence level.

Loss and Fragmentation to Habitat

- 4.12 The majority of suitable and key habitat for bats within the Site will be retained. To facilitate the creation of road and pathway access points, small areas of woodland and hedgerow habitat will be removed. As the amount of vegetation to be removed will be minimal, that the existing high tree canopy will be maintained and that any street lighting to be installed as part of access creation will be minimised and designed to limit lighting effects, it is considered that there will be an insignificant effect on bats with relation to habitat loss and fragmentation as existing features available to foraging and commuting bats will be maintained.

Disturbance

- 4.13 Construction activity, noise and lighting would have the potential to disturb roosting, commuting and foraging bats and may result in abandonment of roosts or core foraging areas. In the absence of mitigation this could negatively affect the conservation status of bat populations and would be a significant negative effect within the Zone of Influence level. Under the provisions of the Wildlife and Countryside Act 1981 (as amended) and Conservation of Habitats and Species Regulations 2010 (as amended) this could constitute an offence and will need to be mitigated.

Reptiles

Harm or Death to Individuals

- 4.14 The clearance of small sections of the woodland and western and north-eastern hedgerow has the potential to kill and injure reptiles. Given the small areas to be cleared, any losses of individual reptiles would be minimal and unlikely to affect the conservation status of the overall local reptile assemblage to the degree that the effect would be significant. However, this would constitute a legal offence under the provisions of the Wildlife and Countryside Act 1981 (as amended) and will therefore need to be avoided and mitigated.

Operational Phase

Birds

Disturbance and Predation

- 4.15 Breeding birds are likely to be subject to increased levels of disturbance from human activity, traffic movements and resultant noise, due to the proximity of housing to habitats used by birds for nesting and foraging. The number of domestic pets is likely to increase with a resultant increase in disturbance from dogs and predation by cats. The disturbance effect will be permanent and irreversible, with a variable frequency and magnitude. The Site is predicted to see an increase in cat predation as a result of the residential areas created, while the areas of public open space proposed for the Site is likely to attract increased numbers of dog walkers and associated disturbance effects.
- 4.16 Although it is likely that disturbance and predation will have negative effects, this is considered unlikely to affect the overall conservation status of the breeding bird assemblage within the Zone of Influence. This is particularly the case when taken in the context of habitat creation and enhancement measures described above that will benefit birds by providing additional nesting and foraging resources to boost populations. This effect is therefore considered to be not significant.

Habitat Creation, Management and Enhancement

- 4.17 The Site includes the creation of areas of public open space, including tree and hedgerow planting and creation of SuDS. A range of bird boxes to benefit different species will be erected on suitable trees around the Site.
- 4.18 These habitat creation and enhancement measures are likely to benefit the breeding bird assemblage by providing increased habitat for nesting, foraging and shelter. The wildlife-friendly management measures are also likely to boost the invertebrate population within the Zone of Influence, that will benefit breeding birds which feed, or feed their young, on invertebrates. However, it is not possible to say with certainty whether this will significantly change the conservation status of the breeding bird assemblage within the Zone of Influence, particularly when coupled with operational-phase effects such as cat predation, described below.

Bats

Disturbance

- 4.19 Lighting has been shown to be highly disturbing to bats and can have an effect on bat activity and use of a site (Stone, 2013; BCT, 2009). Direct lighting can cause abandonment of roosts, change feeding habits and interrupt commuting routes, or result in artificial roosts installed within mitigation schemes not becoming colonised. Increased lighting of stationary objects has been shown to significantly increase bat collisions through the effects of glare on their sensitive eyesight and increased ambient lighting results in avoidance of established commuting routes and foraging zones due to an increase in perceived predation risk.
- 4.20 An increase in uncontrolled lighting could result in the loss and fragmentation of foraging areas, roosting sites and commuting routes. Therefore, in the absence of control measures, artificial lighting in the Site is likely to adversely affect the conservation status of the bat populations and result in a significant negative effect within the Zone of Influence level.

Habitat Creation, Management and Enhancement

- 4.21 The proposed green infrastructure provides an opportunity to deliver biodiversity gains for bats by increasing the extent, diversity and connectivity of their habitats. A range of bat boxes to benefit different species will be erected on suitable mature trees around the Site. However, it is not possible to say with certainty whether this will significantly change the conservation status of the bat assemblage within the Zone of Influence.

Hedgehogs

Habitat Fragmentation

- 4.22 This species is vulnerable to fragmentation of its habitat by the introduction of impermeable barriers such as fences which are cemented directly into the ground. However, permeability through the Site will be maintained through areas of open space to be created. Therefore, it is considered that there will be an insignificant effect on Hedgerows with relation to habitat fragmentation.

