

SF 2569

October 2016
Revision A

Ecology Report
Land off Hollinberry Lane,
Howbrook,
Sheffield
South Yorkshire
Revision A

Landscape Architects ■ Urban Designers ■ Ecologists ■ Horticulturists

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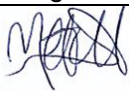
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REVISIONS

Rev A: 14.11.2016 Text amendments.

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1.0 INTRODUCTION

Smeeden Foreman Limited has been commissioned to undertake a phase I habitat survey and bat assessment of a proposed development site off Hollinberry Lane, Howbrook, South Yorkshire (central grid reference SK 32729 98154).

This report will include the following information gathered by desk study, a phase I habitat survey and bat activity surveys:

- Proximity to statutory and non-statutory designated sites;
- Proximity to existing records for protected species; and,
- Site habitat appraisal and potential to support protected species;
- Use of the site by foraging and commuting bats.

A review of the above information will be made to identify any features or sites of ecological interest which may be affected by the development proposals. Where potential impacts or protected species are identified the need for mitigation measures and specific species surveys will be discussed and recommendations for potential environmental enhancements will be made.

The report has been commissioned to inform a planning application to develop the site with a small residential scheme of only three units.

2.0 SITE DESCRIPTION

The site lies within the village of Howbrook, Wortley approximately 8km south of Barnsley town centre and 11km north of Sheffield city centre. Howbrook is a small rural village within the Borough of Barnsley, South Yorkshire and is surrounded by open countryside and farmland.

The site consists predominantly of grassland (improved, semi-improved neutral and marshy), ruderal vegetation with bramble scrub and a broadleaved tree/shrub belt. It is bound to the south by Hollinberry Lane and to the east and west by tree/shrub belts beyond which is existing residential housing.



Figure 01: Aerial view / site location.

3.0 BASELINE INFORMATION

3.1 Methodology

The ecological interest of the site and its surroundings has been investigated by a combination of the following.

- Desk study of existing sources of information including:
 - The UK Biodiversity Action Plan;
 - The Barnsley Biodiversity Action Plan (BBAP);
 - Magic map, a government website for nature conservation information;
 - Aerial photographs;
- Existing protected species records and statutory/non-statutory designated sites information within 2km of the development was obtained from the Sheffield Biological Records Centre (SBRC), South Yorkshire Bat Group (SYBG) and South Yorkshire Badger Group;
- Field survey of the site and immediate surroundings which was undertaken during September 2016.

3.2 Nature Conservation Designated Sites

3.2.1 Statutory Designations

There is one statutory site within 2km of the proposed development site, being Potter Holes Plantation Local Nature Reserve (LNR), located approximately 1.9km to the north-east of the proposals site. This LNR has been designated for its ancient broadleaf woodland and ground flora which is of value to the local breeding bird population.

No other statutorily designated sites are located within 2km of the proposed development site such as Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Protection Areas (SPA), Special Areas of Conservation (SAC) or Ramsar sites within 2km of the proposed development site.

3.2.2 Non-Statutory Designations

Six Local Wildlife Sites (LWS) are located within 2km of the proposed development site. Local Wildlife Sites (LWS) are areas identified and selected locally for their wildlife value. The designation is non-statutory but is recognition of site significance with many LWS being of county and often regional importance for wildlife. Examples range from field ponds, streams and reed beds, to ancient woodlands, flower-rich meadows and hedgerows. This designation is equivalent to a former SINC (Site of Importance for Nature Conservation) and is used by local authorities to allow the ecological value of a site to be considered within the planning system. These sites are detailed within Table 01 below:

Table 01: Non-statutory sites within 2km.

Name and Reference	Designation	Summary	Grid ref	Approx. distance from site boundary
Greno Woods (subsite) – Low Hall and Low Spring Woods (196)	LWS (SINC)	A site containing mixed deciduous ancient woodland with rich ancient ground flora and a running spring	SK 332964	1.2km to the south-east
Greno Woods (subsite) – Hall Wood (194)	LWS (SINC)	A site containing mixed coniferous and deciduous ancient woodland with rich ancient ground flora and a running spring	SK 327962	1.7km to the south
Westwood Country Park (199)	LWS (SINC)	A mosaic of habitats including semi-natural woodland, a variety of open grasslands and scrub, ponds and standing water and running water	SK 340984	700m to the east



West Wood (42)	LWS	Semi-natural and ancient woodland and ground flora, neutral grassland and running water	SK 333987	700m to the north-east
Westwood and Thorncliffe Wood (197)	LWS	Semi-natural broadleaved woodland with a rich ground flora	SK 337987	800m to the north-east
Sowell Pond (43)	LWS	An area of standing water with neutral grassland, dense scrub and broadleaved plantation. Valuable habitat for great crested newt	SK 336994	1.4km to the north-east

A map showing the locations of these six sites was provided by SBRC, refer to **Appendix 01**.

3.3 Existing Records

Existing biological record data was provided by Sheffield Biological Records Centre and South Yorkshire Bat Group. The records provided below are for the species most relevant to the site due to levels of protection; refer to Appendix 02 for further details on these records:

Table 02: SBRC records

Common Name	Scientific Name	Distance (m)*	No. of Records	Wildlife Barrier**
Kingfisher	<i>Alcedo atthis</i>	Over 200m*	1	None
Brambling	<i>Fringilla montifringilla</i>	1200	1	None
Redwing	<i>Turdus iliacus</i>	Over 200m*	2	None
Fieldfare	<i>Turdus pilaris</i>	1200	2	None
Great crested newt	<i>Triturus cristatus</i>	1200	6	None
Grass snake	<i>Natrix natrix</i>	Over 200m*	3	None
Adder	<i>Vipera berus</i>	1000	3	None
Water vole	<i>Arvicola amphibius</i>	Over 200m*	3	None
Unknown bat species	<i>Chiroptera</i>	Over 200m*	3	None
Brown long-eared bat	<i>Plecotus auritus</i>	100	3	None
Daubenton's bat	<i>Myotis daubentonii</i>	Over 250m*	3	None
Pipistrelle bat species	<i>Pipistrellus sp.</i>	100	2	None
Leisler's bat	<i>Nyctalus leisleri</i>	Over 200m*	1	None
Noctule bat	<i>Nyctalus noctula</i>	Over 200m*	2	None
* approximate distance, where 'over' is stated, this denotes records only accurate to 1km. ** wildlife barriers between the application site and the records, e.g. major roads and built up areas.				

Table 03: SYBG records

Species	Grid Reference	Notes
Brown long-eared bat	SK 327983	Five records, the closest of which is approximately 100m north of the site boundary.
Common pipistrelle bat	SK 3497	Two records, the closest of which is over 1.2km south-east of the site boundary, record accurate to within 1km.
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	SK 339996	Single record approximately 1.8km north-east of the site boundary.
Pipistrelle bat species	SK 327982	Seven records, the closest of which is adjacent to the south-western site boundary.
Noctule bat	SK 302989	Field record of 5 foraging individuals over 2km west of the site boundary.



Daubenton's bat	SK 3498	Single record over 1.2km east of the site boundary, record accurate to within 1km.
Unidentified bat species	SK 327983	Eight records, the closest of which is approximately 100m north of the site boundary.

South Yorkshire Badger Group were also consulted as part of the assessment. Records of badger have been provided within 2km of the proposals site with the closest record approximately 700m from the site boundary.

UK BAP priority species recorded within 2km of the proposals site include the following:

Amphibians: common toad

Birds: tree pipit, nightjar, cuckoo, common grasshopper warbler, house sparrow, tree sparrow, grey partridge, yellowhammer, northern lapwing, yellow wagtail, skylark, linnet, lesser spotted woodpecker, song thrush, dunnoek, common bullfinch, willow tit, corn bunting and common starling.

Butterflies and moths: white-letter hairstreak, V-moth, broom, dusky brocade, beaded chestnut, streak, small phoenix, gallium carpet, garden dart, rustic, wall, wall brown, powdered quaker, hedge rustic, shaded broadbar, white ermine, cinnabar, garden tiger, brindled beauty, flounced chestnut, knotgrass, mouse, dusky thorn, rosy rustic, green-brindled crescent, sallow, dark-barred twin-spot carpet, rosy minor, shoulder-striped wainscot, centre-barred sallow, dot, small square-spot, mottled rustic, brown-spot pinion, minor shoulder-knot, double dart, buff ermine, latticed heath, small heath and ghost.

Mammals: brown hare and west European hedgehog.

Additional species found within 2km of the proposals site have been afforded action plans by Barnsley LBAP due to being threatened, experiencing population declines nationally or locally or generally scarce including kestrel.

3.4 Site Survey – Phase I Habitat Survey

A phase I habitat survey was undertaken in September 2016. Habitat types and key species were noted and are presented in the Phase I Habitat format based on the Joint Nature Conservation Committee methodology, 2010 (see Figure 02: Phase I Habitat Survey, appended).

There were six main habitat types identified on site; grassland (improved, semi-improved neutral and marshy), hedgerow, ruderal vegetation with bramble scrub, tree/shrub belt and running water.

3.4.1 Grassland

The site consists predominantly of grassland which is being invaded by bramble/scrub. There are three main areas; a strip of improved grassland along the northern boundary (**TN1**), semi-improved neutral grassland across the main slope of the site (**TN2**) and areas of marshy grassland to the north east corner (**TN3** and **TN4**).

Improved grassland (**TN1**)

A strip of improved grassland along the northern boundary of the site, dominated by coarse grasses and ruderal species, characteristic of National Vegetation Classification type MG1 *Arrhenatherum elatius* grassland.

It is dominated by coarse grass species including false oat grass *Arrhenatherum elatius* and cocksfoot *Dactylus glomerata* with frequent common nettle *Urtica dioica*, creeping thistle *Cirsium arvense*, and occasional broad leaved dock *Rumex obtusifolia*, common vetch *Vicia sativa*, cow parsley *Anthriscus sylvestris* and hogweed *Heracleum sphondylium*.

Semi-improved neutral grassland (**TN2**)

The central area of the site consists of semi-improved neutral grassland which is being invaded throughout by bramble and scrub (elder *Sambucus nigra* and ash *Fraxinus excelsior*). The grassland shows some affinity with National Vegetation Classification type MG5 *Cynosurus cristatus*-*Centaurea*



nigra grassland but lacks grass species possibly due to lack of management and shading by invading scrub.

The grass species include Yorkshire fog *Holcus lanatus* as the dominant with abundant fescue *Festuca rubra* and frequent bent grass *Agrostis* sp.

The area is dominated by forb species with abundant knapweed *Centaurea nigra*, birdsfoot trefoil *Lotus corniculatus*, ribwort plantain *Plantago lanceolata*; frequent horsetail *Equisetum arvense*, oxeye daisy *Leucanthemum vulgare*, meadow vetchling *Lathyrus pratensis*, barren strawberry *Potentilla sterilis*, tormentil *Potentilla erecta*; occasional common vetch, yarrow *Achillea millefolium*, hogweed, angelica *Angelica sylvestris*, Lady's mantle *Alchemilla* sp, dandelion *Taraxacum officinale* agg. and rarely occurring species including common sorrel *Rumex acetosa* and creeping cinquefoil *Potentilla reptans*.

