

Hoveton Detailed Ecological Assessment

Protected Species Surveys: Bat, Breeding Bird and White-letter Hairstreak and Hedgerow Survey

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Part 1: Text

1 Introduction

1.1 Site location and context

1.1.1 The Survey Site is located northeast of the village of Hoveton in Norfolk at approximate OS Grid Ref: TG 310 190 and covers approximately 22.5 hectares. The main part of the Survey Site comprises arable land. It is bordered on one side by a public footpath; on other sides, housing, hedging and further arable land lie on its boundaries. The land to the south has previously been developed and is predominately housing with some open space. The land to the north is parkland, supporting numerous mature trees and areas of woodland. The Survey Site location is shown in Figure 01.

1.1.2 Part of the Survey Site is proposed for use as housing with public open space. The area of the Survey Site to be developed is hereby known as the Site Area. Provisional layout drawings are supplied in the 'Landscape and Ecology Strategy'¹.

1.1.3 A scoping study was undertaken at the Survey Site in autumn 2007 in order to identify any ecological constraints to the development². This survey determined that there was potential for protected species to be present, notably breeding birds, bats, and White-letter Hairstreak. Mature hedgerows were also considered to be potentially of value.

1.2 Objectives

1.2.1 The study objectives are as follows:

- to determine presence or absence of White-letter Hairstreak
- to determine level of bat activity and the potential for bat roosts to be present
- to determine species range and location of breeding birds
- to survey and evaluate the hedgerows on or bordering the Survey Site
- to assess ecological value of Survey Site and impact of proposals
- to provide an outline mitigation strategy for the above protected species, if found to be present

¹ The Landscape Partnership 2008 *Proposed Housing development Hoveton, Norfolk. Landscape and Ecology Strategy.* July 2008

² The Landscape Partnership 2007 *Hoveton Outline Ecological Appraisal.* November 2007

2 Survey methodology

2.1 Background to White-letter Hairstreak survey and methodology

Definition of areas likely to support White-letter Hairstreak

- 2.1.1 The White-letter Hairstreak was formerly common and widespread in the UK, however became increasingly uncommon following the advent of Dutch elm disease. In the mid 1980's the butterfly was considered to be in imminent danger of extinction in the UK, until research provided evidence that the butterfly was still widespread, but occurring in very much lower numbers than previously. By the early 2000's the situation had worsened considerably, and the butterfly must now be considered a rarity, with most known colonies being north of the Thames.
- 2.1.2 The butterfly breeds only on elms. Isolated elms in open habitats are sometimes used, but most colonies are known from English elm sucker growth in hedgerows, or young wych elms within woodlands. The butterfly requires flowering elms on which to breed. Unfortunately native elms fall victim to disease only a few years after first flowering, so the colonies are short-lived.

Background to protection, legal status, etc.

UK Biodiversity Action Plan Priority Species

- 2.1.3 White-letter Hairstreak is a UK Priority Species for Conservation under the UK Biodiversity Action Plan. The protection of UKBAP Priority Species such as White-letter Hairstreak is implemented through PPG9 and Local Planning Policy.

Methodology

- 2.1.4 White-letter Hairstreak adults emerge at the beginning of June, with peak population counts in mid July. Survey effort is most effectively focussed on active males, which are evident from mid June, rather than on nectaring insects the following month, which are more difficult to locate in the canopy. Male activity is at its peak around the tree-tops between 09:00 and 12:00 and will then decline. Survey should be undertaken in warm dry and sunny weather, with no or light winds and no rain. Ideal survey period is mid June to mid July with survey between the middle and end of June being preferred.
- 2.1.5 A survey visit was made on 26th June 2008 in warm, sunny weather approximately 18°C, with partial cloud and light to moderate winds. The survey conditions were considered to be optimal-sub-optimal due to the wind strength and partial cloud covering.
- 2.1.6 The objectives of the survey were to:
- determine presence/absence
 - approximate population size and location if present
- 2.1.7 The presence/absence survey involved:
- Walking hedge sections containing elm species and scanning hedge tops using high-powered binoculars for chasing groups of males or spiralling flight activity along or above the upper canopy. A check was performed three times at approximately 1 hour intervals between 0900 and 1200, focussing upon the sunnier, sheltered part of the hedge.

2.2 Background to hedgerow survey and methodology

Definition of hedges requiring survey

- 2.2.1 All hedges on the Survey Site which are not garden hedgerows (not obviously bounding private property, and containing a high proportion of non-native species), should be surveyed.

Background to protection, legal status, etc.

Hedgerows Regulations 1997

- 2.2.2 These regulations aim to protect important hedgerows in the countryside. They make it illegal to remove most countryside hedges without first notifying the local planning authority and provide protection for 'important hedgerows'.

UK Biodiversity Action Plan Priority Habitat

- 2.2.3 All UK hedgerows excepting garden hedges are UK Priority habitat for Conservation under the UK Biodiversity Action Plan. The protection of UKBAP Priority Habitats is implemented through PPG9 and Local Planning Policy.

Methodology

- 2.2.4 The status of each hedge with regard to the Hedgerows Regulations (1997) was assessed by survey of 30m sections according to standard procedure³. Species richness, hedge status and condition were assessed. Survey was undertaken on 26th June 2008.

2.3 Background to breeding bird survey and methodology

Definition of areas likely to support breeding birds

- 2.3.1 Birds will use a number of different habitats in which to nest, both natural and man-made. Typical sites are predominately grassland and reedbeds, scrub, shrubs and trees and water bodies in virtually any habitat supporting such features. Some species use arable land. Man-made structures include ledges on and within buildings, roof voids, agricultural and commercial buildings, bridges, tunnels, and other suitable constructions.

Background to protection, legal status, etc.

The Birds Directive (1979)

- 2.3.2 The European Community Council Directive on the Conservation of Wild Birds (79/409/EEC) sets out general rules for the conservation of all naturally occurring wild birds, their nests, eggs and habitats.

Wildlife and Countryside Act 1981

- 2.3.3 Sections 1 to 8 of the Wildlife and Countryside Act relate to the protection of birds. All birds, their nests and eggs are protected by law and it is thus an offence, with certain exceptions to:

- intentionally kill, injure or take any wild bird
- intentionally take, damage or destroy the nest of any wild bird whilst it is in use or being built
- intentionally take or destroy the egg of any wild bird
- have in one's possession or control any wild bird, dead or alive, or any part of a wild bird, which has been taken in contravention of the Act or the Protection of Birds Act 1954

³ Bickmore C J (2002). Hedgerow Survey Handbook: A Standard Procedure for Local Surveys in the UK. Prepared on behalf of DEFRA, London (Steering Group for the UK Biodiversity Action Plan for Ancient and / or Species-rich Hedgerows).

- have in one's possession or control any egg or part of an egg which has been taken in contravention of the Act or the Protection of Birds Act 1954
- use traps or similar items to kill, injure or take wild birds
- have in one's possession or control any bird of a species occurring on Schedule 4 of the Act unless registered, and in most cases ringed, in accordance with the Secretary of State's regulations (see Schedules)

Countryside and Rights of Way Act 2000

- 2.3.4 This act strengthens the existing provisions of the Wildlife and Countryside Act 1981 for the enforcement of wildlife legislation, including a new offence of "recklessly" disturbing any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or recklessly disturbing the dependent young of such a bird.

UK Biodiversity Action Plan Priority Species

- 2.3.5 A number of British Birds are UK Priority Species for Conservation under the UK Biodiversity Action Plan and a National Species Action Plan has been produced. The protection of UKBAP Priority Species is implemented through PPG9 and Local Planning Policy.

Methodology

- 2.3.6 The Survey Site was visited three times between mid-April and mid-June 2007. The survey method was based on the territory mapping method, a standard technique for breeding bird surveys as used for many years by the British Trust for Ornithology for their Common Birds Census and those recommended in standard literature (e.g. Bibby et al. (1992)⁴ and Gilbert et al. (1998)). The methodology chosen relies essentially on opportunistic survey, where by a surveyor walks an area and counts all birds seen or heard. The accuracy of this method relies on such factors as the experience of the observer, the habitats and species involved, the ability to gain access to all parts of the Survey Site, the detectability of species and the movements of birds in and out of the area depending on time of day or through the season. Inevitably, some birds will be missed, especially of less detectable species but breeding species, and most species regularly using a site should be found over the course of the three survey visits. All areas of the Survey Site were fully accessible and it is considered that the survey results present a full picture of the bird life utilising it.