5 MEASURES TO AVOID OR REDUCE IMPACTS AND DELIVER BIODIVERSITY GAIN

- 5.1 All mitigation and biodiversity gain measures will be combined into a Landscape and Ecological Management Plan (LEMP) which will be submitted to Arun District Council for approval prior to the start of works on the Site. This Plan will be implemented by the appointed Management Company with funding agreed as part of a Section 106 Agreement. This will ensure that the potential gains identified in the previous section are delivered.
- 5.2 The following measures below will avoid, reduce or compensate for the significant effects set out in **Section 4**. The measures will be detailed in the LEMP.

Construction Phase

Birds

Harm or Death to Individuals

- 5.3 Harm or death to nesting birds and their nests, eggs and dependent young will be avoided by timing clearance of potential breeding habitat outside of the breeding season, which is from March to September inclusive.
- 5.4 Where vegetation clearance work during this period is required, this will need to be immediately preceded by a check for evidence of nesting birds by a suitably experienced ecologist. Should an active nest be found, work in the vicinity of the nest will stop and the nest protected in situ until any dependent young have fledged the nest.
- 5.5 This will avoid the risk of contravention of the requirements of the Wildlife & Countryside Act 1981 (as amended) in respect of its provisions regarding the protection of nesting birds, their nests, eggs and young. It is therefore considered that following the application of these mitigation measures, a legal offence will be avoided.

Bats

Harm or Death to Individuals

- 5.6 As many bat species that use trees for roosts are known to exhibit roost switching behaviour and that there is potential for tree roost features to develop further over time, Tree 1 that is required for removal and has been identified as having low potential to support roosting bats will be felled under a safe working Method Statement as recommended within the Bat Conservation Trust Good Practice Guidelines (Bat Conservation Trust, 2016), details for which are outlined below.

Timing

- 5.7 The removal of Tree 1 that has low potential to support bat roosts will be undertaken where possible outside of the main active period for bats (May to September inclusive). This should also ensure that the main breeding bird season is avoided (March to August inclusive). The length of this period will be dictated by seasonal weather conditions. Felling/removal during

these periods should only take place where an inspection survey has confirmed that a roost is not present.

Method for Tree Works

- 5.8 Tree 1 that was assessed as having low bat roost potential will be inspected prior to felling works by a suitably qualified and licensed bat ecologist, using climbing equipment, torches and an endoscope where necessary. If bats are found during the tree inspection survey or during felling works then works will not start or cease immediately and Natural England will be contacted for further advice, as further survey work and a European Protected Species Licence (EPSL) may be necessary to enable works to take place lawfully.
- 5.9 Where removal is necessary, any tree that is found to support a bat roost will be felled under an EPSL granted by Natural England. Tree specific mitigation and compensation will be clarified prior to obtaining an EPSL. Delivery of the mitigation strategy would become a condition of an EPSL, with the associated Method Statement that would be agreed with Natural England incorporated in the LEMP.
- 5.10 Inspection of roost features will be undertaken as described above immediately prior to felling. This inspection will aid the identification of parts of the tree where bats may be present, and allow particular care to be taken when working in these areas. The felling of a tree with bat roost potential will be undertaken under methodology suitable for the specific tree and will broadly follow the soft felling techniques as described below:
- Cross-cutting will be avoided in proximity to cavities or hollows;
 - Limbs with internal fissures will be pruned carefully to maintain integrity of features as potential roost sites;
 - Any sections felled which contain cavities should be lowered carefully and left on the ground for 24 hours with the openings clear, allowing any bats inside an opportunity to escape;
 - Split limbs under tension will be wedged open to prevent their closure when pressure is released, potentially trapping bats;
 - Loose bark will be removed carefully before each section is felled, to avoid trapping bats when the limb falls;
 - Depending on its thickness, any Ivy growth will either be pruned/sectioned or, if sufficiently thick to protect potential bats roosting behind, will be left intact and the tree section felled, inspected on the ground and then left for 24 hours before section cutting; and
 - The tree will also undergo a detailed search on the ground once it has been felled.
- 5.11 Implementation of the above precautionary measures immediately prior to, and during, felling will avoid the potential for accidental harm or death to bats which may be roosting within Tree 1 at the time of felling. Potentially significant effects and associated legal consequences will therefore be avoided.

Disturbance

- 5.12 It will be necessary to develop a series of measures to ensure that activities associated with site clearance and construction (construction lighting, noise) do not result in significant disturbance to the likely bat population in and adjacent to the Site. Construction work will be restricted to daylight hours. Any construction site lighting will be subject to approval from the consultant ecologist, to ensure that disturbance to bats and other nocturnal wildlife is minimised. It is therefore considered that following the application of these mitigation measures, potentially significant effects and associated legal consequences will therefore be avoided.

