

Thornhill Estates

Woodhouse Garden Suburb Extension

BAT REPORT

July 2019

FPCR Environment and Design Ltd

Registered Office: Lockington Hall, Lockington, Derby DE74 2RH Company No. 07128076. [T] 01509 672772 [F] 01509 674565 [E] mail@fpcr.co.uk [W] www.fpcr.co.uk

This report is the property of FPCR Environment and Design Ltd and is issued on the condition it is not reproduced, retained or disclosed to any unauthorised person, either wholly or in part without the written consent of FPCR Environment and Design Ltd.

Rev	Issue Status	Prepared / Date	Checked / Date	Approved/Date				
-	Issue	SH / 02.07.19 KH / 05.07.19	IH / 05.07.19	JSE / 05.07.19				

CONTENTS

1.0	INTRODUCTION	2
2.0	LEGISLATION AND STATUS	2
3.0	METHODOLOGY	3
4.0	RESULTS	8
5.0	EVALUATION OF RESULTS	16
APPI	ENDIX A: STATIC DETECTOR RESULTS TABLE	20

TABLES

Table 1: Bat Survey Protocol for Trees Table 2: Bat Transect Survey: Weather Conditions Table 3: Summary of Bat Records within 1km Table 4: Trees with Bat Potential Table 5: Static Detector Survey Results Table 6: Species breakdown across all surveys

FIGURES

- Figure 1: Static Location Plan
- Figure 2: Bat Transect Plan (12.07.18)
- Figure 3: Bat Transect Plan (08.08.18)
- Figure 4: Bat Transect Plan (25.09.18)
- Figure 5: Bat Transect Plan (09.10.18)
- Figure 6: Bat Transect Plan (30.04.19)
- Figure 7: Bat Transect Plan (30.05.19)
- Figure 8: Bat Transect Plan (27.06.19)

1.0 INTRODUCTION

- 1.1 The following report has been prepared by FPCR Environment and Design Ltd on behalf of Thornhill Estates. It provides the results of a suite of bat surveys undertaken during 2018 & 2019 at a site at Woodhouse, Brighouse (central grid reference: SE 152 213). The report is intended to outline the potential constraints and opportunities that the promotion of the site for a mixed use development as part of the emerging Calderdale Local Plan has in relation to bats.
- 1.2 The study area is 62.8ha in extent and is agricultural in nature, with a mixture of arable and permanent and temporary grassland habitats. Bradley Park Dike forms the sites southern boundary with Bradley Wood located just offsite to the south. A number of residential properties and farm complexes were recorded within the site. The field boundaries on the site are formed predominately by hedgerows with dry stone walls also well represented. The suburb of Woodhouse is present to the north-west of the site with an industrial area along the River Calder corridor to the north. The M62 was located Beyond Bradley wood to the south, with the landscape beyond being characterised by Bradley Park golf club. A number of Public Rights of Way (PRoW) cross the site, including the Brighouse Boundary Walk.
- 1.3 The objective of the bat surveys was to assess the potential impact of proposals on foraging, commuting and roosting bats. The report presents the results of the suite of bat surveys which have been conducted on-site to date. This includes:
 - detailed aerial assessments of trees with bat roosting potential, which could be impacted by proposals; and
 - bat activity surveys comprising transects and static detector monitoring to assess the value of the site for foraging and commuting bats.
- 1.4 The results of these surveys were used to make recommendations for mitigation and enhancement.

2.0 LEGISLATION AND STATUS

Legislation

- 2.1 All bats and their roosts are afforded full legal protection under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife & Countryside Act 1981 (as amended). The purpose of the legislation is to maintain and restore protected species to a situation where their populations are favourable.
- 2.2 Under Regulation 43 of the Conservation of Habitats and Species Regulations 2017 (as amended) it is illegal to deliberately capture, injure or kill; deliberately disturb (including intentionally or recklessly) all UK bat species. This includes disturbance which impairs their ability to: breed and rear young; migrate; and hibernate; or affects their local distribution and abundance. Under the Wildlife and Countryside Act 1981 (as amended) it is illegal to:
 - Recklessly or intentionally kill, injure or take any wild animals included in Schedule 5,
 - Recklessly or intentionally damage or destroy, or obstruct access to any structure or place which any wild animal included in Schedule 5 uses for shelter or protection,

- Recklessly or intentionally disturb any such animal while it is occupying a structure or place which it uses for shelter or protection.
- 2.3 Foraging habitat and commuting routes used by bats are not protected as such, but impacts that could prevent bats from using a resource or commuting to or from a valued roosting site may be considered as an indirect impact on a roost or a significant disturbance effect and would therefore also need to be avoided or prevented.

Status

2.4 The Calderdale Biodiversity Action Plan⁴ seeks to deliver benefits for biodiversity via a series of specific Calderdale Biodiversity Action Plan Habitat and Species Action Plans. At present no specific action plan has been written for bats. All bat species found in the Calderdale area are local priority species⁵. There are thought to be a total of 10 species present in West Yorkshire⁶.

3.0 METHODOLOGY

Desk Study

3.1 To support the field survey and further compile existing baseline information relevant to the site, ecological information was sought from the West Yorkshire Ecology Service (WYES), including records of protected or notable species and sites designated for nature conservation interest.