Marshy grassland (TN3 and TN4)

Two areas of marshy grassland occur to the north east of the site, one (TN3) located within the area of improved grassland and the other (TN4) within the semi-improved neutral grassland.

These areas contain a high proportion of rushes with other forbs characteristic of wet conditions in addition to the species described above.

TN3 within the improved grassland includes soft rush *Juncus effuses* and wavy bittercress *Cardamine flexuosa*.

TN4 includes great willowherb *Epilobium hirsutum* and meadow sweet *Filipendula ulmaria* as well as soft rush and wavy bittercress.

3.4.2 Hedgerows

The site is bounded by hedgerows and garden vegetation belonging to adjoining properties along its western extent. The hedgerow consists of ornamental plants including cherry laurel *Prunus laurocerasus* and includes two mature trees, weeping willow *Salix babylonica*.

As a garden boundary this hedgerow is not covered by the Hedgerow Regulation 1997 and consisting of ornamental species it is not be considered to fall within the classification of hedgerow as priority habitat.

3.4.3 Ruderal vegetation with bramble scrub

There are two areas where ruderal vegetation with bramble scrub dominates the grassland species.

TN5 is a rough mound of vegetation which runs just within and parallel to the northern boundary of the site. It is dominated by common nettle and bramble with occasional hogweed and broad leaved dock.

The southern and eastern section of the site (**TN6**), running adjacent to the tree belt associated with How Brook which forms the site boundary, is currently dominated by bareground but regrowth of bramble and common nettle is evident indicating that these are the dominant species.

Other species evident include frequent cleavers *Galium aparine* and ivy *Hedera helix*; occasional creeping thistle, field horsetail, broad leaved dock creeping thistle, hogweed, ground ivy *Glechoma hederacea* and dandelion; rarely occurring cranesbill *Geranium* sp, meadow vetchling, wood avens *Geum urbanum*, angelica and knapweed.

3.4.4 Tree/shrub belt and bat roost potential

A thin belt of tree and shrub vegetation forms the southern and eastern boundaries of the site in association with How Brook. The trees are of mixed age; generally young to semi-mature with a single mature ash, and line the banks of the stream to both sides.

Tree species include sycamore *Acer psuedolpatanus*, ash *Fraxinus excelsior* and birch *Betula pendula*. Shrub species include hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, holly *Ilex aquifolium*, dog rose *Rosa canina* and elder *Sambuca nigra* with bramble.

Ground flora was dominated by ivy with occasional cleavers, wood avens, hogweed, common nettle, and herb robert *Geranium robertianum*; locally frequent dog's mercury and rarely occurring male fern and garlic mustard. However, much of the stream banks and area below the trees comprised of bare ground.



The trees potential to support roosting bats was categorised to relate to the value of identified features. These categories are based on those described in *Table 4.1* from the Bat Conservation Trust (BCT) *Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition* (2016), and are summarised in *Table 04* below.

Table 04: Categories for describing bat potential of buildings and trees

Suitability	Description of roosting features
Negligible	Negligible habitat features suitable for use by roosting bats
Low	One or more sub-optimal features which could be used by a low number of roosting bats
Moderate	One or more good quality features which could be used by a low number of roosting bats
High	One or more good quality features which are suitable for a larger number of roosting bats

Each tree was inspected from the ground using close focusing binoculars to make a preliminary assessment of the trees in regards to their potential to support roosting bats such as cavities, broken limbs or fissured bark and, for signs of bats utilising a tree for roosting purposes such as scratches on the bark at entry points, staining, droppings, audible noise, distinctive smells and the smoothing of surfaces near to cavities. The trees identified to hold potential to support roosting bats are included in *Table 05* below.

Table 05: Tree bat potential

Ref	Species	Location	Description	Bat roost potential
TN7	Ash	Adjacent to How Brook at the eastern boundary	Large mature tree – no obvious features but size of tree prevents thorough inspection.	Low
TN8	Oak	Adjacent to How Brook outside the eastern boundary.	Large mature tree – small number of broken limbs and holes could provide access to suitable cavities.	Moderate

The oak tree **TN8** was located within a small area of woodland bordering the site to the north east but separated from it by the tree/shrub belt forming the site boundary. Tree species included oak, ash, sycamore, cherry and birch with bluebell noted within the ground flora.

3.4.7 Running water

How Brook is a small stream which runs along the southern and part of the eastern boundaries of the site. It enters the site at the south west corner through a culvert below Hollinberry Lane. Runs along the southern boundary adjacent to the stone retaining wall which supports Hollinberry Lane and then turns to run north east, forming part of the eastern boundary.

It is approximately 1m wide with steep banks, rocky bottom and no marginal vegetation evident. The water is shallow (<10cm depth) and of poor water quality. Its associated bank side vegetation is described in the **Tree/shrub belt** section above.

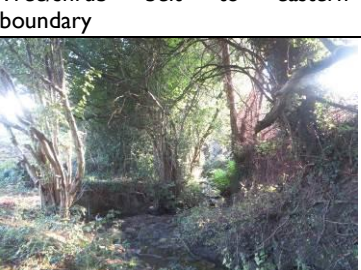
The stream and bank sides were inspected for evidence of water vole and otter such as burrows, latrines, spraints, prints, hairs and feeding remains. None of which were evident.

3.4.8 Fauna

Crow and wood pigeon were noted during the site visit. No obvious mammal holes, droppings or tracks were evident either within the terrestrial habitats or the adjacent stream.



3.4.9 Photographs

Onsite habitats		
		
Improved grassland (TN1)	SI neutral grassland (TN2)	Marshy grassland (TN4)
		
Ruderal mound (TN5)	Ruderal/bramble scrub (TN6)	Ruderal/bramble scrub (TN6)
		
Hedgerow to western boundary	Tree/shrub belt to eastern boundary	Tree/shrub belt to eastern boundary
		
Tree belt to southern boundary	How Brook to southern boundary.	How Brook to eastern boundary.

Offsite habitats		
		NO PHOTOGRAPH
Adjacent woodland to north east corner.	Improved pasture to north.	

3.5 Site Survey – Bat Activity Survey

3.5.1 Methodology

Bat transect surveys were recommended to assess the use of the site by foraging and commuting bats with suitable habitat identified to the site boundaries. These surveys were undertaken within the optimal survey period and based on methodologies outlined within the Bat Conservation Trust publication *Bat Surveys: Good Practice Guidelines* (2016). Two surveyors were present during each survey and covered the boundaries of the site recording bat commuting and foraging activity along hedgerows, trees and scrub/running water habitats within and adjacent to the site. Bat detectors used included Bat Box Duet detectors on heterodyne mode, Anabat SD2 and Anabat Express to analyse bat call recordings. Weather conditions and results of the three bat activity surveys are discussed below.

3.5.2 Survey Results

The locations of bat activity within the site boundaries are shown in **Figure 03** (appended), with target notes corresponding to the textual report below. Table 06 below includes information on the timing and conditions of the surveys.

Table 06: Survey conditions during bat transect surveys

	Start time	End time	Sunset/Sunrise	Temp start – end (°C)	Wind speed start - end (mph)	Rain (%)	Humidity
27/07/2016	22:00	23:10	21:10	16 - 14	11 - 9	0	Moderate- High
09/08/2016	20:48	22:48	20:48	14 - 13	12 - 12	0	Moderate- High
13/09/2016	04:35	06:35	06:35	16 - 16	12 - 12	0	High

Activity Survey 27th July 2016 – Dusk transect

The first bat activity on site was an unseen common pipistrelle bat recorded commuting at the south-western corner of the site at 22:05 (**A**). From this point onwards, frequent passes by both foraging and commuting common pipistrelle bats were noted utilising the hedgerow of the adjoining residential property along the western site boundary (**B**) and woodland habitat along the southern/eastern site boundaries until the end of the survey (**C**). Peak numbers of 2-3 common pipistrelle bats were observed displaying foraging and chasing behaviour at one time. Other species recorded using the woodland and beck habitat to the south and east of the site include occasional passes of brown long-eared bat (22:28 onwards) and a *Myotis* bat species (22:38 onwards) (**D**).

Activity Survey 09th August 2016 – Dusk transect

A commuting common pipistrelle bat was the first activity noted on site, flying along the woodland edge to the south of site from the west at 21:01, thirteen minutes after sunset. Subsequent bat activity predominantly comprised common pipistrelles and frequent soprano pipistrelles using boundaries to commute across site with foraging concentrated at the north-eastern (**E**) and south-western corners (**F**). Occasional Daubenton's bat from 21:24 onwards and a single pass of Natterer's bat at 21:19 were recorded to the east of the site foraging within the woodland/beck habitat (**D**).

Activity Survey 13th September 2016 – Dawn transect

A soprano pipistrelle was the first bat species detected on site at 04:51 at the south-eastern boundary. Less than 15 bat passes were recorded to all site boundaries up until 06:02, including commuting and foraging common pipistrelle, occasional soprano pipistrelle and an unidentified *Myotis* species. Activity ceased after 06:02.

Analysis of data recordings from static bat detectors confirmed the presence of common pipistrelle, soprano pipistrelle, brown long-eared bat, Daubenton's bat and Natterer's bat. Sonogram excerpts of echolocation calls are detailed within Appendix 03.

Refer to Figure 03 (appended) for locations of bat activity on site.



3.5.3 Survey Conclusions

A total of five confirmed bat species (common pipistrelle, soprano pipistrelle, brown long-eared bat, Daubenton's bat and Natterer's bat) were recorded using the site. Both pipistrelle species were recorded to all site boundaries with foraging activity particularly noted at the north-eastern and south-western corners of site. Daubenton's bat, brown long-eared bat and Natterer's bat were all recorded utilising the woodland along the southern and eastern boundaries, in association with How Brook which runs adjacent to the site boundary. Analysis of data recordings confirmed the presence of these species.

3.6 Biodiversity Action Plan

National Biodiversity Action Plan

The UK Biodiversity Action Plan (UK BAP) identifies priority species and habitats which are those considered to be the most threatened and therefore most in need of conservation action. The lists were updated in 2007 to include 1150 species and 65 habitats.

The existing records for UKBAP priority species within 2km of the site include a total of 63 priority species, refer to section 3.3.

Out of the 21 UKBAP broad priority habitats, six of these are recorded within 2km of the site (taken from magic map and aerial photographs). They are as follows:

- Rivers and streams (stream on site);
- Standing open water and canals including ponds;
- Arable field margins;
- Hedgerows;
- Broadleaved, mixed and coniferous woodland and;
- Acid, neutral and improved grassland;

Local Biodiversity Action Plan

Habitat types for which action plans have been prepared for the Barnsley Biodiversity Action Plan (BBAP) include:

- Lowland mixed deciduous woodland
- Woodland and park-land
- Wet woodland
- Traditional orchards
- Upland heath
- Lowland heath
- Upland heath
- Lowland heath
- Lowland dry acid grassland
- Lowland meadow/neutral
- Floodplain grazing marsh
- Purple moor grass and rush pasture
- Arable field margins
- Hedgerows
- Rivers (and streams)
- Ponds (standing water)
- Reedbeds (swamps)
- Fens
- Blanket bog
- Purple moor grass and rush pasture



The hedgerow to the west of site, belonging to the adjoining residential property, is comprised of ornamental species and is therefore not considered LBAP habitat. How Brook flows to the south of site which is of value to local wildlife populations including bat and breeding bird species. Semi-improved neutral grassland was also recorded on site.