2.4 Background to bat survey and methodology

Definition of areas likely to be used by foraging bats

- 2.4.1 Bats will use a number of different habitats for foraging, however woodland margins, hedgerows and wetland are of particular value. Tree and shrub habitats attract a wide variety of insects which bats prey on and they also utilise trees and hedgerows as navigational landmarks for their nocturnal flight path. The edges of woodland and hedgerows are linear features which create a corridor for bats to commute from one area of countryside to another such as from their roost site to new foraging grounds, and themselves provide sheltered conditions for foraging. Waterways and ponds also attract midges and other flying insects which bats will prey upon.
- 2.4.2 Bat Conservation Trust Guidelines state that bat survey should be undertaken in situations where there are the following features:
- Woodland
 - Water
 - Buildings dating from before 1914

⁴ Bibby, C.J., Burgess, N.D & Hill D.A.1992. Bird Census Techniques. Academic Press, London.

The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)

- 2.4.3 The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention or CMS) was adopted in Bonn, Germany in 1979 and came into force in 1985. Contracting Parties work together to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix 1 of the Convention), concluding multilateral Agreements for the conservation and management of migratory species which require or would benefit from international cooperation (listed in Appendix 2), and by undertaking co-operative research activities.
- 2.4.4 The European Community is a party to CMS. In general it undertakes activities under the Convention involving issues where the Community has 'competence' (the authority to act as a Community rather than as the member states individually or collectively as the Union). Thus the Community is a Party to the Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS) as this agreement has significant relevance to fishing activities, over which the Community has authority within the Union.
- 2.4.5 The UK ratified the Convention in 1985. The legal requirement for the strict protection of Appendix I species is provided by the Wildlife & Countryside Act (1981 and as amended). The UK has currently ratified three legally binding Agreements under the Convention: the Agreement on the Conservation of Populations of European Bats (EUROBATS); the African-Eurasian Migratory Waterbird Agreement (AEWA); and ASCOBANS. An Agreement on the Conservation of Albatrosses and Petrels is currently in the process of being ratified; as of May 2002, eight countries including the UK had so far signed, and the Agreement will enter into force after five countries have ratified. The UK has also ratified the Memorandum of Understanding (MoU) on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia, in respect of the British Indian Ocean Territory.

The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) 1979

- 2.4.6 The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) was adopted in Bern, Switzerland in 1979, and came into force in 1982. The principal aims of the Convention are to ensure conservation and protection of all wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to afford special protection to the most vulnerable or threatened species (including migratory species) (listed in Appendix 3). To this end the Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1000 wild animal species.
- 2.4.7 To implement the Bern Convention in Europe, the European Community adopted Council Directive 79/409/EEC on the Conservation of Wild Birds (the EC Birds Directive) in 1979, and Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the EC Habitats Directive) in 1992. Among other things the Directives provide for the establishment of a European network of protected areas (Natura 2000), to tackle the continuing losses of European biodiversity on land, at the coast and in the sea to human activities.

The Habitats Directive (1992)

- 2.4.8 The European Community Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC) aims to protect the European Union's biodiversity. It requires member states to provide strict protection for specified flora and fauna (i.e. European Protected Species) outside of designated sites.

Habitats Regulations 1994

- 2.4.9 The Conservation (Natural Habitats &c.) Regulations 1994 formally transpose the requirements of the Habitats Directive into national law. They build on existing nature conservation legislation for the protection of habitats and species by introducing requirements for assessing

plans and projects affecting European designations and licensing certain activities affecting European Protected Species. All bats are listed as 'European protected species of animals'.

- 2.4.10 Licences are required for checking known roosts or for carrying out work that may disturb bats, such as the management or disturbance of features that are known to be used as roosting sites.

Wildlife and Countryside Act 1981

- 2.4.11 This act provides varying degrees of protection for the listed species of flora and fauna. All UK native species of Bat are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). The legislation protects bats and their roosts under Section 9 of the Act, such that it is an offence to:

- Intentionally kill, injure or take a bat
- Possess, control or sell any live or dead specimen or anything derived from a bat
- Intentionally damage, destroy or obstruct access to any structure or place used for shelter or protection (i.e. a roost) by a bat
- Deliberately, or intentionally disturb a bat while it is occupying a roost

Countryside and Rights of Way Act 2000

- 2.4.12 This act strengthens the existing provisions of the Wildlife and Countryside Act 1981 for the enforcement of wildlife legislation, including a new offence of "recklessly" disturbing bats or recklessly damaging, obstructing or destroying their roosts.

UK Biodiversity Action Plan Priority Species

- 2.4.13 Several species of bat are UK Priority Species for Conservation under the UK Biodiversity Action Plan and a National Species Action Plan has been produced for these species. The protection of UK BAP Priority Species is implemented through PPG9 and Local Planning Policy.

Methodology

Bat survey

- 2.4.14 A survey was carried out by experienced surveyors on 16th June 2008, to assess potential foraging habitat and flyways within the Survey Site and identify any potential tree roosts. The following methodology was used:

- A walk over survey to identify potential foraging habitat and roosting trees
- Survey along a standard transect (based on the National Bat Monitoring Scheme transect). The transect 'transect A' was marked out into 7 sections to incorporate areas identified as of important potential bat foraging habitat.

- 2.4.15 Survey should be taken in warm, dry, still, ideally slightly humid conditions, between mid May and mid October. Commencing at sunset each transect should be slowly walked with the detector set at c25kHz and at the end of each section a static recording point adopted for 2mins during which the detector was switched to 45kHz.

- 2.4.16 An assessment of the potential of features on the Survey Site to provide a roost either in the summer (nursery) or winter (hibernation) was undertaken, based on previous experience of bat occupancy at other sites.

- 2.4.17 Roosts may occur in the following features:

- frost cracks
- trunk and branch splits

- woodpecker holes
- rot holes where branches have been removed
- hollow sections of trunk, branches and roots
- beneath loose bark
- cavities beneath old root buttresses and coppice stools
- in dense epicormic growth
- behind dense ivy
- in bat or bird boxes

2.4.18 Veteran trees typically exhibit many of these features and should usually be regarded as sites with clear potential, but any tree which possesses one or more such feature may host bats.

2.4.19 Signs of roosting bats may be indicated by:

- staining around a feature (cavity or split) caused by the natural oils in bat fur
- scratch marks around a feature (cavity or split) caused by bat claws (rarely visible from the ground)
- bat droppings beneath a hole
- urine stains below the entrance or end of split
- audible squeaking from within the feature (cavity or split), especially on hot days or at dusk
- large roosts or regularly used sites may produce an odour; there may be flies around the entrance, attracted by the smell of guano

2.4.20 All trees were surveyed from the ground with the aid of binoculars looking for features capable of supporting bat roosts (see above), and were placed into one of the following categories:

- **Unknown Potential.** Tree cannot be fully assessed from ground due to size or view obscured by leaves or ivy but is of a size, age and form to warrant further inspection.
- **Low Potential.** Tree has no features capable of supporting bat roosts.
- **High potential.** Tree has features thought to be capable of supporting bat roosts.

2.4.21 Trees with **High** or **Unknown** potential should be subject to further detailed survey if impact is considered likely.

2.4.22 **If it is thought the work will have a direct effect on a bat roost and is unavoidable then advice must be sought from the Species Office for Natural England and a European Protected Species (formerly DEFRA) licence obtained prior to any the work proceeding.**

2.5 Limitations to survey

2.5.1 There were no limitations to survey. .

2.6 Assessment methodology

2.6.1 The assessment method for ecological impacts is based on the emerging Institute of Ecology and Environmental Management Guidelines on Ecological Impact Assessment (EcIA), and GOMMMS. This is a three-stage process where the value of the ecological receptor and the magnitude of the impact are cross-tabulated to identify impact significance. The details are set out in Tables 1.1-1.3 in Appendix 1.