Bat Roosts in Trees

Ground Level Assessment of Trees

- 3.2 The tree assessments for roost potential were undertaken from ground level on 1st and 8th May 2018, with the aid of a torch and binoculars where required. During the survey Potential Roosting Features (PRFs) for bats such as the following were sought⁷:
 - Natural holes (e.g. knot holes) arising from naturally shed branches or branches previously pruned back to a branch collar;
 - Man-made holes (e.g. cavities that have developed from flush cuts or cavities created by branches tearing out from parent stems);
 - Woodpecker holes;
 - Cracks/splits in stems or branches (horizontal and vertical);
 - Partially detached, loose or bark plates;
 - Cankers (caused by localised bark death) in which cavities have developed;
 - Other hollows or cavities, including butt rots;
 - Compression of forks with occluded bark, forming potential cavities;

⁴Calderdale Council (2007) Calderdale's Natural Heritage – A Biodiversity Action Plan for Calderdale Version 1.5

^b Colin P Duke and Hugh Firman (Amended 2015) A Species Audit for Calderdale. Calderdale Council

⁶Bats in West Yorkshire, accessed at <u>http://www.westyorkshirebats.org.uk/?page_id=159</u> last accessed on 25/03/19

⁷ BS 8596:2015, (October 2015): Surveying for bats in trees and woodland, Pg 16

- Crossing stems or branches with suitable roosting space between;
- Ivy stems with diameters in excess of 50mm with suitable roosting space behind (or where roosting space can be seen where a mat of thinner stems has left a gap between the mat and the trunk);
- Bat or bird boxes;
- Other suitable places of rest or shelter.
- 3.3 Certain factors such as orientation of the feature, its height from the ground, the direct surroundings and its location in respect to other features, may enhance or reduce the potential value.
- 3.4 Based on the above, trees were classified into general bat roost potential groups based on the presence of these features. Table 1 (below) broadly classifies the potential categories as accurately as possible as well as discussing the relevance of the features. This table is based upon Table 4.1 and Chapter 6 in Bat Surveys for Professional Ecologists: Good Practice Guidelines⁸.
- **3.5** Although the British Standard Document groups trees with moderate and high potential, these have been separated below (as per Table 4.1 in The Bat Conservation Trust Guidelines) to allow more specific survey criteria to be applied.

Classification of Tree	Description of Category and Associated Features (based on Potential Roosting Features listed above)	Likely Further Survey Work / Actions
Confirmed Roost	Evidence of roosting bats in the form of live / dead bats, droppings, urine staining, mammalian fur oil staining, etc.	A Natural England derogation licence application will be required if the tree or roost site is affected by the development or proposed arboricultural works. This will require a combination of aerial assessment by roped access bat workers (where possible, health and safety constraints allowing) and nocturnal survey during appropriate periods (e.g. nocturnal survey - May to August) to inform on the licence. Works to tree undertaken under supervision in accordance with the approved good practice method statement provided within the licence.
		However , where confirmed roost site(s) are not affected by works, work under a precautionary good practice method statement may be possible.

Table 1: Bat Survey Protocol for Trees

 $^{8\,}$ Collins $\,$ J, (2016), Bat Surveys for Professional Ecologists: Good Practice Guidelines. Bat Conservation Trust $\,$

Classification of Tree	Description of Category and Associated Features (based on Potential Roosting Features listed above)	Likely Further Survey Work / Actions				
High Potential	A tree with one or more Potential Roosting Features that are obviously suitable for larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter protection, conditions (height above ground level, light levels, etc) and surrounding habitat. Examples include (but are not limited to); woodpecker holes, larger cavities, hollow trunks, hazard beams, etc.	 Aerial assessment by roped access bat workers (if appropriate) and / or nocturnal survey during appropriate period (May to August). Following additional assessments, a tree may be upgraded or downgraded based on findings. If roost sites are confirmed and the tree or roost is to be affected by proposals a licence from Natural England will be required. After completion of survey work (and the presence of a bat roost is discounted), a precautionary working method statement may still be appropriate. 				
Moderate Potential	A tree with Potential Roosting Features which could support one or more potential roost sites due to their size, shelter protection, conditions (height above ground level, light levels, etc) and surrounding habitat but unlikely to support a roost of high conservation status (i.e. larger roost, irrespective of wider conservation status). Examples include (but are not limited to); woodpecker holes, rot cavities, branch socket cavities, etc.	A combination of aerial assessment by roped access bat workers and / or nocturnal survey during appropriate period (May to August). Following additional assessments, a tree may be upgraded or downgraded based on findings. After completion of survey work (and the presence of a bat roost is discounted), a precautionary working method statement may still be appropriate. If a roost site/s is confirmed a licence from Natural England will be required.				
Low Potential	A tree of sufficient size and age to contain Potential Roosting Features but with none seen from ground or features seen only very limited potential. Examples include (but are not limited to); loose/lifted bark, shallow splits exposed to elements or upward facing holes.	No further survey required but a precautionary working method statement may be appropriate.				
Negligible/No potential	Negligible/no habitat features likely to be used by roosting bats	None.				

NB: The Conservation of Habitats & Species Regulations 2017 (as amended) affords protection to "breeding sites" and "resting places" of bats. The EU Commission's Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC, February 2007 states that these are places "where there is a reasonably high probability that the species concerned will return".

Detailed Potential Roosting Feature (PRF) Inspection Survey in Trees (Aerial Inspection)

- 3.6 PRF inspection surveys were undertaken on any trees that were classified as providing medium or high levels of bat roosting potential in the preliminary assessment. These surveys included a detailed inspection for PRFs using endoscopes, mirrors, torches and cameras and were accessed by appropriately licensed and experienced ecologists using arborist tree-climbing techniques. During this survey, each feature is inspected for evidence of current or past occupation by bats and also its potential suitability to support roosting bats. Individual features were re-assessed (using the criteria outlined in Table 1) which was used to reclassify the tree and inform any further survey effort or mitigation as outlined below.
- 3.7 This assessment was completed by suitably experienced and licensed ecologists (Natural England Class Licence Registration Number: 2015-15982-CLS-CLS) on the 14th May 2019.
- 3.8 In accordance with Chapter 6 in Bat Surveys for Professional Ecologists: Good Practice Guidelines⁹, where this inspection categorised a PRF or tree as containing moderate or high bat roosting potential then further surveys would be necessary. Where a PRF or tree was categorised as low then no further surveys are likely to be necessary but precautionary methods for works to the tree would be recommended. If a tree was considered to provide negligible bat roosting potential then no further action would be necessary in respect of bats.