Species for which action plans have been prepared for the Barnsley Biodiversity Action Plan (BAP) include:

- Glow worm
- Dingy skipper
- White-clawed crayfish
- Bullhead
- Salmon
- Bittern
- Lapwing
- Little ringed plover
- Grey partridge
- Tree sparrow
- Skylark
- Barn owl
- Kestrel
- Twite
- Water vole
- Otter
- Bats
- Hedgehog
- Bluebell

Five bat species were recorded using the site during activity surveys undertaken July – September 2016. Hedgehog may also utilise the tree/shrub belt to the south/eastern boundaries of the site for foraging and commuting purposes.



4.0 IMPLICATIONS / RECOMMENDATIONS

4.1 Nature Conservation Designated Sites

There are no statutory or non-statutory designated nature conservation sites within the proposed development site.

One statutory and six non-statutory designated sites are located within 2km of the site, they are Potter Holes Plantation (LNR, 1.9km NE), Hall Wood (LWS, 1.7km S), West Wood (LWS, 700m NE), West Wood and Thorncliffe Wood (LWS, 800m NE), Westwood Country Park (LWS, 700m E) Low Hall and Low Spring Woods (LWS, 1.2km SE) and Sowell Pond (LWS, 1.4km NE).

Due to the distance and lack of complimentary habitats within the development site and distances from the site, it is not considered that there will be any adverse effect on these nature conservation sites.

4.2 Habitats

The site comprises improved, semi-improved neutral and marshy grassland, ruderal vegetation with bramble scrub, tree/shrub belt and running water.

Semi-improved neutral grassland habitat identified on site is considered to be of conservation value comprising a diverse range of forb species typical of neutral meadow habitat including birds-foot-trefoil, knapweed and oxeye daisy. To mitigate for the loss of this habitat as a result of the proposed development it is recommended that consideration be given to the seeding of wildflower areas to the north of the proposals site, in areas which currently comprise improved grassland. An appropriate seed mix, representative of the NVC type MG5 grassland is recommended to be seeded on prepared land, with subsequent management including an annual cut taken during late summer once seeds have dropped. A cut taken in early spring could also be carried out to prevent vigorous grasses from dominating flowering species. No rare or locally uncommon plant species or invasive species as listed under the Wildlife and Countryside Act 1981 (as amended) were detected at the site.

The hedgerow, trees/shrubs and running water at the site are of local value to bats and breeding birds and provide shelter and foraging opportunities for wildlife in general, providing connectivity across the site. Two trees (TN7 and TN8) were assessed as having potential to support roosting bats, refer to section 4.3.1.

In order to protect habitats of ecological value present within the site the following recommendations are highlighted:

- Retention of the hedgerow and trees/shrubs at the site where feasible;
- Planting of native trees/shrubs to boundaries where currently not present;
- Creation of wildflower grassland to the north (as detailed above);
- Use of temporary protective demarcation fencing to protect retained areas/features including those immediately adjacent to the site. The fencing must be in accordance with BS5837:2012 'Trees in Relation to Design, Demolition and Construction', extend outside the canopy of the retained trees, and remain in position until all plots have been developed;
- Use of directional lighting during construction, which will not shine upon the site boundaries or habitats outside the site to the south and east;
- Implementation of lighting scheme within proposals that minimise illumination of the site boundaries, particularly the tree/shrub belt and How Brook to the southern and eastern boundaries.

To ensure that the proposed development provides enhancement to wildlife, in accordance with the stated aims of the National Planning Policy Framework (NPPF), it is recommended:



- Incorporation of native species of trees and shrubs known to be of value to wildlife within landscape planting;
- Consideration of wildflower seeding in association with tree/shrub planting with a suitable wildflower mix.

4.3 Protected Species

Refer to Appendix 04 for the relevant species legislation.

4.3.1 Bats

Consultation with the local records centre (SBRC) and local bat group (SYBG) provided records for the following bat species within a 2km radius of the proposals site: common pipistrelle, soprano pipistrelle, Leisler's bat, noctule bat, brown long-eared bat, Daubenton's bat and unidentified pipistrelle species.

Bat transect surveys undertaken during July, August and September 2016 found habitats to the west and south/east to be predominantly used frequently by foraging and commuting bats. A total of five confirmed species were recorded during the surveys; common pipistrelle, soprano pipistrelle, Daubenton's bat, brown long-eared bat and Natterer's bat. Most of these species are considered to be common and widespread in South Yorkshire, with the exception of Natterer's bat which is considered scarce, although under-recorded. Common and soprano pipistrelle bats were most frequently recorded on site, with occasional Daubenton's bat and brown long-eared bat and a single pass of Natterer's bat.

Features within or adjacent to the site found to be used by bats for commuting purposes comprised the single hedgerow belonging to the adjacent residential property at the western boundary and the tree/shrub belt along How Brook to the southern and eastern boundaries. It is understood that these habitats are to be retained within the new development and therefore connectivity across the site and between it and the wider area will not be affected by proposals.

To reduce any disturbance to foraging and commuting bats, it is recommended that any lighting during construction, and within the development, is appropriately designed to avoid illuminating the boundaries, hedgerows and trees at the site, particularly to the southern and eastern boundaries where light-sensitive species such as brown long-eared bat were recorded foraging. It is recommended that proposed external lighting specified on the proposed dwellings is close offset accent lighting as this causes less light pollution. This type of lighting is more specific and can be designed to avoid bat sensitive areas, and better highlights the features of the subject of illumination. Low wattage lamps are preferable (<70W or LED equivalent) as they minimise impacts on bats. These lights would ideally be fitted with movement sensors so the lights will be illuminated only when needed reducing the amount of time lit. This information has been taken from the document *Bats and Lighting: Overview of current evidence and mitigation* (Stone, E.L., 2013) in regards to recommended types of security lighting.

Two trees (TN7 and TN8) were assessed as having potential to support roosting bats during the walkover survey. These trees are to be retained within the new development such that no further assessment is required.

In order to enhance the site for bats, it is recommended that development at the site incorporates the installation of commercially available bat boxes, upon retained trees on site, at locations deemed suitable by an ecologist, and planting of native trees and shrubs that are known to be of value to wildlife.

4.3.2 Badger

There are records of badger in the local area with the closest record within 700m of the site, but no evidence of badger was detected at the site or within 50m from it. The habitats within and adjacent to the site may be suitable for foraging badger, it is therefore recommended that precautionary working methods are adopted during proposed construction works to prevent accidental harm or injury to



any badger or other mammals potentially using the site such as capping any open pipe ends, and covering open trenches or providing a means of access via sloping ends or planking at the end of each working day.

4.3.3 Birds

The hedgerows, tree/shrub belt and scrub at the site provide suitable habitat for breeding birds, including UKBAP and BBAP priority species, such as tree and house sparrow, of which there are local records. It is recommended that these features are retained where feasible or replaced with native species.

All wild birds are protected under the *Wildlife and Countryside Act 1981 (as amended)* during breeding. It is, therefore, recommended that such vegetation which is suitable breeding bird habitat is only removed outside of the breeding bird season (March to August inclusive) or subsequent to a checking survey by an appropriately qualified ecologist.

If nesting birds are identified advice will be sought. The advising ecologist will issue guidance in relation to the protection of the nesting birds in conjunction with the scheduled works. Measures such as applying a set boundary around the nest may be necessary until the young birds have fledged.

Landscaping to be adopted within the proposals should include native trees and shrubs which should aim to enhance the site for nesting birds. Berry-bearing species will also be of benefit to wintering thrushes for which records are present within the local area. Consideration should also be given to the installation of bird boxes onto proposed buildings within the site, where possible. A mixture of nest box types could be used to attract a number of bird species.

4.3.4 Reptiles

SRBC provided three records for grass snake and three records for adder from 1976-1990 over 200m from the site boundary. The site contains no suitable habitat for basking or hibernating reptiles and there is some limited foraging, sheltering and hibernation opportunities amongst the hedgerow and beckside habitats.

Given the limitations of the terrestrial habitat on site, it is considered unlikely that reptiles will be present at the site and any disturbance to this species can be reasonably discounted.

4.3.5 Great crested newt

There are no ponds within the site. Habitats within the site are considered to offer limited opportunities to amphibian species during their terrestrial phases, though small areas of dense scrub provide potential areas of cover. From consulting an OS base of the site and surrounding areas there are no ponds within 500m of the site and the six records provided by SRBC are all at a greater distance than 500m from the site. No adverse impact upon great crested newts is therefore anticipated as a result of the proposed development and no further survey for this species is considered necessary.

4.3.6 Water vole

There are three records for water vole within the local area on Blackburn Brook which is approximately 800m from the site at its closest point. No signs of water vole were recorded during the walkover survey and furthermore the habitat was assessed as being sub-optimal for this species. Proposed works are considered to be set back at a sufficient enough distance from How Brook that no adverse effect upon this species is anticipated.

4.3.7 Other Protected Species

Due to the lack of records for other protected species such as otter and freshwater crayfish within the surrounding area, no adverse impact upon such species is anticipated as a result of the proposed development and the presence of reptiles on site is considered unlikely.



4.4 Notable Species

4.4.1 West European Hedgehog

There are multiple records for hedgehog a UKBAP priority species within the local area. Habitats within and around the site are suitable for foraging and sheltering. Presence of hedgehog at the site cannot be discounted.

Precautionary working methods will be adopted to ensure hedgehogs are not harmed/killed during works. Such works would include the removal of any tree/shrub cuttings from site, once vegetation is cut so as to avoid the creation of brash piles; these may be attractive to hedgehogs, which could subsequently be harmed if the brash pile is burnt or removed with machinery. In addition, any trenches created on site will be covered or a means of escape shall be provided and any open pipe work will be capped at the end of each working day. It is also recommended that small gaps (0.15m) are left under sections of new fencing/walls within the development to allow passage of hedgehog across the site.



5.0 SUMMARY

Smeeden Foreman Limited has been commissioned to undertake a phase I habitat survey and bat assessment of a proposed development site off Hollinberry Lane, Howbrook, South Yorkshire (central grid reference SK 32729 98154). The report has been commissioned to inform a planning application to develop the site with a small residential scheme of only three units.

The site is comprised of six main habitat types, these include grassland (improved, semi-improved neutral and marshy), hedgerow, ruderal vegetation with bramble scrub, tree/shrub belt and running water.

One statutory and six non-statutory designated sites are located within 2km of the site, they are Potter Holes Plantation (LNR, 1.9km NE), Hall Wood (LWS, 1.7km S), West Wood (LWS, 700m NE), West Wood and Thorncliffe Wood (LWS, 800m NE), Westwood Country Park (LWS, 700m E) Low Hall and Low Spring Woods (LWS, 1.2km SE) and Sowell Pond (LWS, 1.4km NE). Due to the distance and lack of complimentary habitats within the development site, it is not considered that there will be any adverse effect on these nature conservation sites.

The hedgerow, trees/shrubs and running water at the site are of local value to bats and breeding birds and provide shelter and foraging opportunities for wildlife in general and provide connectivity across the site.