3 Results and assessment

3.1 White-letter Hairstreak

3.1.1 The results of the survey are outlined below.

Hedge section	Check No.		
	1	2	3
1	0	0	0
2	0	0	0
Maximum count	0	0	0

Key: m – male; f - female

3.1.2 No White-letter Hairstreaks were found, and it is therefore considered unlikely that the species is present on the Survey Site. The value of the Survey Site to White-letter Hairstreak is considered to be **Lower** at **Parish/Neighbourhood** scale. There is therefore no potential for impact to occur and impact from development is judged to be **Neutral**.

3.2 Hedgerow

3.2.1 Hedgerows form a large component of the western, eastern and southern boundaries of the Survey Site, with a very short section on the northern boundary. The structure and species component of these hedges is shown in the tables below. The hedges are given a reference code which can be related to Figure 02: Hedgerow Survey.

3.2.2 All the species recorded occur commonly in hedges in East Anglia. None of the hedgerows surveyed qualify as species-rich under the Hedgerow Regulations. In terms of species diversity, hedgerow 3, which is situated to the south of the Survey Site is the richest 5 woody species present in addition to Bramble and Ivy, within the 30m survey section. The most frequently occurring species amongst the hedgerows on the Survey Site are Blackthorn and Hawthorn. Frequency of occurrence is recorded using the DOMIN scale as set out in the Hedgerow Survey Handbook⁵.

Details		Hedge Reference			
		1	2	3	4
Grid Reference		TG 3075 1916	TG 3109 1920	TG 3100 1883	TG 3143 1905
Aspect		East	North	North	West
Bank	Height (m)	None	None	None	None
Ditch	Width (m)	None	None	None	1-1.5 (Dry)
Width (m)		2-2.5	1-1.5	2.5-3	2
Fence Height (m)		None	None	1	None

⁵ Bickmore C J (2002). Hedgerow Survey Handbook: A Standard Procedure for Local Surveys in the UK. Prepared on behalf of DEFRA, London (Steering Group for the UK Biodiversity Action Plan for Ancient and / or Species-rich Hedgerows).

Average Height excluding bank (m)	3	3	3-3.25	3.5
Hedgerow type	Shrubby hedgerow	Shrubby hedgerow	Shrubby line with trees	Shrubby line with trees
Signs of Recent Management (shape)	Regular (trimmed and dense)	Infrequent (untrimmed)	Infrequent (untrimmed)	Infrequent (untrimmed with outgrowth)
Integrity (Significant to Minor)	Solid	Significant gaps	Moderate Gaps	Minor gaps

Woody species	Hedge Reference							
	1		2		3		4	
	H	S	H	S	H	S	H	S
Blackthorn					5		7	
Elder					4			
Hawthorn	9		8				7	
Wych Elm					6			
Ash								1M
English Oak						1M		
Dog Rose					1			
<i>Other</i>								
Bramble	5		1		6		4	
Ivy					5		4	
Gaps			7				4	

H = Hedgerow species, S = Standard trees in the hedgerow, M = Mature, SM = Semi-mature

3.2.3 In line with guidance set out in the Hedgerows Regulations 1997, only Hedgerow 3 constitutes an 'Important' hedge and is classed as Biodiversity Action Plan (BAP) Priority Habitat. Although the other hedgerows do not qualify as BAP habitat, they are none the less of importance to wildlife in a local context as they will be used by nesting birds during the breeding season and they provide a foraging resource and flyway for bats. Hedgerows create green links between habitats, providing a safe corridor of movement for all kinds of wildlife.

3.2.4 The value of the study area for its hedgerow habitat is considered to be **Medium** at the **County** scale based on Hedgerow 3 being classed as BAP Priority Habitat. The development

will not directly impact upon Hedgerow 3. However, an access road will be made through part of Hedgerow 4 and this will cause impact upon hedgerows to be **Minor Adverse**. Negative impact caused by the creation of the access road may be offset by mitigation through the planting of new native species-rich hedgerows on the development area and strengthening of existing hedgerows with native species suitable to the local area. If this mitigation is put in place, impact may be reduced to **Neutral**.

3.3 Breeding birds

Survey results

- 3.3.1 In total 21 species were recorded in the survey area. Of these 16 were considered to be holding territory within or partly within the survey area in 2008. Most of the birds present were associated with the hedges and field banks forming the site boundaries and with adjacent gardens. The main exception to this was Skylark, one of the notable species recorded, with an estimated 3 to 4 pairs present, which was exclusively associated with the arable fields. Also notable were Dunnock, Song Thrush, Starling and House Sparrow. These species used the site boundaries and adjacent gardens and houses for nesting/breeding and the arable areas and grassy track margins for foraging in varying degrees.
- 3.3.2 The arable fields, which comprise most of the survey area, supported generally small numbers and a limited variety of breeding birds, although there was a small population of Skylarks. The hedgerows forming boundaries around, and to a lesser extent within, the survey area were used as foraging areas and as linkages with the wider countryside as well as providing shelter and probable roost sites. No evidence of nesting in these hedges was found during the survey but it should not be ruled out. The highest densities of breeding birds occurred around the edges of the survey site and were mainly associated with the gardens adjacent to the survey area.
- 3.3.3 The table below summarises the results of the survey.

Red-legged Partridge	1 pair on Arable land. Likely to be breeding in the survey area.
Sparrowhawk	Not seen during the survey but evidence of presence found in the form of three piles of plucked prey remains. Not breeding in the survey area.
Black-headed Gull	Foraging on arable land. Not breeding in the survey area.
Woodpigeon	Feeding on arable land and in gardens. Likely to be breeding in the survey area.
Skylark	Breeding on arable land in the survey area. Also breeding on adjacent fields.
Pied Wagtail	Foraging on arable land and other bare ground and on areas of mown grass. Unlikely to be breeding in the survey area.
Wren	Associated mainly with adjacent gardens also possibly breeding within the survey area.
Dunnock	Associated mainly with adjacent gardens also possibly breeding within the survey area.
Robin	Associated mainly with adjacent gardens also possibly

	breeding within the survey area.
Blackbird	Associated mainly with adjacent gardens also possibly breeding within the survey area.
Song Thrush	Associated mainly with adjacent gardens unlikely to be breeding within the survey area.
Blackcap	Associated mainly with adjacent gardens unlikely to be breeding within the survey area.
Blue Tit	Associated mainly with adjacent gardens but also possibly breeding within the survey area.
Great Tit	Associated mainly with adjacent gardens but also possibly breeding within the survey area.
Magpie	Foraging on arable land, unlikely to be breeding within the survey area.
Carrion Crow	Foraging on arable land, unlikely to be breeding within the survey area.
Starling	Associated mainly with adjacent gardens but also one in song in mature Oak inside survey area and therefore likely to be breeding within survey area.
House Sparrow	Associated mainly with adjacent gardens unlikely to be breeding within the survey area.
Chaffinch	Associated mainly with adjacent gardens but also possibly breeding within the survey area.
Greenfinch	Associated mainly with adjacent gardens but also possibly breeding within the survey area.
Goldfinch	Associated mainly with adjacent gardens but also possibly breeding within the survey area.

3.3.4 See also Figure 03 Results of bird survey.

Assessment

- 3.3.5 Most of the species breeding are widespread and abundant in lowland Britain, and their populations in the survey area are small in relation to their national totals. The overall range and number of species currently present in the area falls short of local importance, the lowest category in conservation terms.
- 3.3.6 The standard criterion upon which evaluation of population size is based is that if 1% or more of the defined geographical population of a species regularly uses a site, then that site is important at that geographical scale.
- 3.3.7 This means, for example, that if 1% of the national population occurs, then the site is nationally important for that species. The term 'regularly' implies that data should be available for a five-

year period; this is not the case for the present survey. Valuable sources of information on national bird populations include Gibbons *et al.* (1993)⁶ and Stone *et al.* (1997)⁷.