Bat Activity Surveys

3.9 The primary objective of the bat activity surveys was to identify foraging areas, commuting routes and to update the understanding of species utilisation of the site. These were based on methods outlined in current best practice¹⁰ and comprised both transect and static detector surveys spread across the active bat season. Based on the habitat suitability assessment the transect and static monitoring surveys were undertaken on a monthly basis across the active bat season (April-October inclusive).

Transect Surveys

- 3.10 The transect route was predetermined prior to surveys commencing in order to comprehensively cover all areas of the site to identify activity levels around the habitat features of potential value to bats and those that are most likely to be affected by proposals. The starting point of the transect route was rotated between surveys to avoid bias in the route and from coverage when most bats are less likely to be active at the start of the survey.
- 3.11 The dusk transects commenced prior to sunset, and continued for two to three hours after sunset. Each transect was walked at a steady pace and when a bat passed by, the species, behaviour and time were noted and recorded on a site plan. This information provides a general view of the bat activity present on site and identifies the key foraging areas and commuting routes. Surveyors used Wildlife Acoustics Inc. Echo Meter Touch® bat detectors in conjunction

⁹ Collins J, (2016), Bat Surveys for Professional Ecologists: Good Practice Guidelines. Bat Conservation Trust

¹⁰ Collins J, (2016), Bat Surveys for Professional Ecologists: Good Practice Guidelines. Bat Conservation Trust

with Echo Meter Touch® app and Apple Inc. iPad® during the transect surveys to detect bats and aid species identification. Post-survey, bat calls were analysed using Kaleidoscope© version 5.4.4 (Wildlife Acoustics Inc.) software package, by taking measurements of the peak frequency, inter-pulse interval, call duration and end frequency. From this, the level of bat activity across the site in relation to the abundance of individual species foraging and commuting along habitats was assessed.

3.12 Transect surveys were undertaken during suitable conditions when the ambient air temperature exceeded 10°C and the wind was no more than a gentle breeze¹¹ (Beaufort 3 or 5m/s) and little or no rain. Table 2 below provides the survey dates, timings and weather conditions for each survey occasion.

Transect Date	Sunset	Start temp (°C)	Wind (BF)	Rain	Cloud cover (%)
12.07.18	21:31	21	0	0	10
08.08.18	20:47	15	0	0	10
25.09.18	18:57 13		0-3	0	30
09.10.18	18:23	16	1	0	5
30.04.19	20:35	15	0	0	95
30.05.19	21:24	16	2	0	100
27.06.19	21:41	16	2	0	0

Table 2: Bat Transect Survey: Weather Conditions

Static Monitoring

- 3.13 Static (passive) monitoring was undertaken using an automated logging system (Wildlife-Acoustics SM4BAT+, full spectrum remote bat detectors). During each survey period two static recording devices were positioned within the site to record bat registrations for at least five consecutive nights. This was used to supplement transect survey data and derive information on the activity and species composition at different points within the site. Static Recording devices were placed close to habitat features considered to be of value to bats, such as hedgerows, watercourses and trees (see Figure 1 for static detector locations). Devices were placed in each location during suitable weather conditions and were programmed to activate 30 minutes before dusk and record continuously until 30 minutes following sunrise. The recorded data was analysed using and Kaleidoscope© version 5.4.4 (Wildlife Acoustics Inc.) to assess the amount of bat activity on site by recording the number of bat registrations. Measurements including peak frequency, inter-pulse interval, call duration and end frequency were taken to aid in species identification.
- 3.14 Static detectors were deployed during the following periods: 06-11 July 2018, 1-6 August 2018, 19-24 September 2018, 9-14 October 2018, 23-28 April 2019, 14-19 May 2019 and 10-15 June 2019.

¹¹ Slack, G., and Tinsley, E.(2015) Linking bat surveys with meteorological data: A way to target operational wind farm mitigation. CIEEM, In Practice Issue 87

Constraints

3.15 Due to static detector failure there is no data for April 2019, however this is not considered to affect the results as static data was successfully collected in all the other months, giving a robust dataset to assess the level of bat activity on-Site.

4.0 RESULTS

Desk Study

4.1 Records received relating to bats from consultees are provided in Table 3 below.

Species	Conservation Status	Total Number of Records within 1km	Location / Minimum distance of records from study area
Common Pipistrelle Pipistrellus pipistrelle	Regs, WCA Sch 5, LBAP	12	Records from 2003-2017, the closest being a record 560m NW. The closest known roost is 850m S.
Daubenton <i>Myotis daubentonii</i>	Regs, WCA Sch 5, LBAP	1	Single record from 2012 along the River Calder 940m NW of Site.
Noctule Nyctalus noctula	Regs, WCA Sch 5, LBAP	3	Records from 2008 to 2013 the closest being 630m S
Unidentified Bat sp.	Regs, WCA Sch 5	4	Records between 2003 and 2006 the closest record is 360m W with the nearest known roost being 770m S.