General recommendations concerning features of ecological value include the following:

- Retention of the hedgerow and trees/shrubs at the site where feasible;
- Planting of native trees/shrubs to boundaries where currently not present;
- Creation of wildflower grassland to the north to mitigate loss of semi-improved neutral grassland identified on site;
- Use of temporary protective demarcation fencing to protect retained vegetation;
- Use of directional lighting during construction;
- Implementation of directional lighting as part of the proposals;
- Incorporation of native species of trees and shrubs known to be a value to wildlife within landscape planting; and,
- Consideration of seeding of areas associated with hedgerows/tree planting with a suitable wildflower mix.

Two trees (TN7 and TN8) were assessed as having potential to support roosting bats during the walkover survey. These trees are to be retained within the new development, however, a climb and inspect survey for signs of bat use prior to works should be undertaken if works are to impact upon the trees. In the event of bat roosts being found a licence from Natural England may be required, with appropriate mitigation and working methods.

The following recommendations in relation to protected and notable species have been made:

- **Bats** – Sympathetic lighting to avoid illuminating habitats of value to bats, installation of bat boxes upon retained trees on site;
- **Breeding birds** – Clearance of vegetation on site only to be removed outside of the breeding bird season (March to August inclusive) or subsequent to a checking survey by an appropriately qualified ecologist. Installation of bird boxes on retained trees on site;
- **Badger** – precautionary working methods should be adopted to avoid harming this species during construction works.
- **Hedgehog** – Precautionary working methods during construction works and gapping under fences to allow connectivity across site for this species.

Refer to section 4.0 for more details on the above.



FIGURE 02: PHASE I HABITAT PLAN

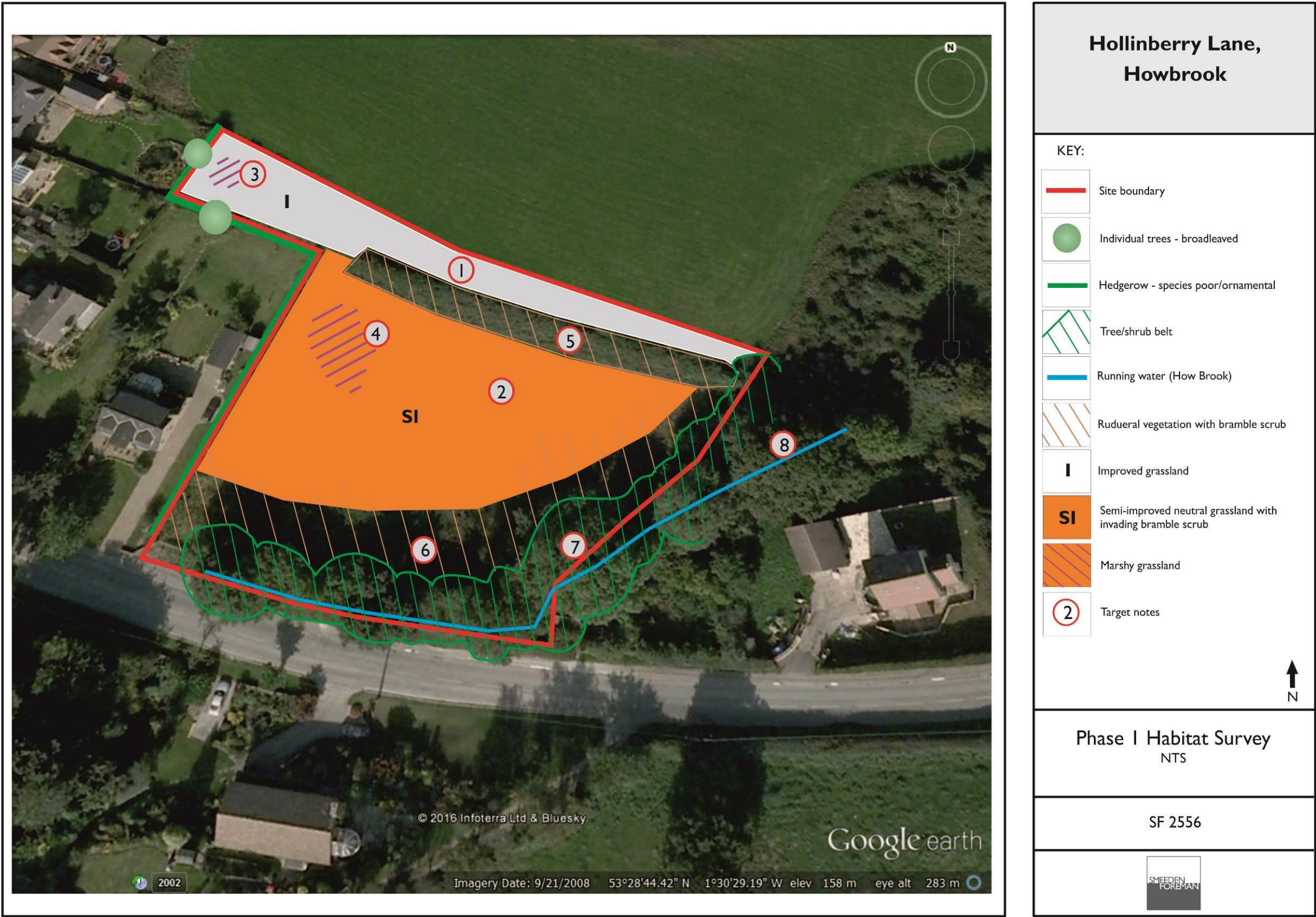
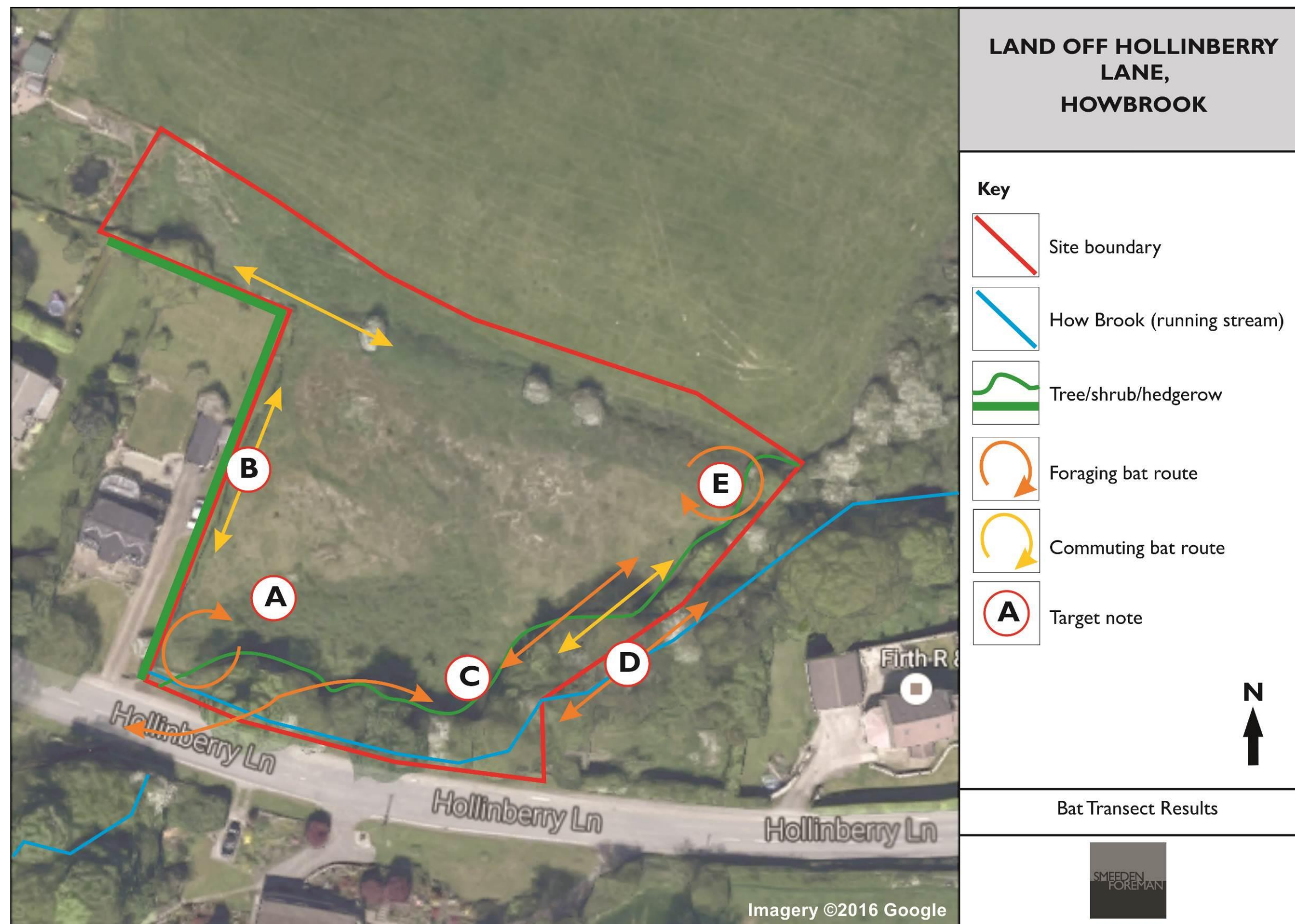