- 3.3.8 The 1% criterion for importance is widely accepted at national and international levels. It can also be applied for smaller geographical units but problems may then arise when the total population within the unit is small and very small numbers occurring on a site would confer importance. In such cases, consideration may be given to raising the proportion of the population that defines importance: for example, 5% of a county population may be a better measure of county importance than 1%.
- 3.3.9 The number of species recorded in an area (species-richness) is a simple and effective measure of diversity, which can be used to describe conservation value separately for breeding, passage and wintering bird populations. Fuller (1980)⁸ provided the following criteria for the breeding season:

Conservation value of population				
Scale	National	Regional	County	Local
No. of species	85+	84-70	69-50	49-25

- 3.3.10 Various measures of rarity can be employed. One generally accepted criterion is that species with fewer than 1000 pairs breeding in Britain are described as nationally rare (Fuller 1980).
- 3.3.11 The occurrence of species which are specially protected by law or otherwise listed as threatened, although not necessarily strictly rare, can also be helpful in establishing the ecological value of sites. Species listed on Schedule 1 of the Wildlife and Countryside Act 1981 or on Annex 1 of the European Community directive on the Conservation of Wild Birds (79/409/EEC) are worthy of special consideration, as are Biodiversity Action Plan (BAP) Priority Species and Red and Amber List Birds of Conservation Concern (RSPB 2002)⁹ (the RSPB lists are now outdated, however a replacement has not yet been issued). Red and Amber list species are those which are regarded as threatened because their populations are small or declining, or for which Britain supports a considerable proportion of the western European totals.
- 3.3.12 The numbers of territories of species found in the survey area are small in the context of their British populations and none approaches 1%. The national population of Skylark is considered to have declined by 50% or more during the last 25 years. It should be noted that arable land is an important breeding habitat for this species.
- 3.3.13 Song Thrush, Starling, and House Sparrow are also considered to have suffered declines of 50% or more over the same period. These 4 species are included in the RSPB Red List of birds of conservation concern.
- 3.3.14 Dunnock is considered to have declined by 25-49% over the last 25 years, this species is included in the RSPB Amber List of Birds of conservation concern. The total of 20 breeding species falls short of the category of local importance (Fuller 1980).
- 3.3.15 Four species on the Red List and one on the Amber List of Birds of Conservation Concern, were recorded as holding territory within or partly within the survey area. All five species are Biodiversity Action Plan Priority (BAP) Species listed in the recently published JNCC UK List of

⁶ Gibbons, D. W., Reid, J. B., Chapman, R. A. The New Atlas of Breeding Birds in Britain and Ireland: 1988-1991. T. & A.D. Poyser, Calton

⁷ Stone, B.H., Sears, J., Cranswick, P.A., Gregory, R.D., Gibbons, D.W., Rehfisch, M.M., Aebischer, N.J. & Reid, J.B. 1997 Population estimates of Birds in Great Britain and the United Kingdom. *British Birds* 90:1-22.

⁸ Fuller, R.J. 1980 A method for assessing the ornithological importance of sites for nature conservation. *Biological Conservation* 17:229-239.

⁹ RSPB 2002 The Population Status of Birds in the UK- Birds of Conservation Concern: 2002-2007. Royal Society for the Protection of Birds, Sandy.

Priority Species. All of these species are birds that are still relatively widespread and numerous but have experienced national population declines over the last 25 years.

- 3.3.16 Skylark is on the RSPB Red List and is a BAP species; it has suffered a rapid 50% or more decline in its UK breeding population over the last 25 years.
- 3.3.17 Dunnock is on the RSPB Amber List; it has suffered a population decline of 25-49% over last 25 years and is a BAP species.
- 3.3.18 Song Thrush is on the RSPB Red list and is a BAP species; it has suffered a rapid breeding population decline of 50% or more over the last 25 years.
- 3.3.19 Starling is on the RSPB Red list and is a BAP species; it has suffered a rapid breeding population decline of 50% or more over the last 25 years.
- 3.3.20 House Sparrow is on the RSPB Red List and is a BAP Species; it has suffered a rapid 50% or more population decline over past 25 years.

Species of particular conservation value breeding in 2008

Species	BAP Priority	RSPB Red List	RSPB Amber List
Skylark	✓	✓	
Dunnock	✓		✓
Song Thrush	✓	✓	
Starling	✓	✓	
House Sparrow	✓	✓	

- 3.3.21 In summary, the survey area has a small, species-poor breeding bird community, which falls short of the category of local importance the lowest in conservation terms. Both species-variety and numbers of birds are typical of intensively farmed arable habitats. The only exception was the small number of Skylarks. Overall, the breeding bird assemblage within the Survey Site would therefore best be classified as of **Lower** value at the **Parish/Neighbourhood** level.
- 3.3.22 Site clearance operations have the potential for destruction, damage or disturbance of nests, both in woody vegetation and in open farmland habitat and the consequent incidental mortality of chicks or eggs. There may be temporary or permanent loss of nesting or foraging habitat depending upon specific species requirements.
- 3.3.23 Site implementation works would result in noise and visual disturbance close to areas of retained vegetation, and therefore there may be an additional short-term degradation of habitat for breeding birds within the Survey Site.
- 3.3.24 It is assumed that marginal vegetation along the boundaries of the Survey Site will be largely retained and that there would be no net loss of hedgerow and scrub habitat. There may be short term reduction in nesting habitat availability for some species as a result of local noise and visual disturbance. Most of the species recorded at the Survey Site, for example, Robin, Blackbird, Chaffinch and Greenfinch are particularly adapted to living in and around gardens and consequently, in the longer term, are likely to continue to nest in the retained vegetation

and would be able to expand into the proposed semi-natural vegetation (scrub and grassland) of the Public Open Space (POS). In the longer term populations of these species should therefore increase.

- 3.3.25 The value of the new habitats to breeding birds will be in part determined by the quality of the landscape planting within the POS and by levels of human disturbance, by dog walkers for example, to nesting birds in existing and new habitats. Areas of new planting should therefore be created which have no formal public access. Semi-natural planting should include berry bearing trees and shrubs and invertebrate-supporting native species to enhance food availability. The proposed planting should be structurally diverse with tree, shrub and ground layers with areas of dense scrub as well as more open areas, and should include species indigenous to Norfolk.
- 3.3.26 Nestboxes and provision of nesting facilities for hole-nesting species such as Great and Blue Tits on trees and Starling, House Sparrows and Swifts on buildings would increase potential nesting habitats and provide mitigation for negative impacts.
- 3.3.27 Provided that attention is given to appropriate landscape planting, the proposed development would probably be neutral or beneficial in terms of total numbers of breeding birds given that most of the birds recorded were using gardens, trees, and hedgerows adjacent to the Survey Site and that the farmland itself held very few birds.
- 3.3.28 The exception to this would be the Skylark breeding habitat, which will be lost in the proposed development. This impact would be difficult to mitigate although it could to some extent be offset by providing Skylark breeding plots on adjacent farmland.
- 3.3.29 The impact of the proposed development upon the breeding bird assemblage within the Survey Site would therefore best be summarised as generally beneficial. The exception to this would be the loss of the breeding Skylarks, populations of which would suffer an adverse impact. It should be noted that there were also Skylarks breeding on adjacent fields and these too could be affected by any development.
- 3.3.30 Overall, the impact of the proposed development upon the breeding bird assemblage within the Survey Site would therefore best be classified as being **Minor Adverse**, or, where a significant increase in native woodland, tree and scrub habitats can be achieved through landscape planting, **Neutral to Minor Beneficial**.

3.4 Bats

Site description

- 3.4.1 The Survey Site comprises an area of land under arable cultivation, which itself offers little foraging opportunity. Activity therefore might be expected to be confined to the field boundaries and especially where there are hedgerows and mature trees present. The transects were therefore designed to maximise coverage of this habitat. Seven transects were recorded, each measuring between 200m and 400m in length.

Results

- 3.4.2 During the survey at least four species of bat were recorded using the Survey Site. The hedgerow and scrub along the Stalham Road is clearly an important flyway, with four species, namely Brown Long-eared Bat, Common Pipistrelle, Noctule, Serotine recorded here, flying in different directions during a 10 minute period.
- 3.4.3 Foraging activity was noted along the rear of properties facing onto Stalham Road, with several Common Pipistrelle feeding in gardens and partly over the arable crop. Foraging activity might also be expected along the footpath between Tunstead Road and Stalham Road, but none was noted during the survey. The route of this footpath, and in particular the adjacent garden curtilages, provide a second, minor flyway through the Survey Site.