Table 3: Summary of Bat Records within 1km

Status Key: Regs = The conservation of Habitats and Species Regulations 2017. WCA = Wildlife and Countryside Act 1981 (as amended). Sch5 = Schedule 5 of WCA. LBAP = Calderdale Biodiversity Action Plan.

Bat Roosts in Trees

Ground Level Assessment of Trees

4.2 The preliminary ground level assessment identified twelve trees (T1-T12) as potentially providing moderate or high bat roosting potential. The locations of these trees are shown on Figure 1.

Detailed Potential Roosting Feature (PRF) Inspection Survey in Trees (Aerial Inspection)

- 4.3 Six trees, T1-T4, T11 and T12 were not aerially assessed as access was not granted by the landowners to survey these trees. The PRFs of tree T8, were complex and extensive and therefore could not be fully inspected at the time of survey. The remaining five trees located onsite (T5-T7, T9 and T10) were fully inspected and no evidence of roosting bats was observed at the time of survey.
- 4.4 Table 4 below details the results of the tree assessments and states the revised bat roosting potential categories of the trees following the detailed aerial PRF inspection, where appropriate.

Table 4: Trees with Bat Potential

Tree Ref	Description	Bat Poost Potential Category
T1	Ground level assessment only – ash with 4 PRFs 1) Butt rot at ground level on SW aspect; 2) Bat box 4m high on NE aspect; 3) Horizontal crack on limb 6m high on SW aspect; 4) Trunk failure at 8m high on N aspect.	High
T2	 <u>Ground level assessment only</u> – wild cherry with 2 PRFs 1) Branch tear out 5m high of S aspect; 2) Knot hole (natural) 6m high on S aspect. 	Moderate
Т3	Ground level assessment only - wild cherry with 1 PRF 1) Knot hole (natural) 3m high on S aspect.	High
T4	 <u>Ground level assessment only</u> – beech with 2 PRFs 1) Knot hole (natural) 7m high on SW aspect; 2) Knot hole (natural) 9m high on SW aspect. 	Moderate
T5	English oak with 1 PRF; 1) Knot hole (natural) 5m high on N aspect, which does not extend.	Moderate revised to Negligible
Т6	 English oak with 1 PRF; 1) Cavity from branch tear out with woodpecker holes 7m high, two entrances, one on NW and one on SW aspect. Both entrances lead to the same internal cavity, which is 15cm wide by 10cm long at the entrance. Internal cavity opens up to 25cm wide by 30cm long. Flat base, dry and dusty with some feathers. The cavity then extends upwards along the limb at the same diameter, extending beyond 1m. Dry and spongy looking. Some cobwebbing. Some smaller cavities branch off this main cavity. 	High
Т7	 Sycamore with 2 PRFs; 1) Branch tear out 5m high on S aspect. Cavity has a 7cm by 5cm entrance. Conical extends back 15cm. Dry with lots of frass. Soft pappy heart wood. Some amounts of white mould. No evidence. 2) Branch tear out 5m high on NW aspect. Upward facing cavity with 15cm opening. Extends down into the limb 30cm and has an area of heartwood constricting the back of the cavity near the stem which covers a pool of water. No evidence. No potential. 	Moderate Revised to Low

Tree Ref.	Description	Bat Roost Potential Category
Τ8	 Sycamore with 3 PRFs; 1) Snapped trunk 9m high on E aspect. Tear out opened up heartwood. Central core of soft pappy heartwood. Opened up cavity in other stem, extending into 3 chambers. Deepest chamber extends 1m up stem. Two chambers had woodlice, one cavity was soft and pappy with areas of smooth, clean wood closer to entrances. 2) Vertical, partially healed trunk wound on N aspect. Extends several metres up main stem with extensive scar tissue. Opening at 5m with 15cm opening, continuing to multi chambered cavity with constrictions and chambers. 50cm up constricted to smooth bobbly surface. 3) Vertical crack 7m high on SE aspect. Crack 10cm x 4cm extends in and up 10cm with additional chamber that extends a further 30cm into a domed chamber. Slugs and woodlice present. 	High
Т9	 Sycamore with 1 PRFs; Huge open cavity on main trunk, 50cm from ground on S aspect. Very wet and too large to assess properly with endoscope. Low potential due to low entrance and dampness but would need a further survey if it was to be lost. 	Moderate revised to Low
T10	Sycamore with 1 PRFs;1) Partially detached platey bark. Feature checked; no potential so removed.	Moderate revised to Negligible
T11	Ground level assessment only - sycamore with 1 PRF; 1) Knot hole (natural) 4m high on W aspect.	Moderate
T12	Ground level assessment only – sycamore with knot hole/ cavity (from pruning) 3m high on SW aspect.	Moderate

Bat Activity Surveys

Habitat Suitability

4.5 The hedgerows, mature trees, woodland and semi-improved neutral grassland would provide foraging/commuting habitat for local bat populations and linkages into the wider area. Due to their intensively managed nature, the improved grassland and arable habitats recorded across the site are unlikely to support a high diversity of invertebrate species and therefore are less likely to provide a significant foraging resource.

Transect Surveys

4.6 The transect routes, bat locations, and tabulated results from each survey occasion are provided in Figures 2-8 respectively. The following paragraphs provide an overview of each survey.

Transect 1: Dusk 12/07/18 (Figure 2)

4.7 The route started to the north of the site at Ryecroft Lane. During this survey three species were recorded: common pipistrelle, soprano pipistrelle and noctule. There were a total of 29 contacts during the survey, around 87% of the contacts were common pipistrelle, 10% were from noctule bats and 3% were from soprano pipistrelle. The first bat recorded was a noctule foraging at 18 minutes past sunset (21:49). The majority (c.75%) of bat contacts were from foraging bats. Bat contacts were largely focused in the west of the site associated with the mosaic of woodland, scrub, hedgerows, grasslands and Bradley Park Dyke.