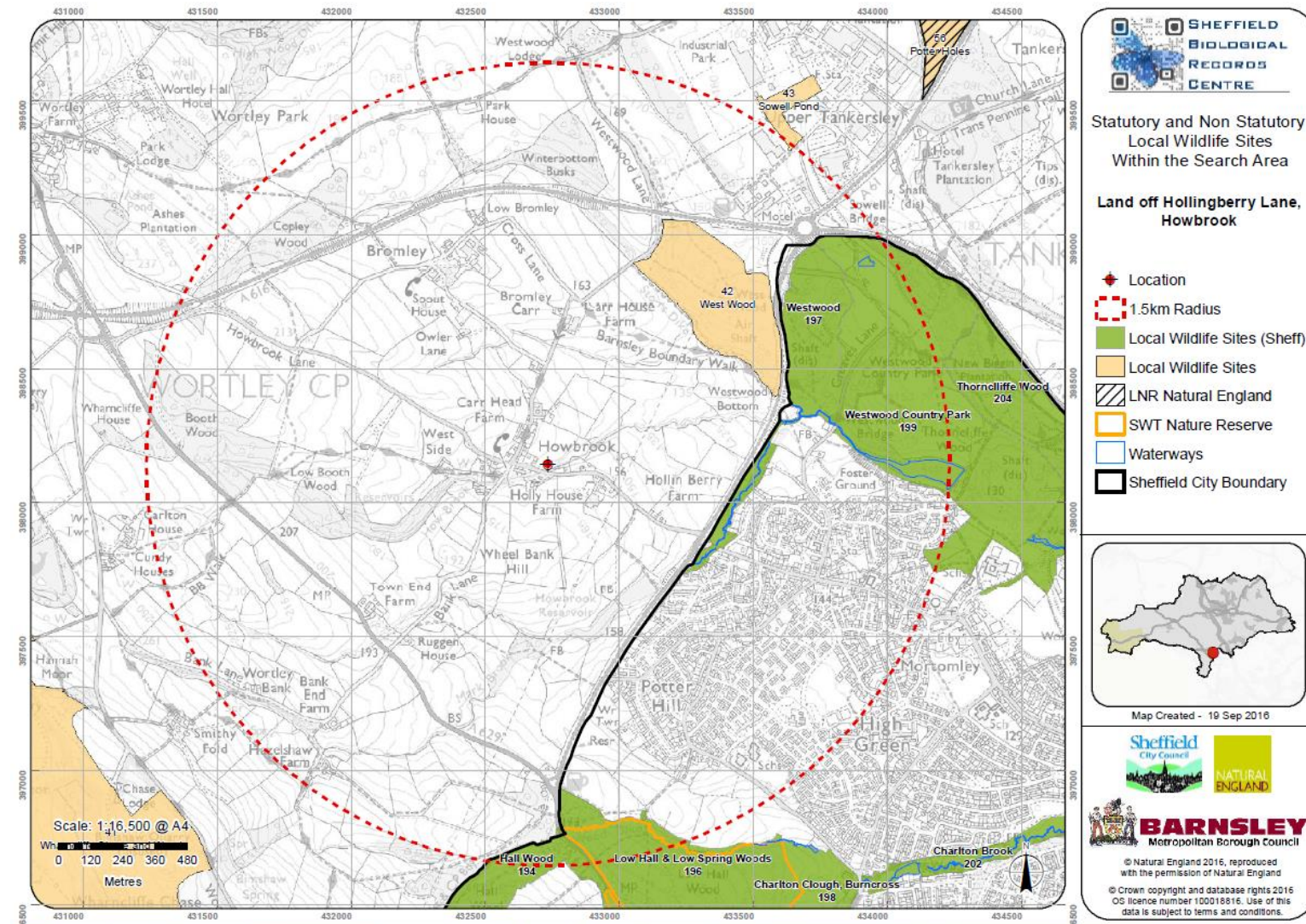
FIGURE 03: BAT ACTIVITY SURVEY RESULTS



APPENDICES

- 01 – Map of non-statutorily designated sites
- 02 – Existing Species Records: SRBC and SYBG
- 03 – Bat Echolocation Analysis: Sonogram Excerpts
- 04 – Legislation Notes: Protected Species

APPENDIX 01: MAP OF NON-STATUTORILY DESIGNATED SITES



Appendix 02: Existing Species Records – Sheffield Biological Records Centre and South Yorkshire Bat Group

SRBC

Grid Ref	Location	TextDate	Scientific Name	Common Name	Comments			
SK334994	Wentworth Business Park, Upper Tankersley	27/05/2012	Bufo bufo	Common Toad	Tadpoles			
SK339988	Westwood Pond	01/01/1985	Bufo bufo	Common Toad				
SK3398	Westwood Farm Bungalow	01/01/1985	Bufo bufo	Common Toad				
SK341981	Westwood Reservoir	10/04/2010	Bufo bufo	Common Toad				
SK339988	Westwood Pond	29/04/1993	Triturus cristatus	Great Crested Newt	lots of eggs on water mint and cress			
SK339988	Westwood Pond	01/01/1993	Triturus cristatus	Great Crested Newt				
SK330994	Tankersley pond 12	27/03/2011	Triturus cristatus	Great Crested Newt	1 male 1 female			
SK339989	Sowell Pond	14/07/1995	Triturus cristatus	Great Crested Newt				
SK339989	Sowell Pond	31/05/1995	Triturus cristatus	Great Crested Newt				
SK339989	Sowell Pond	01/01/1993	Triturus cristatus	Great Crested Newt				
SK341982	Westwood Reservoir	27/09/1985	Nyctalus noctula	Noctule	1 feeding over water			
SK3398	Westwood Reservoir	21/07/1986	Nyctalus noctula	Noctule	2 in flight until 2323h			
SK339988	Westwood Pond	21/07/1976	Natrix natrix	Grass Snake	one basking on railway track nearby			
SK339983	Westwood Country Park	01/01/1990	Natrix natrix	Grass Snake	filed in Westwood & Thorncliffe Wood; whole site file			
SK3398	Westwood Country Park	01/01/1986	Natrix natrix	Grass Snake				
SK340988	Westwood Country Park	01/01/1990	Vipera berus	Adder	filed in Westwood & Thorncliffe Wood; whole site file			
SK336987	Westwood Country Park	01/01/1990	Vipera berus	Adder	filed in Westwood & Thorncliffe Wood; whole site file			
SK339983	Westwood Country Park	01/01/1990	Vipera berus	Adder	filed in Westwood & Thorncliffe Wood; whole site file			
SK327983	Howbrook	01/09/2003	Plecotus auritus	Brown Long-Eared Bat	feeding perch			
SK324980	Howbrook	20/03/2008	Plecotus auritus	Brown Long-Eared Bat	droppings & moth wings-roost			
SK324980	Howbrook	08/07/2010	Plecotus auritus	Brown Long-Eared Bat	5 droppings not fresh-occasional male hang-up.			
SK335984	West Wood LWS	20/09/2006	Satyrus w-album	White Letter Hairstreak				
SK3398	Westwood Country Park	13/06/1987	Anthus trivialis	Tree Pipit				
SK3398	Westwood, Tankersley	13/06/1987	Anthus trivialis	Tree Pipit				
SK340983	Westwood Country Park	01/01/1987	Anthus trivialis	Tree Pipit				
SK3197	Wharcliffe Chase LWS	01/01/1992	Caprimulgus europaeus	Nightjar				
SK3398	Westwood, Tankersley	20/06/1987	Cuculus canorus	Cuckoo				
SK3398	Westwood Country Park	20/06/1987	Cuculus canorus	Cuckoo				
SK340983	Westwood Country Park	20/06/1987	Cuculus canorus	Cuckoo				
SK3298	Bromley Wood	22/07/1988	Locustella naevia	Grasshopper Warbler	Singing birds.			
SK340982	Westwood Reservoir	01/04/2000	Passer domesticus	House Sparrow	From; An ecological survey to an area to the West of the M1, May 2000			
SK33859793		09/01/2010	Passer domesticus	House Sparrow	several in roadside verge			
SK3298	'BARNESLEY MBC'	01/05/2010	Passer domesticus	House Sparrow	Breeding confirmed			
SK3299	'BARNESLEY MBC'	01/05/2010	Passer domesticus	House Sparrow	Breeding probable			
SK3298	Howbrook	30/06/2015	Passer domesticus	House Sparrow				
SK39J	BTO, Grenoside	01/04/1990	Passer montanus	Tree Sparrow				
SK318986	Wortley	18/03/1995	Passer montanus	Tree Sparrow	together in oak in hedge			
SK340983	Westwood Country Park	06/01/1987	Passer montanus	Tree Sparrow				
SK315979	Wortley	17/09/1995	Perdix perdix	Grey Partridge	flushed from stubble			
SK3298	Howbrook	25/10/1987	Perdix perdix	Grey Partridge				
SK3298	Howbrook	25/10/1987	Perdix perdix	Grey Partridge	This occurrence was originally an associated species in Recorder 3.			
SK3398	West Wood LWS	09/10/1988	Perdix perdix	Grey Partridge				
SK3299	'BARNESLEY MBC'	01/05/2010	Perdix perdix	Grey Partridge	Breeding probable			
SK321972	'BARNESLEY MBC'	18/08/2012	Emberiza citrinella	Yellowhammer	1 singing			
SK314979	fields SW of A629, Wortley to junction with	30/01/2000	Emberiza citrinella	Yellowhammer	on old manure heap			
SK317986	fields between Howbrook, Wortley and Pils	20/01/2001	Emberiza citrinella	Yellowhammer	in hedgerow & tree line			
SK318983	A629 Wortley to junction with A61(T)	25/01/2003	Emberiza citrinella	Yellowhammer	min feeding on stubble			
SK340983	Westwood Country Park	01/01/1987	Emberiza citrinella	Yellowhammer				
SK3298	'BARNESLEY MBC'	17/06/1979	Emberiza citrinella	Yellowhammer	in hedgerow			
SK313977	fields SW of A629, Wortley to junction with	11/08/1996	Emberiza citrinella	Yellowhammer	on top of hedge between cornfield & pasture			
SK3299	'BARNESLEY MBC'	01/05/2010	Emberiza citrinella	Yellowhammer	Breeding probable			
SK3298	'BARNESLEY MBC'	01/05/2010	Emberiza citrinella	Yellowhammer	Breeding confirmed			
SK317985	Howbrook	20/03/2012	Vanellus vanellus	Lapwing				