Reptiles

Harm or Death to Individuals

- 5.13 As the area of suitable reptile habitat to be lost is minimal it is felt that clearance works would have limited impact on local reptile populations should they be present. However, to minimise the risk of harm to any potential resident reptiles at the Site, retained boundary vegetation with suitability to support reptile species will be protected from disturbance during construction through use of heras-type fencing.
- 5.14 As a precautionary measure, vegetation removal works of suitable reptile habitat shall be carried out in a sensitive manner via a destructive search during the active reptile season from March to October inclusive. This will involve an ecologist supervising the manipulation and removal of habitat in a phased manner, to persuade any reptiles present to move into the boundary features that are to be retained and protected. This is anticipated to avoid the risk of contravention of the requirements of the Wildlife and Countryside Act 1981 (as amended) in respect of its provisions regarding the protection of reptiles. It is therefore considered that following the application of these mitigation measures, a legal offence will be avoided.

Operational Phase

Bats

Disturbance

- 5.15 A lighting strategy for the Site will be designed in order to ensure that the surrounding habitat suitable for bats such as the woodland area, hedgerows and trees are not subject to illumination. Particular attention should be paid to any lighting associated with the boundary vegetation of the Site. Any new light fixtures will be angled downwards to minimise light spill. It is therefore considered that following the application of these mitigation measures, potentially significant effects and associated legal consequences will therefore be avoided.

Delivery of Biodiversity Gain and Protection of Retained Features

- 5.16 The following measures will deliver biodiversity gain and protect retained features. The measures will be detailed in the LEMP.

- To minimise the removal of woodland and hedgerow for the road access and the footpath to Tye Lane, then to manage the retained woodland, hedges, tree-lines and trees to promote biodiversity;
- Protect features to be retained during construction through incorporation of suitable buffer zones with the aid of heras-type fencing i.e. retained woodland, trees and hedges;
- The open space areas to be created as part of the green infrastructure of the Site will be designed to maximise the potential for biodiversity gain. The retained features will be extended and diversified by planting locally native trees and shrubs which provide food and shelter for birds and bats. The expanded wooded features will be managed to maximise their production of food and continuous cover;
- Newly created grassland in the open space areas will be sown with a locally appropriate wildflower mix and manage it to produce areas of short and long grass;
- The margins between the hedges and wooded features and the grassland will be managed to create graduated edges, with maximum flowers and fruit to support birds and invertebrates;
- There will be a selection of walking routes created within the open space areas which will absorb some of the existing and increased demand for informal recreation.
- The surface water drainage features will be designed to maximise their potential for amphibians and Water Voles; and
- Garden fences will be designed to allow access for Hedgehogs, increasing the permeability of the Site for this species.

6 ECOLOGICAL ASSESSMENT

- 6.1 Taking account of the mitigation set out in the previous section, the residual impacts are discussed below and summarised in **Table 6.1**.

Woodland, Hedgerows, Tree-lines and Individual Trees

- 6.2 The new planting and management proposed will enable these features to become more extensive, more diverse, part of a more connected ecological network and better managed. This will enhance the condition of these features and the conservation status of the species which rely on them.

Birds

- 6.3 Given the predicted increase in nesting habitat and food sources and the level of human habituation of most of the species recorded, the conservation status of the assemblage of birds is not likely to be significantly negatively affected by increased predation and disturbance. Implementation of a safe method of works, as detailed within the LEMP, will ensure harm or death to individuals is avoided.

Bats

- 6.4 Providing an appropriate lighting strategy is implemented, the expanded and improved green infrastructure is likely to improve the conservation status of the assemblage of bats in the area. Implementation of a safe method of works, as detailed within the LEMP, will ensure harm or death to individuals is avoided.

Reptiles

- 6.5 Implementation of a safe method of works, as detailed within the LEMP, will ensure harm or death to individuals is avoided.

Hedgehogs

- 6.6 Providing the green infrastructure and garden fences are designed to allow permeability through the Site for this species, the conservation status of the local population is likely to improve due to access to improved habitat.