Transect 2: Dusk 08/08/18 (Figure 3)

4.8 The route began and ended in the south west corner of the site, on Shephards Thorn lane. It followed the route of transect 1. During this survey three species were recorded: common pipistrelle, noctule and a myotis sp. There were a total of 24 contacts with around 87% of the bats recorded were common pipistrelle with 2 contacts from noctule bats and a single myotis sp contact. The first bat recorded was a common pipistrelle commuting/foraging along dense scrub in the west of the site. This bat was recorded 16 minutes past sunset (21:03). At 21:20, approximately, 33 minutes past sunset a total of 23 common pipistrelle were observed commuting along the offsite residential gardens along Woodhouse Lane, before proceeding along the habitats along Firth House Lane towards Firth House. Around 60% of the bat contacts were for commuting bats, foraging was recorded on the remainder of the contacts. Bat contacts were more widespread across the site then the previous survey.

Transect 3: Dusk 25/09/18 (Figure 4)

4.9 The route began and ended towards the centre of the site at the junction of hedgerows H12 and H14. During this survey at least two species of bats were recorded: common pipistrelle and nyctalus sp. There were a total of 40 contacts with common pipistrelle making up 95% of the contacts and just two contact from nyctalus sp. The first bat recorded was a *nyctalus* sp at 10 minutes past sunset (19:07), the bat was observed above Bradley wood close to the eastern boundary. A number of contacts of common pipistrelle were noted along Bradley Park Dike and Hedgerows H7 and H8 from 19:12 until 19:26. A number of foraging pipistrelles were also noted along Bradley Park Dike to the south of the site. Contacts from foraging bats accounted for 70% of the bat contacts, commuting bats comprised approximately 12.5% of the contacts, the remaining contacts were for bat passes and social calling.

Transect 4: Dusk 09/10/18 (Figure 5)

4.10 The route began and ended in the north of the site off Ryecroft Lane and the transect route did not include the poor semi-improved grassland field to the south of H20 due to the aggressive nature of the resident livestock. The first bat contact was a common pipistrelle recorded foraging constantly along Bradley Park Dike at 18:38, 15 minutes after sunset. A total of 40 bat contacts were made across the transect, the vast majority of which were of common pipistrelle. Activity was noted consistently across the site with a slight concentration of activity along hedgerow H20 and around Firth House, where common pipistrelle social calls were noted.

Transect 5: Dusk 30/04/19 (Figure 6)

4.11 The route began and ended in the north of the site along the boundary of an arable field compartment. The route had to be cut short to the west and south of the site, again due to the resident livestock. Two species were recorded during the transect with a total of 36 contacts, 92% of which were common pipistrelles the remaining attributed to *nyctalus sp.* The first bat was recorded 9 minutes after sun set (20:46), this was a non-visual common pipistrelle contact recorded between two arable fields. Contacts from foraging bats made up 44% of the bat contacts. Activity was focussed around the habitats around firth house and the hedgerows within the northern section of the site, although increased sampling effort in this area due to the altered route might explain this increase.

Transect 6: Dusk 30/05/19 (Figure 7)

4.12 The route began and ended in the north of the site at Ryecroft Lane, the route had to be altered and the poor semi-improved grassland field along Bradley Park Dike was not sampled again due to the livestock. At least two species of bats were recorded: common pipistrelle, noctule and *nyctalus sp.* The first bat observed was non visual common pipistrelle approximately 22 minutes after sunset (21:46) and there was a total of 17 contacts with common pipistrelles amounting to around 88% of the total. Constant foraging by small groups of common pipistrelle was observed along the woodland edge along Bradley Park Dike to the east of the site.

Transect 7: Dusk 27/06/19 (Figure 8)

4.13 The route began and ended in the north of the site off Ryecroft Lane. At least 2 species were recorded; common pipistrelles, noctule and *nyctalus sp.* There was a total of 28 contacts with common pipistrelle amounting to around 80% of the bats recorded. The first bat observed was a noctule approximately 7 minutes after sunset (21:47), this was a non-visual contact. The majority of the activity was recorded in the west of the site and associated with the broadleaved woodland, scrub, trees, hedgerows and semi-improved grasslands.

Static Detector Surveys

4.14 A summary of the static bat detector monitoring is provided in Tables 5. More comprehensive data can be found in Appendix A. The locations of the static detector units are shown on Figure 1.

<u>July 2018</u>

- 4.15 Two static bat detectors were deployed from 06th-11th July 2018. Unit 1 was located in the centre of the site next to hedgerow H15. The unit recorded 3956 registrations comprising: common pipistrelle, noctule, *nyctalus sp, myotis sps, pipistrelle sp*, brown long-eared bats and soprano pipistrelle. The most commonly recorded species was common pipistrelle with 88.2% of the total registrations over the survey period with a peak of 1299 on the night of 09/10th July. There was a nightly peak of 1402 registrations for all recorded species on the same night.
- 4.16 Unit 2 was located in the south east of the site on the edge of Bradley Wood. The unit recorded 3390 registrations comprising: common pipistrelle, noctule, pipistrelle species, soprano pipistrelle, *nyctalus sp.* and *myotis sp.* The most commonly recorded species was common pipistrelle with 96.5% of the total registrations over the survey period with a peak of 760 on the

night of 08/09th July. There was a nightly peak of 779 registrations on the same evening which included: common pipistrelle, noctule, pipistrelle species and *nyctalus sp*.