- 3.4.4 Significant feeding activity by 8 or 9 Common Pipistrelles was also noted in the vicinity of oak trees along the northern Survey Site boundary. Activity was very much confined to the canopy, and was observed soon after emergence might have been expected to take place, which may suggest a small roost in one of these trees.
- 3.4.5 There was no observed feeding activity over the arable fields.
- 3.4.6 The results of the survey, including transect locations, can be seen in Figure 04.

HOVETON		DATE: 16 th June 2008	SURVEYOR: JMP
HABITAT DESCRIPTION: Arable fields. Boundary hedgerows, some of which may provide flyway or foraging potential. Two of the boundaries are marked by lines of field-oaks.			
WEATHER			
END TEMP: 12°C	WIND SPEED & DIRECTION: Light, north-westerly		CLOUD COVER: 3/10
START TIME: 21:45pm		END TIME: 11:30pm	
TRANSECT SUMMARY: Bats recorded from 7 sections (along field boundaries) namely Common Pipistrelle (45P), Noctule, Serotine and Brown Long-eared Bat.			
	TRANSECT	STATIC POINT	
1	-	Brown Long-eared bat flying from transect 2 along hedgerow towards west	
2	Common Pipistrelle, Serotine commuting in southwesterly direction; Noctule flying northeast.	-	
3	3 No Common Pipistrelle foraging in and around gardens and margin of arable field	Common Pipistrelle commuting northeast along hedgeline	
4	Brown Long-eared Bat commuting northwest. May have originated from one of buildings backing onto site	-	
5	-	Common Pipistrelle commuting southeast along treeline	
6	At least 6-8 Common Pipistrelle foraging in and around tree canopy	-	
7	-	-	

NB. Refer to Figure 04 for locations of transects and static recording points

- 3.4.7 Approximately 50% of the mature trees on the Survey Site were considered to have potential to support bat roosts, with either significant dead wood in the canopy or dense ivy growth on the tree trunks. The majority of the suitable trees were situated along the northern Survey Site boundary (see Figure 04 for locations).

Pipistrelle

- 3.4.8 The Common Pipistrelle bats were both commuting through, and feeding on the Survey Site, with feeding activity being centred along the rear of properties facing onto Stalham Road, in the southeast, and along the line of mature oak trees in the north of the Survey Site. The presence of a large number of individuals in the north may suggest a tree roost is present in one of the oak trees. The pipistrelles noted in the southeast are also likely to have originated in the local area, perhaps from one of the buildings along Stalham Road or Summer Drive

Noctule

- 3.4.9 The Noctule is a tree dwelling species. Several trees with roosting potential were recorded during the initial walk over survey, although this species will fly over 6km or more from the roost to a suitable foraging site.
- 3.4.10 It is considered that due to the behaviour of the bat observed, flying high and fast along a site boundary, coupled with the time of the sighting (approximately 45 minutes after sunset, that this bat was unlikely to have originated from the Survey Site.

Serotine

- 3.4.11 The Serotine, along with the Noctule is one of the larger bat species and is associated with older buildings. Again, this bat was commuting through the Survey Site and not foraging. The roost may be in buildings associated with parkland to the north.

Brown Long-eared Bat

- 3.4.12 This species is associated with both trees and buildings.

Assessment

- 3.4.13 A significant number of bats forage on or commute through the Survey Site. Given the presence of both commuting Noctule/Serotine and of a substantial number of foraging Pipistrelle (above 10 individuals), the importance of the population at this Survey Site is therefore assessed as being of **Lower** Importance at the **District/Borough** scale. In the absence of mitigation, the impact would be **Moderate Adverse**. Mitigation can be employed to reduce the impact to an acceptable level (see Section 4 below).

4 Legal requirements, outline mitigation design and recommendations

4.1 White-letter Hairstreak

4.1.1 White-letter Hairstreak was not found during the on-Site survey. It is therefore not considered that the development of the Site Area will have any impact upon this species and no mitigation measures specific to this species are required.

4.2 Hedgerows

4.2.1 Due to the loss of some hedgerow through the creation of an access road, impact upon this habitat has been judged as **Minor Adverse**. In order to lessen the impact to become neutral, the following mitigation is recommended.

- a) Strengthening of existing hedgerows with native species typical of the local area such as Hawthorn, Blackthorn, Field Maple, English Oak, Elder, Ash, Crab Apple, Damson and Bullace.
- b) Additional hedgerow planting to link in with existing hedges using a composition of native species as detailed above. Standard trees of Oak and Ash should be incorporated into the hedgerow design.

4.3 Breeding birds

4.3.1 Mitigation would require:

- a) Retention of all standard mature trees and in particular retention of any dead wood or ivy cover.
- b) No net loss of hedgerow habitat. New and retained hedgerow should not be subject to excessive management, and should be maintained at a minimum height and width of 2m (standard trees would obviously be allowed to reach a greater height).
- c) Retention of marginal tree and hedgerow habitats wherever possible, to ensure corridors are maintained. A wildlife corridor of at least 20m in width should be maintained along the eastern Survey Site boundary, and there should be no severance of the linkage with the hedgerow which continues along the rear of properties to the north of the Survey Site along Stalham Road.
- d) Provision of extensive native tree and shrub planting to enhance existing foraging habitats and linkages. Native shrub planting should include a proportion of berry and fruit-bearing species.
- e) No clearance of woody vegetation to take place within the breeding season (March to July inclusive).
- f) Provision of Skylark plots on retained land elsewhere within the landholding
- g) Nestboxes and provision of nesting facilities for hole-nesting species such as Great and Blue Tits on trees and Starling, House Sparrows and Swifts on buildings would increase potential nesting habitats and provide mitigation for negative impacts.
- h) Creation of areas of rough grassland or wildflower meadow to diversify foraging habitats

4.3.2 Provided a) to f) above can be adhered to, the impact of the development upon breeding birds would be **Neutral**. Substantial native planting and implementation of g) and h) could enhance the habitat sufficient for a **Minor Beneficial** impact to result.

4.4 Bats

4.4.1 Mitigation would require:

- a) Retention of all standard mature trees and in particular retention of any dead wood or ivy cover. Where tree works are unavoidable, close inspection and if necessary emergence survey should be employed.
- b) Retention of an unlit wildlife corridor along the footpath which runs from the Tunstead Road to the Stalham Road
- c) Retention of the tree line and hedgerow along the Stalham Road, which is clearly an important commuting route for bats. The retained hedgerow should not be subject to excessive management, and should be maintained at a minimum height and width of 2m (standard trees would obviously be allowed to reach a greater height. An unlit wildlife corridor of at least 20m in width should be maintained along this boundary, and there should be no severance of the linkage with the hedgerow which continues along the rear of properties to the north of the Survey Site along Stalham Road. It is understood that the Stalham Road corridor would necessarily be severed to provide an access road. The impact of this severance would be substantially reduced by ensuring access is, if at all possible, a) shared with the Medical centre to the south and b) there is no loss of woody vegetation. If the latter is unavoidable, then the width of any access should be kept to a minimum and alternative flyways provided through the Site Area.
- d) Provision of extensive native tree and shrub planting to enhance existing foraging habitats and linkages. New habitats should not be lit.
- e) Ensuring Site Area is managed as to retain bat foraging habitat
- f) Creation of areas of rough grassland or wildflower meadow to diversify foraging habitats

4.4.2 Provided a) to e) above can be adhered to, the impact of the development upon bats would be reduced to **Neutral**. Substantial native planting and creation of wildflower meadow e) & f) could enhance the habitat sufficient for a **Minor Beneficial** impact to result.