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SK317985	Howbrook	20/03/2012	Vanellus vanellus	Lapwing	lapwing 9 No. displaying over improved grassland
SK3197	Wortley	30/11/2014	Vanellus vanellus	Lapwing	Airborne flock in distance flying round area.
SK3298	'BARNSELEY MBC'	01/05/2010	Vanellus vanellus	Lapwing	Breeding confirmed
SK3197	Wortley	30/11/2014	Vanellus vanellus	Lapwing	Airborne flock in distance flying round area.
SK3197		30/11/2014	Vanellus vanellus	Lapwing	Airborne flock in distance flying round area.
SK315978	Wortley	11/08/1996	Lepus europaeus	Brown Hare	1 feeding in newly cut silage field
SK3398	West Wood LWS	12/01/2012	Lepus europaeus	Brown Hare	1 active in dec woodland
SK3398	West Wood LWS	08/05/1977	Lepus europaeus	Brown Hare	skull found in wood
SK3398	Westwood Farm Bungalow	01/01/1985	Lepus europaeus	Brown Hare	
SK3397		05/05/1982	Erinaceus europaeus	Hedgehog	A61 opposite turning to High Green, 1 dead
SK332979	Howbrook	21/07/1985	Erinaceus europaeus	Hedgehog	road casualty
SK3398		04/11/1988	Erinaceus europaeus	Hedgehog	One
SK3398		05/11/1988	Erinaceus europaeus	Hedgehog	2 under pile of dead leaves, probably hibernating
SK3398		14/11/1988	Erinaceus europaeus	Hedgehog	corpse
SK3398		18/09/1987	Erinaceus europaeus	Hedgehog	One
SK3398	Tankersley	25/08/1981	Erinaceus europaeus	Hedgehog	Greaves Lane, 1 dead on road
SK333978	High Green	27/08/1980	Erinaceus europaeus	Hedgehog	A61, dead on road
SK329967		27/08/1980	Erinaceus europaeus	Hedgehog	A61, dead on road
SK3398	'BARNSELEY MBC'	19/03/1989	Erinaceus europaeus	Hedgehog	One
SK3398		30/09/1987	Erinaceus europaeus	Hedgehog	One
SK3398		04/10/1987	Erinaceus europaeus	Hedgehog	fresh skin found
SK3398		10/10/1987	Erinaceus europaeus	Hedgehog	small one found
SK3398		01/11/1987	Erinaceus europaeus	Hedgehog	small one found
SK3398		07/08/1988	Erinaceus europaeus	Hedgehog	One
SK3398		02/11/1988	Erinaceus europaeus	Hedgehog	One
SK330991	'BARNSELEY MBC'	16/08/2013	Erinaceus europaeus	Hedgehog	a dead road casualty
SK3398	Tankersley	25/08/1981	Erinaceus europaeus	Hedgehog	1 dor
SK3398	Westwood Farm Bungalow	01/01/1985	Erinaceus europaeus	Hedgehog	
SK329967	Greno Woods (sl)	27/08/1990	Erinaceus europaeus	Hedgehog	1 dor
SK333978	High Green	27/08/1990	Erinaceus europaeus	Hedgehog	1 dor
SK3398	Westwood Farm Bungalow	01/01/1985	Semiothisa wauaria	V-Moth	
SK3398	Westwood Farm Bungalow	01/01/1985	Ceramica pisi	Broom Moth	
SK3398	Westwood Farm Bungalow	01/01/1985	Apamea remissa	Dusky Brocade	
SK3398	Westwood Farm Bungalow	01/01/1985	Agrochola lychnidis	Beaded Chestnut	
SK3398	Westwood Farm Bungalow	01/01/1985	Chesias legatella	Streak	
SK3398	Westwood Farm Bungalow	01/01/1985	Ecliptopera silaceata	Small Phoenix	
SK3398	Westwood Farm Bungalow	01/01/1985	Epirrhoe galiata	Galium Carpet	
SK3398	Westwood Farm Bungalow	01/01/1985	Euxoa nigricans	Garden Dart	
SK3398	Westwood Farm Bungalow	01/01/1985	Hoplodrina blanda	Rustic	
SK3398	Westwood Country Park	01/01/1985	Lasiommata megera	Wall	
SK3398	Sowell Pond	06/08/2004	Lasiommata megera	Wall Brown	2 seen
SK3398	Westwood Farm Bungalow	01/01/1985	Orthosia gracilis	Powdered Quaker	
SK3398	Westwood Farm Bungalow	01/01/1985	Tholera cespitis	Hedge Rustic	
SK3398	Westwood Farm Bungalow	01/01/1985	Scotopteryx chenopodiata	Shaded Broad-Bar	
SK3398	Westwood Farm Bungalow	01/01/1985	Spilosoma lubricipeda	White Ermine	
SK339988	Westwood Pond	14/07/1995	Tyria jacobaeae	Cinnabar	caterpillar
SK3398	Westwood Farm Bungalow	01/01/1985	Tyria jacobaeae	Cinnabar	
SK339989	'BARNSELEY MBC'	14/07/1995	Tyria jacobaeae	Cinnabar	40+ seen
SK3398	Westwood Farm Bungalow	01/01/1985	Arctia caja	Garden Tiger	
SK3398	Westwood Farm Bungalow	01/01/1985	Lycia hirtaria	Brindled Beauty	
SK3398	Westwood Farm Bungalow	01/01/1985	Agrochola helvola	Flounced Chestnut	
SK3398	Westwood Farm Bungalow	01/01/1985	Acronicta rumicis	Knotgrass	
SK3398	Westwood Farm Bungalow	01/01/1985	Amphipyra tragopoginis	Mouse Moth	
SK3398	Westwood Farm Bungalow	01/01/1985	Ennomos fuscantaria	Dusky Thorn	

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SK3398	Westwood Farm Bungalow	01/01/1985	Hydraecia micacea	Rosy Rustic							
SK3398	Westwood Farm Bungalow	01/01/1985	Allophyes oxyacanthae	Green-Brindled Crescent							
SK3398	Westwood Farm Bungalow	01/01/1985	Xanthia ictoria	Sallow							
SK3398	Westwood Farm Bungalow	01/01/1985	Xanthorhoe ferrugata	Dark-Barred Twin-Spot Carpet							
SK3398	Westwood Farm Bungalow	01/01/1985	Mesoligia litorea	Rosy Minor							
SK3398	Westwood Farm Bungalow	01/01/1985	Mythimna comma	Shoulder-Striped Wainscot							
SK3398	Westwood Farm Bungalow	01/01/1985	Atethmia centrigo	Centre-Barred Sallow							
SK3398	Westwood Farm Bungalow	01/01/1985	Melanchra persicariae	Dot Moth							
SK3398	Westwood Farm Bungalow	01/01/1985	Diarsia rubi	Small Square-Spot							
SK3398	Westwood Farm Bungalow	01/01/1985	Caradrina morpheus	Mottled Rustic							
SK3398	Westwood Farm Bungalow	01/01/1985	Agrochola litura	Brown-Spot Pinion							
SK3398	Westwood Farm Bungalow	01/01/1985	Brachyomia viminalis	Minor Shoulder-Knot							
SK3398	Westwood Farm Bungalow	01/01/1985	Graphiphora augur	Double Dart							
SK3398	Westwood Farm Bungalow	01/01/1985	Spilosoma luteum	Buff Ermine							
SK3398	Westwood Farm Bungalow	01/01/1985	Semiothisa clathrata	Latticed Heath							
SK3398	Westwood Country Park	01/01/1985	Coenonympha pamphilus	Small Heath							
SK3398	Sowell Pond	01/07/2001	Coenonympha pamphilus	Small Heath	1 seen						
SK3398	Sowell Pond	04/06/2007	Coenonympha pamphilus	Small Heath	3 seen						
SK3398	Westwood Farm Bungalow	01/01/1985	Hepialus humuli	Ghost Moth							
SK3398	Westwood Farm Bungalow	01/01/1985	Motacilla flava subsp. flavissima	Yellow Wagtail							
SK3398	West Wood LWS	01/01/1988	Alcedo atthis	Kingfisher							
SK340983	Westwood Country Park	11/01/1987	Fringilla montifringilla	Brambling							
SK315978	A629 Wortley to junction with A61(T)	25/01/2003	Turdus iliacus	Redwing	on fallow field						
SK3398	West Wood LWS	12/02/1988	Turdus iliacus	Redwing							
SK315978	A629 Wortley to junction with A61(T)	25/01/2003	Turdus pilaris	Fieldfare	on fallow field						
SK318971	Hazelshaw Farm, High Green	17/04/1994	Turdus pilaris	Fieldfare	with starlings in tall ungrazed pasture recently spread with muck						
SK3398	West Wood LWS	09/09/1986	Nyctalus leisleri	Leisler's Bat	several feeding around sodium lights						
SK341982	Westwood Reservoir	27/09/1985	Myotis daubentoni	Daubenton's Bat	4-5 active						
SK3297	Howbrook Reservoir	27/09/1985	Myotis daubentoni	Daubenton's Bat	2 active 2030h						
SK3397	Howbrook Reservoir	27/09/1985	Myotis daubentoni	Daubenton's Bat	2 active 2030h						
SK334989	Tankersley pond 14	27/03/2011	Rana temporaria	Common Frog	spawn 11						
SK341981	Westfield Reservoir	30/03/2011	Rana temporaria	Common Frog	Spawn in marginal aquatic vegetation on the south bank at the western end of the Dam (2 other locations						
SK339988	Westwood Pond	29/03/1975	Rana temporaria	Common Frog	8 clumps						
SK331977	Howbrook Reservoir	20/04/1976	Rana temporaria	Common Frog	clumps						
SK339988	Westwood Pond	08/05/1977	Rana temporaria	Common Frog							
SK339989	Tankersley	01/08/1977	Rana temporaria	Common Frog							
SK339988	Westwood Pond	01/01/1985	Rana temporaria	Common Frog							
SK333970	High Green	01/01/2001	Rana temporaria	Common Frog	8 ad counted by Mr & Mrs Lomax						
SK339989	Sowell Pond	14/07/1995	Triturus vulgaris	Smooth Newt							
SK339988	Westwood Pond	01/01/1993	Triturus vulgaris	Smooth Newt							
SK330994	Tankersley pond 12	27/03/2011	Triturus vulgaris	Smooth Newt	1 tadpole						
SK339988	Westwood Pond	29/04/1993	Triturus vulgaris	Smooth Newt							
SK341982	Westwood Reservoir	27/09/1985	Pipistrellus pipistrellus	Pipistrelle	sev active 1950h						
SK315979	Wortley	17/09/1995	Anthus pratensis	Meadow Pipit	on dividing wall						
SK3298	'BARNSELEY MBC'	01/05/2010	Alauda arvensis	Skyllark	Breeding confirmed						
SK3299	'BARNSELEY MBC'	01/05/2010	Alauda arvensis	Skyllark	Breeding confirmed						
SK318983	A629 Wortley to junction with A61(T)	25/01/2003	Alauda arvensis	Skyllark	min singing over stubble						
SK315979	Wortley	18/03/1995	Alauda arvensis	Skyllark	over cereal crop						
SK318986	Wortley	18/03/1995	Alauda arvensis	Skyllark							
SK316982	Booth Wood, Wortley	09/04/1995	Alauda arvensis	Skyllark	over nearby grassland						
SK340982	Westwood Reservoir	01/04/2000	Alauda arvensis	Skyllark	From; An ecological survey to an area to the West of the M1, May 2000						
SK318984	Wortley	02/03/1997	Alauda arvensis	Skyllark	above field of winter wheat						
SK3298	'BARNSELEY MBC'	01/05/2010	Carduelis cannabina	Linnet	Breeding probable						
SK3299	'BARNSELEY MBC'	01/05/2010	Carduelis cannabina	Linnet	Breeding probable						