August 2018

- 4.17 Unit 1 was located in the north east of the site next to a tree with bat potential and hedgerows H11 and H12. The unit recorded 2726 registrations comprising: common pipistrelle, noctule, *nyctalus* sp, *myotis* sp and brown long-eared. The most commonly recorded species was common pipistrelle with 98.6% of the total registrations over the survey period with a peak of 1242 on the night of 1st/2nd August. There was a nightly peak of 1246 registrations on the same evening which included common pipistrelles and noctules.
- 4.18 Unit 2 was located in the south west of the site in an area of improved grassland. The unit recorded 1691 registrations comprising: common pipistrelle, noctule, soprano pipistrelle, *myotis* sp, *nyctalus* sp and brown long-eared bats. The most commonly recorded species was common pipistrelle with 97.7% of the total registrations over the survey period with a peak of 444 on the night of 1st/2nd August. There was a nightly peak of 457 registrations on the same evening which included common pipistrelle, soprano pipistrelle and noctule.

September 2018

- 4.19 Unit 1 was located in the north east of the site between an area of neutral semi-improved grassland and improved grassland. The unit recorded 208 registrations comprising: common pipistrelle, myotis species, noctule, nyctalus species and brown long-eared bats The most commonly recorded species was common pipistrelle with 53.8% of the total registrations over the survey period with a peak of 57 on the night of 19/20th September. There was a nightly peak of 70 registrations on the same evening which also included noctule, *nyctalus sp* and *myotis sp*.
- 4.20 Unit 2 was located on the southern site boundary adjacent to Bradley Woods, the dyke and semiimproved grassland. The unit recorded 3193 registrations comprising: common pipistrelle, *myotis sp.*, noctule, *nyctalus sp.*, soprano pipistrelle, *pipistrelle sp.* and brown long-eared bats. The most commonly recorded species was common pipistrelle with 96.9% of the total registrations over the survey period with a peak of 1966 on the night of 19/20th September. There was a nightly peak of 1982 registrations on the same night which also included soprano pipistrelle, noctule, *nyctalus sp.* and *myotis sp.*.

October 2018

- 4.21 Unit 1 was located in the south west of the site adjacent to Bradley Woods, the dyke and improved grassland. The unit recorded 1837 registrations comprising: common pipistrelle, *nyctalus sp,* noctule, *myotis sp.* The most commonly recorded species was common pipistrelle with 97.7% of the total registrations over the survey period with a peak of 761 on the night of 10/11th October. There was a nightly peak of 771 registrations on the same evening which also included noctule and *nyctalus sp.* bats.
- 4.22 Unit 2 was located in the north east of the site within a line of trees adjacent to improved grassland. The unit recorded 4602 registrations comprising: common pipistrelle, *nyctalus sp.*, soprano pipistrelle, *pipistrelle sp.* and *myotis sp.*. The most commonly recorded species was common pipistrelle with 99.8% of the total registrations over the survey period with a peak of 1561 on the night of 12/13th October. This was also the nightly peak for this units survey period.

<u>May 2019</u>

- 4.23 Unit 1 was located in the centre of the site situated between 2 arable fields. The unit recorded 1677 registrations comprising: common pipistrelle, noctule, *pipistrelle sp., nyctalus sp, myotis sp,* soprano pipistrelle. The most commonly recorded species was common pipistrelle with 89.4% of the total registrations over the survey period with a peak of 353 on the night of 18/19th May. There was a nightly peak of 393 registrations on the same evening which also included *Pipistrelle sp,* noctule and *nyctalus sp.*.
- 4.24 Unit 2 was located in the south of the site in H20 close to two trees with bat potential. The unit recorded 547 registrations comprising: common pipistrelle, noctule, *nyctalus sp., pipistrelle sp.,* soprano pipistrelle. The most commonly recorded species was common pipistrelle with 79.5% of the total registrations over the survey period with a peak of 144 on the night of 15/16th May. There was a nightly peak of 159 registrations on the same evening which included *Pipistrelle sp,* noctule and *nyctalus* sp..

<u>June 2019</u>

- 4.25 Unit 1 was located in the centre of the site adjacent to an arable field and semi-improved grassland. The unit recorded 1084 registrations comprising: common pipistrelle, *pipistrelle sp., nyctalus sp.,* noctule and soprano pipistrelle. The most commonly recorded species was common pipistrelle with 93.2% of the total registrations over the survey period with a peak of 482 on the night of 12/13th June. There was a nightly peak of 508 registrations on the same evening which also included *pipistrelle* sp, noctule and *nyctalus* sp..
- 4.26 Unit 2 was located on the north eastern boundary adjacent to an arable field and improved grassland. The unit recorded 974 registrations comprising: common pipistrelle, *nyctalus sp.,* noctule and *pipistrelle* sp. The most commonly recorded species was common pipistrelle with 79.2% of the total registrations over the survey period with a peak of 303 on the night of 14/15th June. There was a nightly peak of 374 registrations on the same evening which included all recorded species.