5 Conclusions

- 5.1.1 No White-letter Hairstreak butterflies were found to be using habitats within the survey area and the value of the Survey Site to this species is considered to be **Lower** at the **Parish/Neighbourhood** scale. Impact of the development will be **Neutral**. No mitigation with reference to White-letter Hairstreak is required.
- 5.1.2 One out of four hedgerows within the survey area is considered to be important and is classed as BAP Priority Habitat which leads to the assessment of the value of the Survey Site to hedgerows to be **Medium** in the **County** context. The creation of an access road through part of one of the hedges makes impact **Minor Adverse**. Mitigation through additional planting and strengthening of existing hedgerows using native species suitable to the local area would go some way to offset impact, which may be reduced to **Neutral**.
- 5.1.3 The range and number of breeding birds using the Survey Site is low, with much of the activity associated with boundary features, and especially with adjacent gardens. The exception to this is Skylark. Off-site mitigation would be required for impact upon this species. Overall, the impact of the proposed development upon the breeding bird assemblage within the Survey Site would therefore best be classified as being **Minor Adverse**, or, where a significant increase in native woodland, tree and scrub habitats can be achieved through landscape planting, **Neutral** to **Minor Beneficial** (see Section 4 above).
- 5.1.4 A significant number of bats forage on or commute through the Survey Site, particularly given the perceived impoverished feeding habitats. Given the presence of both commuting Noctule/Serotine and of a substantial number of foraging Pipistrelle (above 10 individuals), the importance of the population at the Survey Site is therefore assessed as being of **Lower** value at the **District/Borough** scale. In the absence of mitigation, the impact would be **Moderate Adverse**. Mitigation can be employed to reduce the impact to an acceptable level (see Section 4 above).
- 5.1.5 Overall, the Survey Site is generally of low importance to wildlife, and there is substantial opportunity for wildlife enhancement to be built into the scheme. In particular, the following would be of benefit, and could result in an overall enhancement of the Survey Site and a **Minor Beneficial** ecological impact:
- a) Provision of extensive native tree and shrub planting to enhance existing foraging habitats and linkages. Native shrub planting should include a proportion of berry and fruit-bearing species and should be structurally diverse. New habitats should not be lit.
 - b) Ensuring the green infrastructure of the Site Area is managed as to retain bat and bird foraging habitat
 - c) Creation of substantial areas of rough grassland or wildflower meadow to diversify foraging habitats for bats and birds
 - d) Nestboxes and provision of nesting facilities for hole-nesting species such as Great and Blue Tits on trees and Starling, House Sparrows and Swifts on buildings would increase potential nesting habitats and provide mitigation for negative impacts.
 - e) Ensuring that at least 50% of public open space is managed for wildlife

Part 2: Appendices

Appendix 1

Impact Assessment Methodology

Table 1.1 Valuing Ecological Receptors

Level of Value	Examples
International Very High	An internationally designated site or candidate site (SPA, pSPA, SAC, cSAC, pSAC, Ramsar site, Biogenetic Reserve); A viable area of a habitat type listed in Annex I of the Habitats Directive, or smaller areas of such habitat which are essential to maintain the viability of a larger whole; Any regularly occurring population of an internationally important species, which is threatened or rare in the UK i.e. it is a UK Red Data Book species or listed as occurring in 15 or fewer 10km squares in the UK (categories 1 and 2 in the UK BAP) or of uncertain conservation status or of global conservation concern in the UK BAP; A regularly occurring, nationally significant population of any internationally important species.
National High	A nationally designated site (SSSI, ASSI, NNR, Marine Nature Reserve) or a discrete area, which meets the published selection criteria for national designation; A viable area of a priority habitat identified in the UK BAP, or of smaller areas of such habitat which are essential to maintain the viability of a larger whole; Any regularly occurring population of a nationally important species which is threatened or rare in the region or county (see local BAP); A regularly occurring, regionally or county significant number of a nationally important species.
Regional Medium	Viable areas of key habitat identified in the Regional BAP or smaller areas of such habitat which are essential to maintain the viability of a larger whole; Viable areas of key habitat identified as being of Regional value in the appropriate Natural Area profile; Any regularly occurring population of a nationally important species which is not threatened or rare in the region; Any regularly occurring, locally significant population of a species listed as being nationally scarce which occurs in 16-100 10km squares in the UK or in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation; A regularly occurring, locally significant number of a regionally important species.
County Medium	Semi-natural ancient woodland greater than 0.25 ha; County/Metropolitan sites and other sites which the designating authority has determined meet the published ecological selection criteria for designation, including Local Nature Reserves selected on County/metropolitan ecological criteria; A viable area of habitat identified in the County BAP; A regularly occurring, locally significant number of a County/Metropolitan "red data book" or BAP species, designated on account of its regional rarity or localisation; A regularly occurring, locally significant number of a County/Metropolitan important species.
District/ Borough Lower	Semi-natural ancient woodland smaller than 0.25 ha; Areas of habitat identified in a sub-County (District/Borough) BAP or in the relevant Natural Area profile; Sites/features that are scarce within the District/Borough or which appreciably enrich the District/Borough habitat resource; A diverse and/or ecologically valuable hedgerow network; A population of a species that is listed in a District/Borough BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation; A regularly occurring, locally significant number of a District/Borough important species during a critical phase of its life cycle.
Parish/ Neighbourhood Lower	Areas of habitat or populations/communities of species considered to appreciably enrich the habitat resource within the context of the parish or neighbourhood, <i>e.g.</i> species-rich hedgerows.
Negligible	A site with minimal wildlife value, not falling into the categories above.

NB: Where species or habitats occur in more than one category above, the highest value is applicable.

Major	<p>Loss of over 50% of a site feature, habitat or population</p> <p>Adverse change to all of a site feature, habitat or population</p> <p>For benefits, an impact equivalent in nature conservation terms to gain of over 50% of a site feature, habitat or population</p>
Intermediate	<p>Loss affecting 20-50% of a site feature, habitat or population</p> <p>Adverse change to over 50% of a site feature, habitat or population</p> <p>For benefits, an impact equivalent in nature conservation terms to a gain of 20-50% of a site feature, habitat or population</p>
Minor	<p>Loss affecting 5-19% of a site feature, habitat or population</p> <p>Adverse change to 20-50% of a site feature, habitat or population</p> <p>For benefits, an impact equivalent in nature conservation terms to a gain of 5-19% of a site feature, habitat or population</p>
Neutral	<p>Loss affecting up to 5% of a site feature, habitat or population</p> <p>Adverse change to less than 20% of a site feature, habitat or population</p> <p>For benefits, an impact equivalent in nature conservation terms to a gain of up to 5% of a site feature, habitat or population</p>