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SK3298	Howbrook	30/06/2015	Carduelis cannabina	Linnet						
SK3299	'BARNLEY MBC'	01/05/2010	Carduelis carduelis	Goldfinch	Breeding confirmed					
SK3398	'BARNLEY MBC'	01/05/2010	Carduelis carduelis	Goldfinch	Breeding confirmed					
SK3298	'BARNLEY MBC'	01/05/2010	Carduelis carduelis	Goldfinch	Breeding confirmed					
SK327972	'BARNLEY MBC'	18/08/2012	Carduelis carduelis	Goldfinch	feeding flock					
SK318986	Wortley	18/12/1994	Carduelis carduelis	Goldfinch	across pasture					
SK340983	Westwood Country Park	18/01/1987	Carduelis carduelis	Goldfinch						
SK3398	'BARNLEY MBC'	01/05/2010	Columba oenas	Stock Dove	Breeding probable					
SK3298	'BARNLEY MBC'	01/05/2010	Columba oenas	Stock Dove	Breeding probable					
SK3299	Hallowmoor Road, Sheffield S6	22/09/1977	Delichon urbica	House Martin						
SK330976	High Green/Howbrook Reservoir	01/09/1987	Delichon urbica	House Martin						
SK3398	West Wood LWS	14/09/1988	Delichon urbica	House Martin						
SK3299	Hallowmoor Road, Sheffield S6	22/09/1977	Delichon urbica	House Martin						
SK328970	High Green	14/09/2011	Delichon urbica	House Martin	several hundred mixed feeding flock (with swallows) over field -					
SK3398	Westwood Farm Bungalow	01/01/1985	Dendrocopos minor	Lesser Spotted Woodpecker						
SK3298	Bromley Wood	01/01/1988	Dendrocopos minor	Lesser Spotted Woodpecker	Single.					
SK3298	Bromley Wood	29/12/1988	Dendrocopos minor	Lesser Spotted Woodpecker	Female at Storrs Plantation.					
SK340987	Greaves Lane	19/12/2012	Falco tinnunculus	Kestrel	A solitary male, flushed from a small tree (in the field where pond sludge was dumped)					
SK316981	Booth Wood, Wortley	17/09/1995	Falco tinnunculus	Kestrel	in tree overlooking pasture					
SK340983	Westwood Country Park	09/01/2010	Falco tinnunculus	Kestrel	hovering over snow					
SK318984	Wortley	02/03/1997	Falco tinnunculus	Kestrel	over edge of wheat field					
SK326969	'BARNLEY MBC'	26/04/2016	Falco tinnunculus	Kestrel	Hovering over road verge then settled on road sign.					
SK3299	'BARNLEY MBC'	01/05/2010	Falco tinnunculus	Kestrel	Breeding probable					
SK340983	Westwood, Tankersley	09/01/2010	Falco tinnunculus	Common Kestrel	hovering. Still snow cover.%OA					
SK3398	West Wood LWS	14/09/1988	Hirundo rustica	Swallow						
SK3197	A629 Wortley to junction with A61(T)	28/04/1991	Hirundo rustica	Swallow						
SK327988	'BARNLEY MBC'	29/06/2014	Hirundo rustica	Swallow	feeding flock over arable field					
SK3298	Howbrook	30/06/2015	Hirundo rustica	Swallow						
SK3299	'BARNLEY MBC'	01/05/2010	Hirundo rustica	Swallow	Breeding confirmed					
SK3298	'BARNLEY MBC'	01/05/2010	Hirundo rustica	Swallow	Breeding confirmed					
SK3398	'BARNLEY MBC'	01/05/2010	Hirundo rustica	Swallow	Breeding confirmed					
SK328970	High Green	14/09/2011	Hirundo rustica	Swallow	several hundred mixed feeding flock (with house martin) over field -					
SK314981	fields SW of A629, Wortley to junction with.	11/08/1996	Hirundo rustica	Swallow	low over old manure heap					
SK340982	Westwood Reservoir	01/04/2000	Motacilla cinerea	Grey Wagtail	From; An ecological survey to an area to the West of the M1, May 2000					
SK3398	West Wood LWS	01/05/2000	Motacilla cinerea	Grey Wagtail	From; An ecological survey of an area to the West of the M1					
SK316982	Booth Wood, Wortley	09/04/1995	Regulus regulus	Goldcrest	together in ivy covered area					
SK3398	West Wood LWS	14/09/1988	Riparia riparia	Sand Martin						
SK3298	'BARNLEY MBC'	01/05/2010	Sturnus vulgaris	Starling	Breeding confirmed					
SK318971	Hazelshaw Farm, High Green	17/04/1994	Sturnus vulgaris	Starling	with fieldfare in recently muck spread pasture					
SK33819795		09/01/2010	Sturnus vulgaris	Starling	singing in roadside tree					
SK334978	Westwood Country Park	02/03/2012	Turdus merula	Blackbird	Rank horse grazed fields with wooded slopes					
SK341981	Westfield Reservoir	30/03/2011	Turdus merula	Blackbird						
SK316981	Booth Wood, Wortley	30/01/2000	Turdus merula	Blackbird	under holly in leaf litter					
SK317986	fields between Howbrook, Wortley and Pilk	20/01/2001	Turdus merula	Blackbird	in hedgerow litter					
SK313977	Wortley	18/12/1994	Turdus merula	Blackbird	together in isolated oak					
SK317982	Wortley	18/12/1994	Turdus merula	Blackbird	in bramble thicket					
SK316983	Booth Wood, Wortley	21/12/1997	Turdus merula	Blackbird	in leaf litter					
SK316982	Booth Wood, Wortley	18/03/1995	Turdus merula	Blackbird	woodland fringe					
SK317982	Booth Wood, Wortley	18/03/1995	Turdus merula	Blackbird	alarming from sycamore					
SK315979	Wortley	18/03/1995	Turdus merula	Blackbird	from group of willows					
SK313977	fields SW of A629, Wortley to junction with.	11/08/1996	Turdus merula	Blackbird	alarming from hedge between cornfield & pasture					
SK315981	Booth Wood, Wortley	16/02/1997	Turdus merula	Blackbird	in deciduous leaf litter in wood					
SK314979	Wortley	02/03/1997	Turdus merula	Blackbird	from litter at edge of small stream in pasture					
SK3398	'BARNLEY MBC'	01/05/2010	Turdus merula	Blackbird	Breeding confirmed					

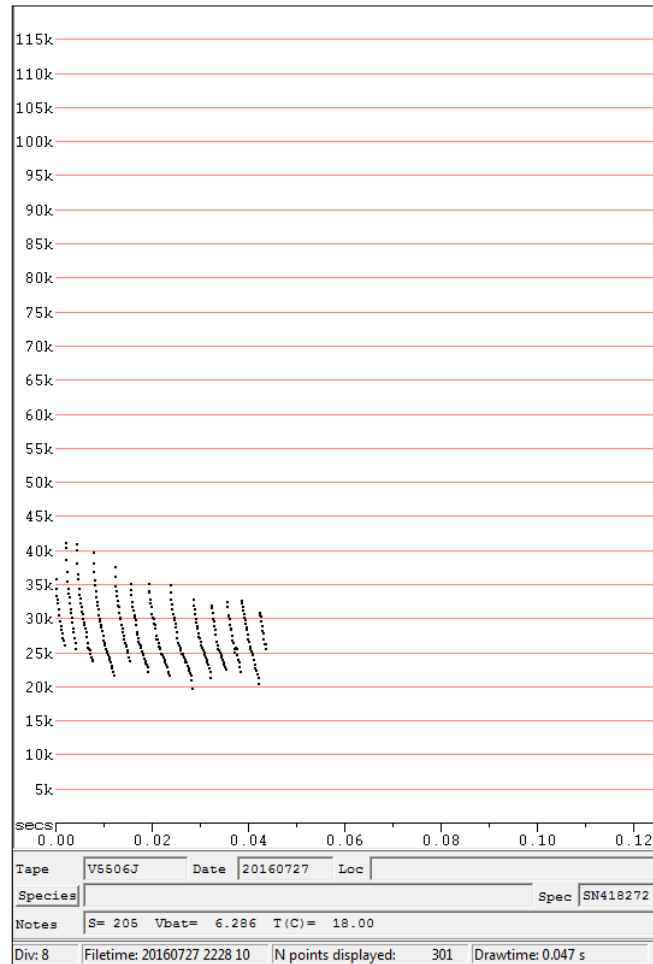
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SK3299	'BARNLEY MBC'	01/05/2010	Turdus merula	Blackbird	Breeding confirmed			
SK3298	'BARNLEY MBC'	01/05/2010	Turdus merula	Blackbird	Breeding confirmed			
SK3298	Howbrook	30/06/2015	Turdus merula	Blackbird				
SK3398	West Wood LWS	01/01/2005	Turdus philomelos	Song Thrush	breeding			
SK3398	'BARNLEY MBC'	01/05/2010	Turdus philomelos	Song Thrush	Breeding confirmed			
SK3298	'BARNLEY MBC'	01/05/2010	Turdus philomelos	Song Thrush	Breeding confirmed			
SK3299	'BARNLEY MBC'	01/05/2010	Turdus philomelos	Song Thrush	Breeding confirmed			
SK316982	Booth Wood, Wortley	09/04/1995	Turdus philomelos	Song Thrush	from woodland fringe			
SK3398	'BARNLEY MBC'	01/05/2010	Turdus viscivorus	Mistle Thrush	Breeding confirmed			
SK3298	'BARNLEY MBC'	01/05/2010	Turdus viscivorus	Mistle Thrush	Breeding confirmed			
SK3299	'BARNLEY MBC'	01/05/2010	Turdus viscivorus	Mistle Thrush	Breeding confirmed			
SK318971	Hazelshaw Farm, High Green	17/04/1994	Turdus viscivorus	Mistle Thrush				
SK313977	Wortley	18/12/1994	Turdus viscivorus	Mistle Thrush				
SK313977	fields SW of A629, Wortley to junction with	11/08/1996	Turdus viscivorus	Mistle Thrush	edge of cornfield and pasture			
SK316983	Booth Wood, Wortley	21/12/1997	Turdus viscivorus	Mistle Thrush	together			
SK3398	Westwood Farm Bungalow	01/01/1985	Phoenicurus phoenicurus	Redstart				
SK3398	'BARNLEY MBC'	01/05/2010	Phylloscopus trochilus	Willow Warbler	Breeding confirmed			
SK3298	'BARNLEY MBC'	01/05/2010	Phylloscopus trochilus	Willow Warbler	Breeding probable			
SK3299	'BARNLEY MBC'	01/05/2010	Phylloscopus trochilus	Willow Warbler	Breeding confirmed			
SK3298	Howbrook	30/06/2015	Phylloscopus trochilus	Willow Warbler				
SK3398	Westwood, Tankersley	10/05/1986	Picus viridis	Green Woodpecker				
SK3398	Westwood Country Park	10/05/1986	Picus viridis	Green Woodpecker				
SK340983	Westwood Country Park	09/04/1987	Picus viridis	Green Woodpecker				
SK3398	West Wood LWS	01/09/1988	Picus viridis	Green Woodpecker				
SK338984	Westwood Country Park	23/07/1997	Picus viridis	Green Woodpecker				
SK3398	West Wood LWS	01/01/2005	Prunella modularis	Dunnock	breeding			
SK3299	'BARNLEY MBC'	01/05/2010	Prunella modularis	Dunnock	Breeding confirmed			
SK3398	'BARNLEY MBC'	01/05/2010	Prunella modularis	Dunnock	Breeding confirmed			
SK3298	'BARNLEY MBC'	01/05/2010	Prunella modularis	Dunnock	Breeding confirmed			
SK317982	Wortley	18/12/1994	Pyrrhula pyrrhula	Bullfinch	woodland fringe			
SK3398	West Wood LWS	23/12/1988	Pyrrhula pyrrhula	Bullfinch				
SK3398	West Wood LWS	01/01/2005	Pyrrhula pyrrhula	Bullfinch	breeding			
SK3299	'BARNLEY MBC'	01/05/2010	Pyrrhula pyrrhula	Bullfinch	Breeding probable			
SK3398	'BARNLEY MBC'	01/05/2010	Pyrrhula pyrrhula	Bullfinch	Breeding confirmed			
SK3298	'BARNLEY MBC'	01/05/2010	Pyrrhula pyrrhula	Bullfinch	Breeding probable			
SK334988	West Wood LWS	14/11/2009	Pyrrhula pyrrhula	Common Bullfinch	1 in trees on woodland edge			
SK3397	High Green	13/09/1989	Sula bassana	Gannet	found walking in road - taken to Loxley Animal Sanctuary - no signs of injury			
SK340983	Westwood Country Park	01/01/1987	Scolopax rusticola	Woodcock				
SK3398	West Wood LWS	09/10/1988	Scolopax rusticola	Woodcock				
SK391	BTO, Grenoside	01/04/1988	Parus montanus	Willow Tit				
SK3403098656	West Wood Country Park	12/01/2016	Parus montanus	Willow Tit	Seen near the entrance off Greaves Lane			
SK3299	Bromley	01/03/1999	Miliaria calandra	Corn Bunting				
SK341981	Westwood Reservoir	10/04/2010	Chiroptera	Bats				
SK3398	Tankersley	04/07/1981	Chiroptera	Bats				
SK3398	Tankersley	04/07/1981	Chiroptera	Bats	1			
SK327983	'BARNLEY MBC'	01/09/2003	Pipistrellus pipistrellus 45kHz	45 Khz Pipistrelle	2 feeding			
SK3398	Westwood Country Park	26/07/1986	Arvicola terrestris	Water Vole	1			
SK3398	Westwood Country Park	19/04/1987	Arvicola terrestris	Water Vole	1			
SK3398	Westwood Country Park	09/04/1988	Arvicola terrestris	Water Vole	1			