Static Monitoring Summary

4.1 At least five bat species were recorded utilising the site, with some pipistrelle, *Myotis* and *Nyctalus* records that could not be identified down to species level. Table 5 shows a summary of the results across all surveys. Common pipistrelle accounted for the vast majority of bat activity within the site, comprising over 94.3% of the total bat registrations recorded over the whole survey period. Noctules were the next most frequently recorded species within the site accounting for just over 2.4% of the total bat registrations recorded. Relative usage of the site per species, as shown by percentage of all bat registrations recorded over the duration of the static monitoring period is shown in Table 6

 Table 5: Static Detector Survey Results

Survey Period	Avg. registrations per hour	Total Registrations	Most Recorded Species (Peak Totals)	Other Species Recorded (Peak Totals)
July 1	95.997	3956	Common Pipistrelle (3489)	Noctule (68), nyctalus sp (53), myotis sp (14), Pipistrelle sp (3) soprano pipistrelle (1), brown long eared (3)
July 2	82.266	3390	Common Pipistrelle (3271)	Noctule (23), nyctalus sp (2), myotis sp (1), Pipistrelle sp (14), soprano pipistrelle (4)
August 1	57.403	2726	Common Pipistrelle (2689)	Noctule (15), nyctalus sp (3), myotis sp (1), brown long eared (1)
August 2	35.611	1691	Common Pipistrelle (1653)	Noctule (9), nyctalus sp (1), myotis sp (3), soprano pipistrelle (4), brown long eared (1)
September 1	3.249	208	Common Pipistrelle (112)	Noctule (7), nyctalus sp (5), myotis sp (25), brown long eared (1)
September 2	49.874	3193	Common Pipistrelle (3095)	Noctule (3), nyctalus sp (5), myotis sp (23), Pipistrelle sp (1), soprano pipistrelle (4), brown long eared (1)
October 1	25.849	1837	Common Pipistrelle (1795)	Noctule (1), nyctalus sp (16), myotis sp (1)
October 2	95.997	4602	Common Pipistrelle (4592)	Noctule (68), nyctalus sp (2), myotis sp (1), Pipistrelle sp (1), soprano pipistrelle (2)
May 1	37.492	1677	Common Pipistrelle (1499)	Noctule (24), nyctalus sp (15), myotis sp (2), soprano pipistrelle (1)
May 2	12.228	547	Common Pipistrelle (435)	Noctule (28), nyctalus sp (168), soprano pipistrelle (1)
June 1	27.163	1084	Common Pipistrelle (1010)	Noctule (10), nyctalus sp (11), soprano pipistrelle (1)
June 2	24.406	974	Common Pipistrelle (771)	Noctule (30), nyctalus sp (11), Pipistrelle sp (5)

Table 6: Species breakdown across all surveys

Species	Percentage
Common Pipistrelle	94.306%
Noctule	2.368%
Nyctalus Species	1.924%
Myotis Species	0.734%
Pipistrelle Species	0.529%
Soprano Pipistrelle	0.104%
Brown Long-eared	0.035%

Limitations

- 4.2 Where calls could not be identified to species level, for example due to the lower quality of those recordings or where there are similarities between species echolocation calls (particularly for *Myotis* and *Pipistrellus* genus bats) making a definite identification difficult, a likely species identification is provided where possible. This is based on the features displayed by the calls when analysed using the Analook data analysis software package and taking in to account the geographical location of the site and the habitats present. It was therefore considered that:
 - Pipistrelle species bats were likely to be either common or soprano;
 - Nyctalus species bats were likely to be noctule;
- 4.3 Given the known species distributions of *Myotis* species locally, *Myotis* species bats were likely to be whiskered/Brandt's *Myotis mystacinus / brandtii*, Natterer's *Myotis nattereri* or Daubenton's *Myotis daubentoni*.

5.0 EVALUATION OF RESULTS

Desk Study

5.1 The desk study returned 20 records of bat between 2003 and 2017 within 1km of the site. No records of bats were provide from within the site.

Bat Roosts in Trees

- 5.2 Of the twelve trees that had moderate or high bat roosting potential following the ground assessment, six trees (T1-T4, T11 and T12) were not aerially assessed, due to access issues. Four trees (T5, T7, T9 and T10) were reduced to low / negligible bat potential and two trees (T6 and T8) were maintained as having high bat roosting potential.
- 5.3 No evidence of roosting bats was recorded in association with any of the on-site trees at the time of survey, however the PRFs within tree T8 and T9 were not able to be fully assessed due to their extent / complexity and access to inspect T12 was not granted.

- 5.4 It is recommended that all trees with bat potential are retained and buffered by greenspace as part of any development. Should any of the trees with roosting potential be affected directly (i.e. removal or arboricultural remediation works to facilitate future proposals), indirectly (i.e. isolation through removal of connecting hedgerows) or if it was to be subject to direct lighting, then the presence or likely absence of roosting bats should first be ascertained via either an updated climbing inspection, or if not possible (as in the case of T8 and T9), using dusk emergence / dawn re-entry roost surveys. Inspection surveys can be carried out at any time of year and dusk emergence / dawn re-entry roost surveys would need to be carried out in the optimal bat active season from May to August, inclusive.
- 5.5 If bats or evidence of previous presence of bats is found within the tree's features, impacts to the roost would need to be avoided, or a licence would need to be obtained from Natural England to disturb the bats or remove the roost. Appropriate mitigation measures would also need to be implemented.