Table 1.2 Definitions of impact magnitude

Table 1.3 Impact significance

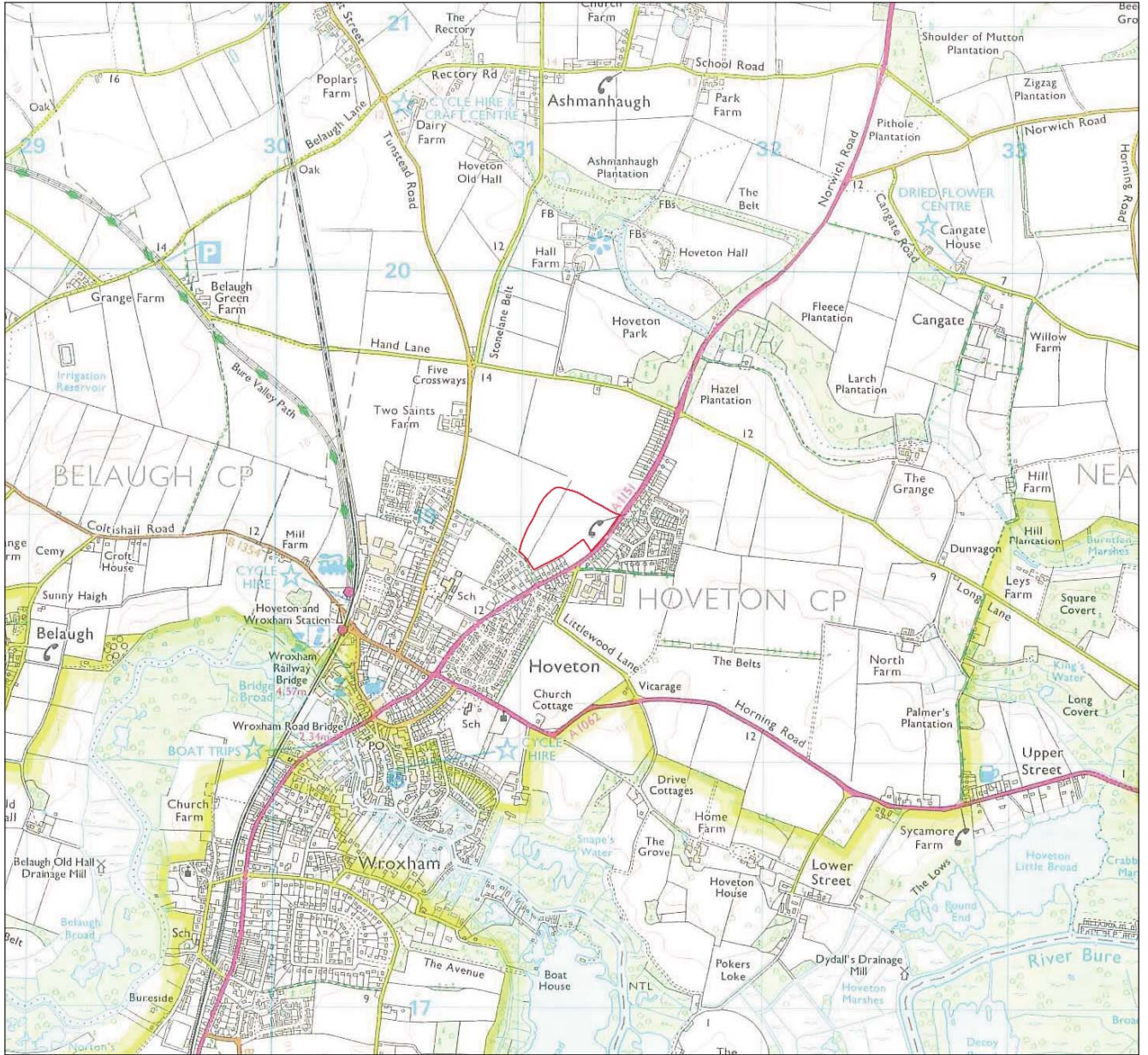
Value of Receptor	Magnitude of Impact						
	<i>Major Negative</i>	<i>Inter-mediate Negative</i>	<i>Minor Negative</i>	<i>Neutral</i>	<i>Minor Positive</i>	<i>Inter-mediate Positive</i>	<i>Major Positive</i>
<i>International (Very High)</i>	Severe Adverse	Severe Adverse	Major Adverse	Neutral	Major Beneficial	Major Beneficial	Major Beneficial
<i>National (High)</i>	Severe Adverse	Major Adverse	Moderate Adverse	Neutral	Moderate Beneficial	Major Beneficial	Major Beneficial
<i>Regional (Medium)</i>	Major Adverse	Moderate Adverse	Minor Adverse	Neutral	Minor Beneficial	Moderate Beneficial	Major Beneficial
<i>County/ Metropolitan (Medium)</i>	Moderate Adverse	Minor Adverse	Minor Adverse	Neutral	Minor Beneficial	Minor Beneficial	Moderate Beneficial
<i>District/ Borough (Lower)</i>	Moderate Adverse	Minor Adverse	Minor Adverse	Neutral	Minor Beneficial	Minor Beneficial	Moderate Beneficial
<i>Parish/ Neighbourhood (Lower)</i>	Minor Adverse	Minor Adverse	Minor Adverse	Neutral	Minor Beneficial	Minor Beneficial	Minor Beneficial
<i>Negligible</i>	Neutral	Neutral	Neutral	Neutral	Minor Beneficial	Minor Beneficial	Minor Beneficial

Appendix 2

Estimated numbers of territories of breeding species in or partly within survey area, 2008	
Species	Pairs/Territories [#]
Red-legged Partridge	1
Sparrowhawk	0
Black-headed Gull	0
Woodpigeon	6/8
Skylark	3/4
Pied Wagtail	0
Wren	1
Dunnock	2/4
Robin	4
Blackbird	5
Song Thrush	2
Blackcap	1
Blue Tit	3
Great Tit	1
Magpie	0
Carrion Crow	0
Starling	1
House Sparrow	6
Chaffinch	6
Greenfinch	5
Goldfinch	3
<i>Number of species</i>	<i>21</i>
<i>Number of territories</i>	<i>50/55</i>