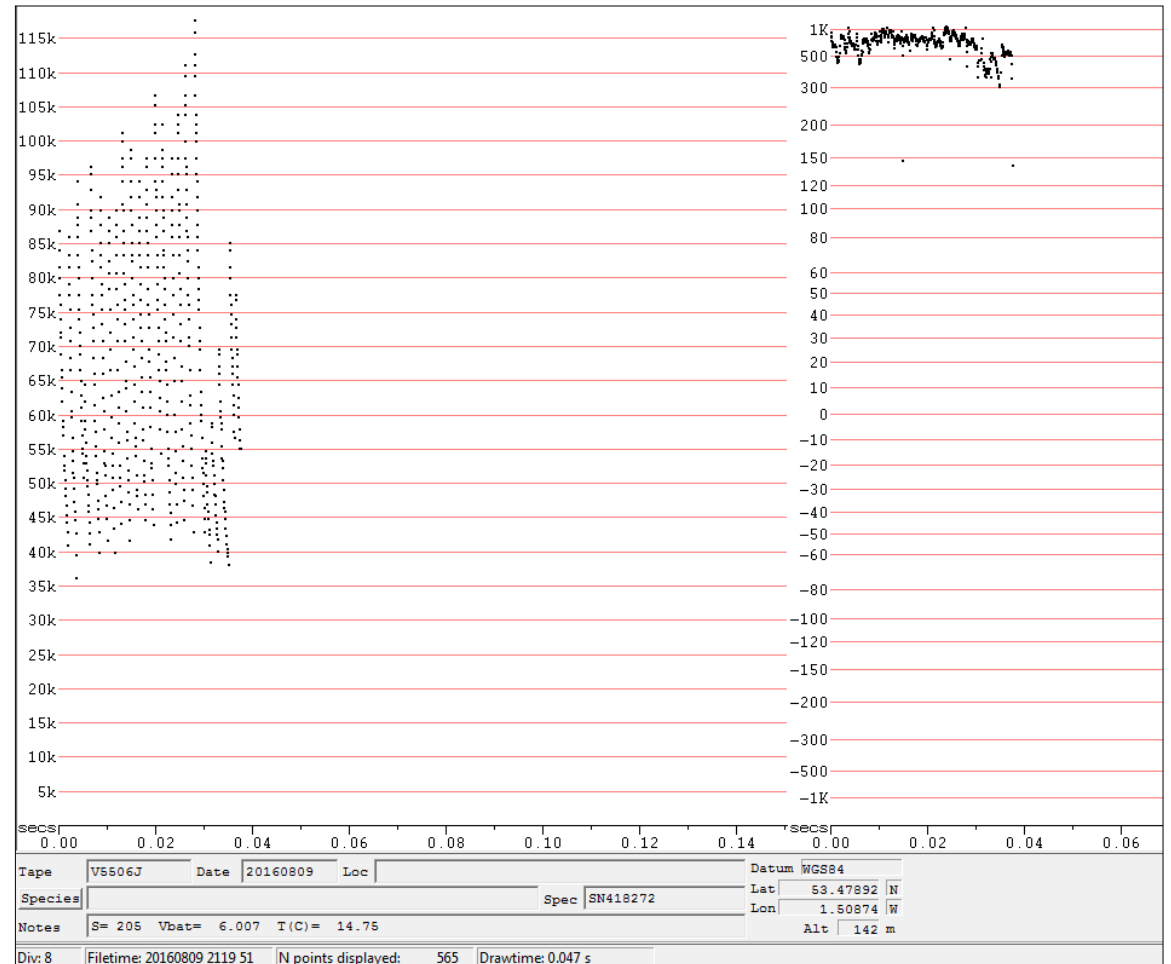
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Recorder	Date	GridRef 6Fig	Grid Square	Address line 1	Address line 2	Address line 3	Type	Access points	Notes	Species	Number	Evidence
Eric Bennett	19/06/1989	SK302989	SK3098	Finkle Street fields to north	Wortley	Barnsley				Pipistrelle sp.	2	
Eric Bennett	19/06/1989	SK302989	SK3098	Finkle Street fields to north	Wortley	Barnsley			Bats feeding low over fields	Noctule	3	
Eric Bennett	12/07/1994	SK302986	SK3098	Hare Springs Cottage	Wortley	Barnsley	House	Flashing chimney	Prob. Excluded	Vespertilionidae	-	
Eric Bennett	13/06/1993	SK3099	SK3099	Rose Cottage	Wortley	Barnsley			Bat found dead in garden	Brown long-eared bat	1	
Eric Bennett	21/09/2004	SK312978	SK3197	Woodhead Road	Wortley	Barnsley			P.aur feeding perch. P.pip social calls.	Various	Unknown	
Karen Larkin	24/08/2012	SK312993	SK3199	Wortley Hall, S36 1EW	Wortley	Barnsley			adult male	Common pipistrelle	1	
Eric Bennett	01/09/2003	SK327983	SK3298	Carr Head Road	Howbrook	Barnsley			P.aur feeding perch. 2 P.pip feeding.	Vespertilionidae	Unknown	
Eric Bennett	01/09/2003	SK327983	SK3298	Carr Head Road	Howbrook	Sheffield	Barn			Various	Unknown	
Eric Bennett	20/03/2008	SK324880	SK3298	Bemy Lane	Howbrook	Sheffield			P.aur dr & moth wings roost 3 P.aur dr not fresh - occasional male hag-up. Single P.pip feeding round farmyard.	Brown long-eared bat	Unknown	
Eric Bennett	08/07/2010	SK324880	SK3298	Bemy Lane	Howbrook	Sheffield				Various	Unknown	
Natural England V.	16/11/2015	SK327982	SK3298		Sheffield	South Yorkshire				Pipistrellus sp.		Method of ID unknown
Jerry Brown	04/07/1981	SK3398	SK3398	Tankersley area	Tankersley	Barnsley				Vespertilionidae	1	
Eric Bennett	22/06/1997	SK3398	SK3398	Wentworth Village	Wentworth	Rotherham			bats found in office & returned to roof.	Pipistrelle sp.	2	
Eric Bennett	30/07/2001	SK339996	SK3399	Wentworth Ind. Park	Tankersley	Barnsley			Bat trapped in factory 111	Soprano pipistrelle	1	
Eric Bennett	20/06/1996	SK342978	SK3497	Dowling Avenue	High Green	Sheffield	House	Eaves		Vespertilionidae	+ Or	
Eric Bennett	14/07/1999	SK342979	SK3497	Taverner Way	High Green	Sheffield	House	Under window sill	Bat flying inside warehouse - several days?	Pipistrelle sp.	+ (51-100)	
English Nature	26/09/2006	SK349972	SK3497	Carr Road		Chapelton				Vespertilionidae	Unknown	
Karen Larkin	01/08/2011	SK3497	SK3497	Westnall House	Oughtibridge					Common pipistrelle	1	
Eric Bennett	03/06/1983	SK3498	SK3498	Westwood Reservoir Tunnel	High Green	Sheffield	Tunnel			Deubenton's bat	2	
English Nature	23/07/2006	SK34980	SK3498	Merbeck Drive	High Green	Sheffield			Bat in room. Removed bat - no roost identified.	Pipistrelle sp.	Unknown	
Jerry Brown	29/03/1981	SK3499	SK3499		Tankersley	Barnsley				Vespertilionidae	1	
Eric Bennett	11/08/2009	SK349997	SK3499	Tankersley Lane	Tankersley	Barnsley			P.aur in barn D and cottage E. 2 seen poss juv present.	Vespertilionidae	Unknown	
Eric Bennett	11/08/2009	SK349998	SK3499	Tankersley Lane	Tankersley	Barnsley	Barn		Lots of discarded moth wings.	Brown long-eared bat	2-3	

Appendix 03: BAT ECHOLOCATION ANALYSIS: SONOGRAM EXCERPTS



Brown long-eared bat echolocation call (27/07/2016)



Natterer's bat echolocation call (09/08/2016)

Appendix 04: Legislation: Protected Species

Bats

All British bats are afforded full protection under both UK and European legislation.

The Conservation (Natural Habitats & c.) Regulations 2007 transpose the Habitats Directive into UK law, making it an offence to-

- deliberately disturb a bat
- deliberately kill or capture a bat
- damage, destroy or obstruct access to a breeding site or resting place (note this applies to both deliberate and reckless actions).

The Wildlife and Countryside Act 1981 (as amended) (Schedule 5) made it an offence to

- intentionally kill, injure or take a bat
- damage, destroy or obstruct a resting place *,
- disturb the species in a resting place *
- possess or control a bat or any part thereof
- sell, offer for sale, possess or transport for sale any bat or part thereof
- set traps for catching, killing or injuring bats
- possess articles for the purposes of committing offences against bats

[*= intentional and reckless offences covered]

Legal protection under the Habitats Directive applies to their breeding sites and resting places. This means that bat roosts are fully protected, whether they are in use at the time or not. Where roosts or resting/breeding sites are identified, any works which may contravene the protection afforded to them require derogation from the provisions of the legislation in the form of a licence from Natural England.

Breeding birds

The Wildlife and Countryside Act 1981 gives protection to all bird's nests (whilst being built or in use) and eggs from intentional damage or destruction. Additional protection against disturbance on the nest or of dependant young is provided for birds included on Schedule 1.

Great Crested Newt

Great crested newts and their habitats are given full protection under Section 9 of the Wildlife and Countryside Act 1981 (as amended). The species is also listed on Annexes II and IV of the EC Habitats Directive (Council Directive 92/43/EEC) which is implemented in the UK by The Conservation (Natural Habitats and Conservation) Regulations 1994. It is a priority species in the UK Biodiversity Action Plan.

Reptiles

The Wildlife and Countryside Act 1981 makes it an offence to intentionally kill any of our native snakes and lizards. The sand lizard and smooth snake receive additional protection; for these species, it is unlawful to capture or possess them, or to damage/obstruct access to places they use for shelter or protection, or to disturb them whilst in such a place.

Badgers

Badgers and their setts are protected by the Protection of Badgers Act 1992. Under this act it is illegal to: (1) wilfully kill, injure, take a badger or attempt to do so, (2) cruelly ill-treat a badger or (3) interfere with a sett, including disturbing a badger while occupying a sett.

Water Vole

Water voles are now given full legal protection under Section 9(4) of Schedule 5 of the Wildlife & Countryside Act 1981 (as amended in 2008). This makes it a legal offence to intentionally kill, injure or take, sell, damage or destroy or obstruct access to any structure or place used by water voles for shelter or protection, or to disturb water voles while they are using such a place.