Table 6.1: Summary: Assessment of Residual Ecological Impacts and Opportunities for Biodiversity Gain

Important Ecological Feature	Estimated Importance/ Condition/ Trend	Potential Impacts in the Absence of Mitigation (Alone/In-combination)	Impact Avoidance, Mitigation, Compensation and Ecological Restoration	Predicted Residual Impacts/Biodiversity Gain	Assessment of Likely Significant Effect with Mitigation
Woodland, hedgerows, tree-lines and individual trees	Site Unfavourable Stable	Increased extent, diversity, management and connectivity.	Retain and enhance most features. Minimise unavoidable losses for access road and footpath to Tye Lane. Plant locally appropriate trees and shrubs to expand, diversify and link existing features. Manage retained and new features to maximise biodiversity.	Increased size, improved condition and better connected habitats.	Significant positive and long-term effects likely.
Birds	Local Local trend not known, but some species declining nationally	Harm or death to individuals. Loss of nesting and foraging habitat. Increased predation and disturbance.	Retain and enhance most features with potential for nesting birds. Unavoidable removal of potential nesting features to be conducted in accordance with agreed Method Statement (as detailed within a LEMP).	Increased and improved habitat will provide opportunities to minimise disturbance and predation.	No significant negative effects. Significant positive and long-term effects likely.
Bats	Local-District Local trend not known, but some species at risk nationally	Harm or death to individuals. Loss of bat roosts. Lighting and fragmentation of flight lines.	Retain most roost features within improved ecological network. Design lighting to avoid roosts, foraging areas and flight lines where possible. Increase potential habitat. Any unavoidable removal of potential roost features to be conducted in accordance with an agreed Method Statement (as detailed with a LEMP) and, if necessary, EPSL.	Increased and improved habitat will more than compensate for losses.	No significant negative effects. Significant positive and long-term effects likely.
Reptiles	Site Local status and trend not known.	Harm or death to individuals.	Unavoidable removal of potential suitable habitat, while minimal, to be conducted in accordance with agreed Method Statement (as detailed within a LEMP).	Increased and improved habitats.	No significant negative effects. Significant positive and long-term effects likely.
Hedgehog	Site Local status not known.	None predicted	Design green infrastructure and garden fences to enable access by Hedgehogs.	Increased and improved habitats.	Significant positive and long-term effects likely.

	Declining nationally				
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7 LEGAL CONSIDERATIONS

7.1 Should planning permission be granted for the proposals, the following legal considerations will apply, in accordance with the following items of legislation:

- The Conservation of Habitats and Species Regulations 2010 (as amended); and
- The Wildlife and Countryside Act 1981 (as amended).

Birds

7.2 The LEMP will include a Method Statement designed to avoid disturbing or harming breeding birds during the construction phase.

Bats

7.3 The proposal is not likely to cause a significant negative effect on the conservation status of any bats. There is ample opportunity for mitigation, compensation and biodiversity gain. Arun District Council can therefore be confident that it is not unlikely that any required European Protected Species Licence would be granted.

7.4 Prior to the start of work on site, the features with potential for bat roosts should be surveyed in accordance with appropriate guidance as detailed in **Section 5**. Depending on the results, it may then be necessary to apply for a EPSL. The EPSL application must be supported by sufficient survey data and a Method Statement, which would also be incorporated in the LEMP, to enable Natural England to assess the likely effects and effectiveness of the proposed mitigation and compensation.

Reptiles

7.5 The LEMP will include a Method Statement designed to avoid harming reptiles during the construction phase.

8 FURTHER ACTIONS

- 8.1 **Table 8.1** sets out the actions proposed to be undertaken to detail the biodiversity measures and meet legal requirements and inform project timings, should planning permission be granted.

Table 8.1
Further actions required to meet legal requirements and inform project timings

Action	Timing
Draft and agree LEMP	Prior to the start of work on site
Draft and agree lighting strategy	Prior to the start of work on site
Bat inspection of affected tree with low bat potential prior to felling	October to February
Update Badger survey	3 to 6 months prior to the start of works on site
Supervision by a suitably experienced ecologist of any necessary removal of nesting bird habitat during the breeding bird season	March to September
Supervision by a suitably experienced ecologist of any necessary removal of suitable reptile habitat	March to October
If necessary, apply for EPSL	Prior to removal of important features supporting European protected species. Incorporate Method Statement into LEMP

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Maps

- Map 1** Protected Sites within the Zone of Influence
- Map 2** Records of Relevant Species within the Zone of Influence
- Map 3** Habitats and Features on Site
- Map 4** Breeding Bird Survey Results
- Map 5** Ground Level Tree Bat Inspection Results
- Map 6** Habitat Suitability Index Survey Results



MAP 1 Protected Sites within the Zone of Influence

KEY

- Site boundary
- 2km linear distance from site boundary
- 5km linear distance from site boundary
- Local Nature Reserve (LNR)
- Site of Special Scientific Interest (SSSI)
- Local Wildlife Site (LWS)
- Ancient Woodland

SCALE: 1:40,000 at A3

0 500 1,000 1,500 2,000 Metres



Ecological Planning & Research

CLIENT: Wates Development

PROJECT: Walberton

DATE: June 2017

V:\Walberton\GIS\Map1_SiteLocationDesign_P1701_070117.mxd

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