0 in this column denotes bird present on Survey Site but not breeding

Part 3: Figures



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Site boundary

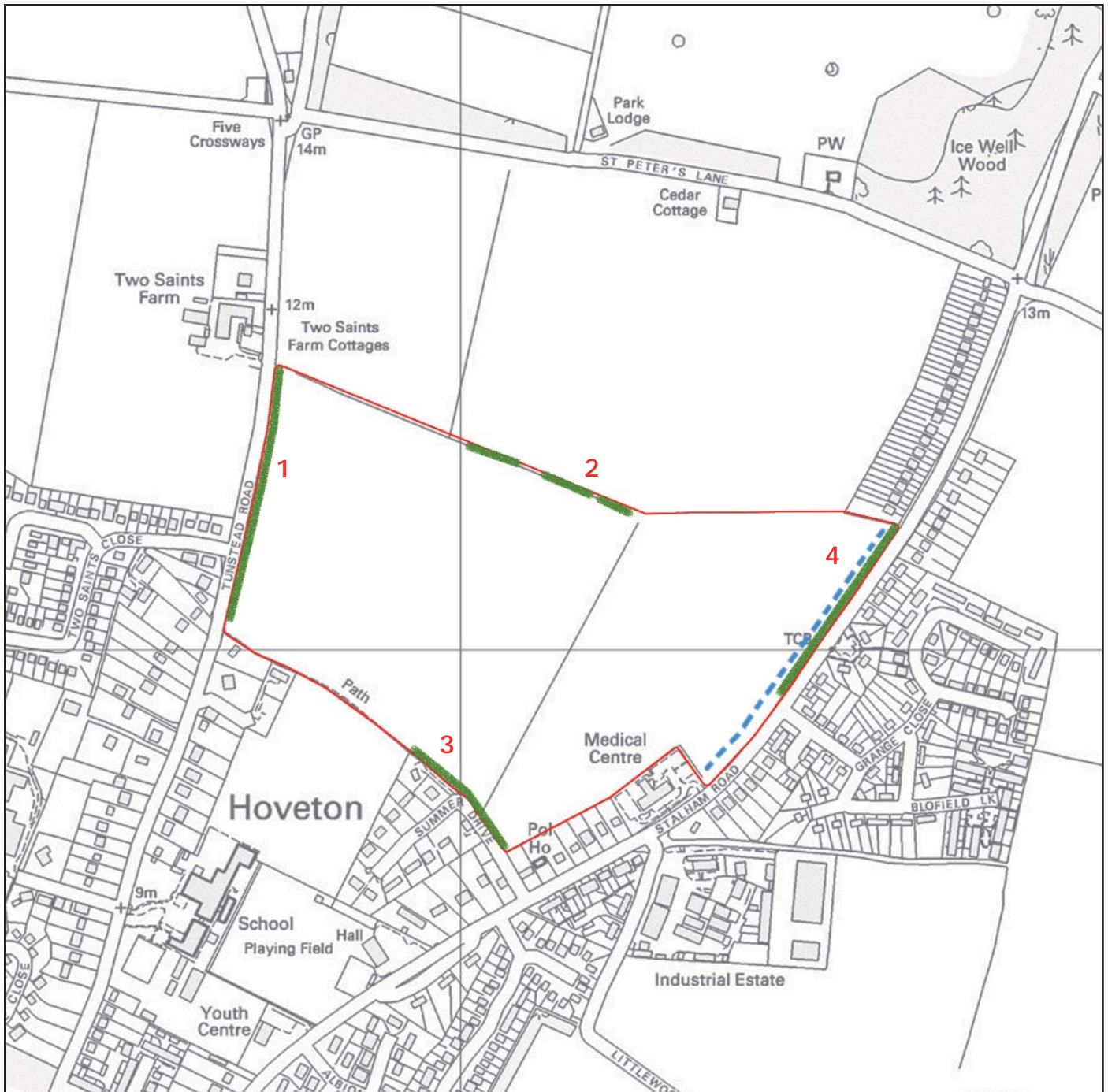
07 640 Hoveton

Figure 1


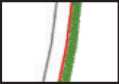

Location plan

July 2008





Key

-  Site boundary
-  Hedgerow
-  Hedgerow reference number

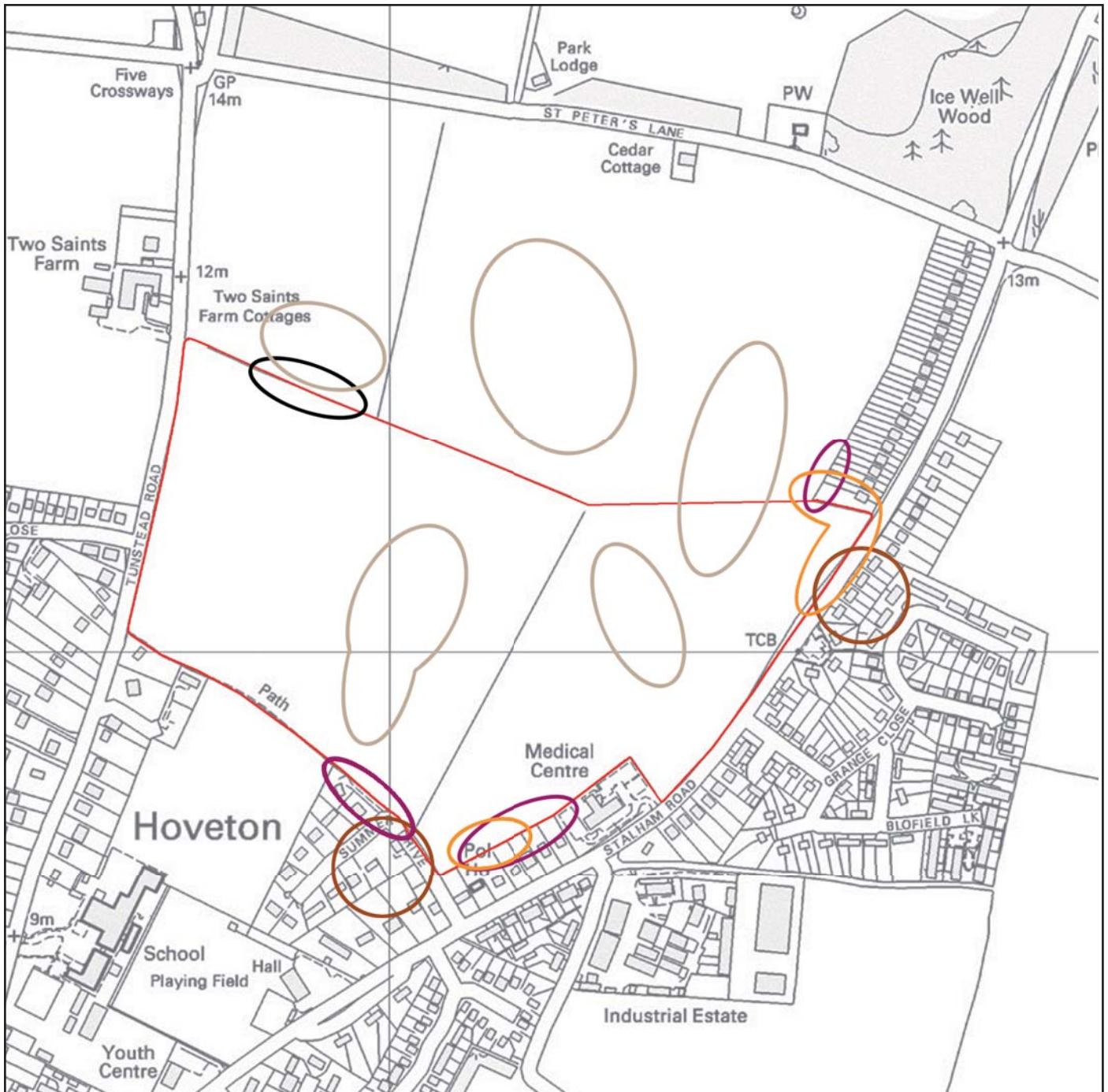
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Figure 02
Results of Hedgerow
Survey







July 2008



Scale NTRS



Key

- | | | | |
|---|---------------|---|-------------|
|  | Site boundary |  | Song Thrush |
|  | Dunnock |  | Starling |
|  | House Sparrow | | |
|  | Sky Lark | | |

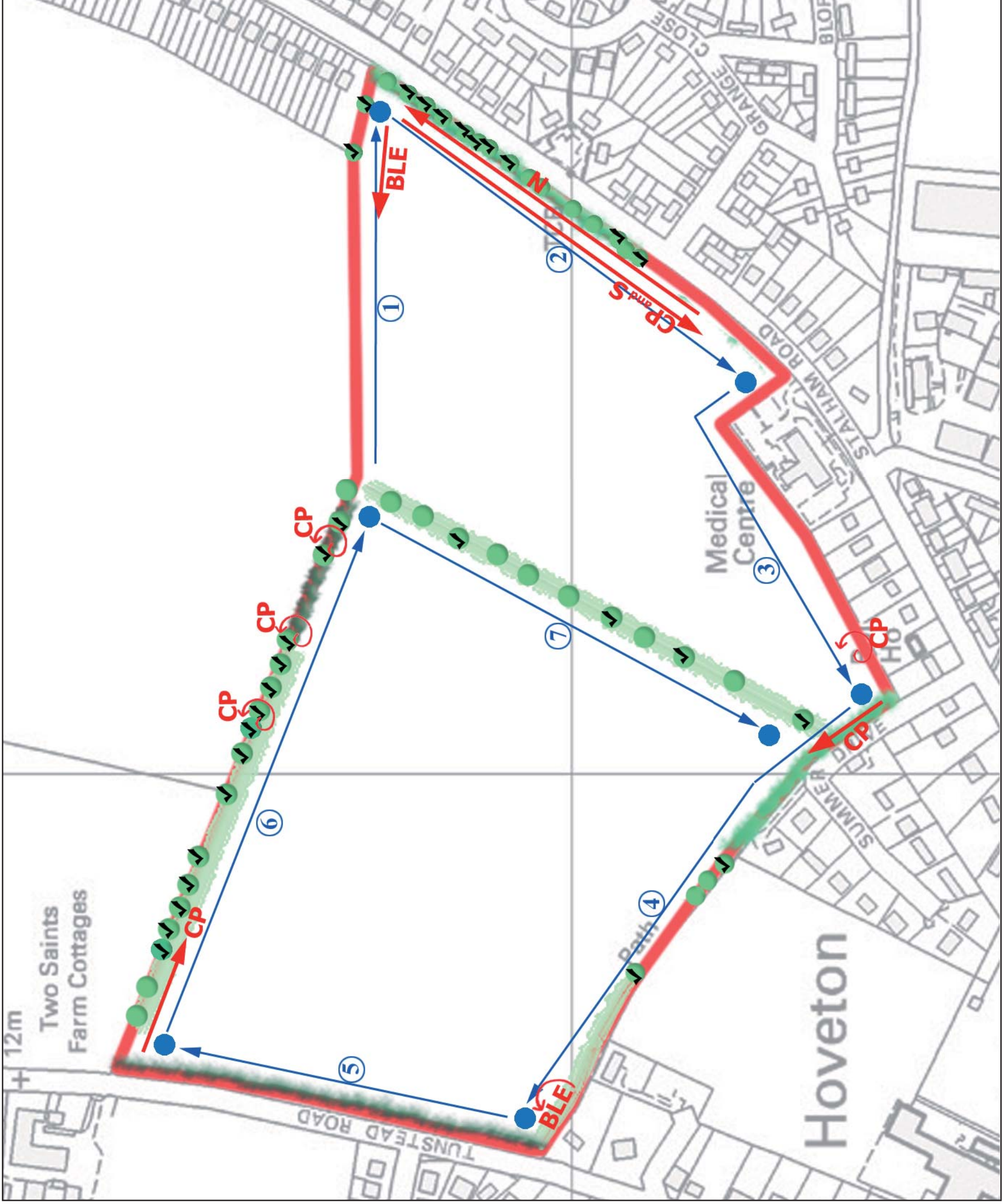
N07 640 Hoveton

Figure 03
Results of Bird Survey









July 2008



Scale NTRS



Key

-  Site boundary
-  Spot check
-  Transect
-  Transect number
-  Bat passing
-  Bat foraging
-  Bat foraging
-  Tree with bat roost potential

Bats observed

-  Common Pipistrelle
-  Brown Long Eared
-  Noctule
-  Serotine

N07 640 Hoveon

Figure 04

Results of Bat Survey

July 2008

Scale NTRS