Bat Activity

- 5.6 In the Habitat Suitability Assessment, the open areas of the improved field compartments were considered to offer few opportunities for foraging and commuting bats. However, the woodland, hedgerows, neutral semi-improved grassland, trees, stream, dense scrub and ruderal habitat offered generally suitable foraging habitat as well as to serve as corridor habitats through the wider landscape.
- 5.7 During the transect surveys, bat activity was recorded across all areas of the Site. Peak activity was associated with the edge of the off-Site Bradley Wood, the hedgerows and mature tree lines. The species assemblage recorded during transects within the site comprised 90.4% common pipistrelle, 5.3% Nyctalus sp, 3.5% noctule and 0.4% for both soprano pipistrelle and Myotis sp. Activity recorded using this survey technique was relatively consistent over the survey occasions.
- 5.8 During the August 2018 transect 23 common pipistrelle bats were observed commuting along hedgerows H15 and H16, which border Firth House Lane, approximately 18 minutes after sunset. The bats were commuting from the residential area of Woodhouse, most likely from a roost within a dwelling close to Site. These hedgerows constitute part of a green corridor which runs southeast through Site from the adjacent residential area to the north to Bradley Woods to the south.
- 5.9 Up to seven bat species were recorded on the static detector surveys. The pipistrelle species bat contacts could not be fully identified during analysis; however, these were considered to be either common pipistrelle or soprano pipistrelle. The Nyctalus species bat contacts could not be fully identified during analysis; however, these were most likely noctule. Common pipistrelle was the most frequent species recorded comprising 94.3% of the registrations on the static detector surveys and was the most commonly recorded bat on the transect surveys. This species is common and widespread and is generally associated with the habitat types within the application site and surrounding landscape. Other species recorded are also considered to be common within the local area. The species and composition of bats recorded are broadly similar to those recorded during the transect surveys. Although soprano pipistrelle and brown long-eared bats were recorded on the statics and not during transect surveys, together they amounted for around 0.14% of the total registrations, so are considered to be an infrequent visitor to the area.
- 5.10 Bat activity recorded within the site during the transect and static bat detector surveys was unexceptional considering the habitats present both on-Site and adjacent, which do offer some

good foraging and commuting opportunities for the local bat population. There were increased numbers of bat registrations (over 3,000 registrations) on four of the static detector units; July 1, July 2, September 2 and October 1.

- 5.11 Two of these units (July 2 and September 2) were positioned along the edge of Bradley Wood and Bradley Park Dike. Increased levels of bat activity would be expected along these habitats as they represent good quality foraging and commuting habitat.
- 5.12 One of the units (July 1) was positioned along hedgerow H16 along Firth House Lane. During the August transect survey 23 common pipistrelles were observed commuting down the network of hedgerows along Firth House Lane, 18 minutes after sunset, from an off-Site roost. The July 1 static had a peak of registrations half an hour after sunset, suggesting that this is consistently used by bats to commute through the wider landscape, from the residential area north of site, to Bradley Woods to the south.
- 5.13 Finally, unit October 1 was positioned along the tree line on the north-eastern Site boundary. The trees are mature and provide good foraging and commuting opportunities. In the context of the transect surveys, individual bats were frequently observed commuting or continuously foraging over the trees. As such, it is considered likely that the increased number of registrations recorded on this static was the result of individual or low numbers of bats commuting and foraging for extended periods of time and thus resulting in high numbers of registrations.
- 5.14 Some of the features of the site provide a valuable foraging and commuting resource for the local bat population, which comprised common and widespread species.

Mitigation & Enhancements

- 5.15 The retention of the hedgerows, mature trees and broadleaved woodland, which are valuable foraging and commuting features for local bat populations, is recommended, along with a buffer of valuable off-Site habitats, namely Bradley Wood and Bradley Park Dyke. Enhancement to the structure of retained hedgerows could be achieved by the adoption of an appropriate management plan with the aim to increasing the height and width of the hedgerows to maintain commuting and foraging corridors for the local bat population.
- 5.16 Further hedgerow planting along the boundaries of site is recommended to improve connectivity of suitable on-site habitats to the wider area and provide further foraging opportunities.
- 5.17 Any retained hedgerows and mature trees, as well as the adjacent Bradley Wood, would require protection from damage and from soil compaction during works by maintaining fenced Root Protection Areas (RPAs) in accordance with current best practice and guidelines¹².
- 5.18 Creating dark corridors and semi-natural habitats along retained and boundary features will be important to maintaining value for bats as sources for invertebrate prey and commuting and dispersal routes through the landscape. The woodland edge, mature trees and the network of hedgerows along Firth House Lane will remain key habitat resources for local bat populations and care should be taken to avoid artificially lighting these habitats.
- 5.19 A lighting plan will need to be devised to take into account measures set out in Guidance Note 08/18; Bats and Artificial Lighting in the UK¹³ to ensure that existing and new habitat resources are not negatively affected by artificial lighting. Considerations include:

¹² British Standard BS 5837: Trees in relation to construction - Recommendations

- The avoidance of direct lighting of Bradley Wood, existing trees and hedgerows or proposed areas of habitat creation / landscape planting;
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability;
- A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component;
- Where appropriate, luminaires on the site boundary should be fitted with light baffles / louvres to prevent light spill;
- Lighting columns should in general be as short as possible, although in some locations taller columns may allow reduced horizontal spill, and
- Lighting levels should be as low as guidelines permit and only used where required for public safety.
- 5.20 In order to provide enhanced roosting features for bats, consideration should be given to the provision of bat boxes placed on suitable retained trees around the site. The bat boxes should be a variety of designs to encourage different environmental conditions. However, all the boxes should be suitable for both common pipistrelle but also a wide range of British species, both common and uncommon. Therefore, the following boxes and quantities are suggested:
 - Schwegler 2F boxes (or similar), good for smaller British bats such as common pipistrelle.
 - Schwegler 1FF (or similar), good for a wide range of bat species.
 - Schwegler 2FN boxes (or similar), good for both smaller bat species and attracting larger species such as Leisler's.
- 5.21 The boxes should be placed on trees on the periphery of the development and not within the centre of built development to minimise disturbance. The boxes should be placed at least 3m from the ground on a suitable aspect i.e. south, east or west and away from lighting to ensure roosting behaviour is not affected (as outlined above).
- 5.22 It is also recommended that where possible bat boxes / bat tubes should be incorporated into the built development. These are bat boxes which can be incorporated into buildings and are maintenance free. The small size of the box means they are more suitable for smaller colonies, so there are unlikely to be long-term issues arising from bat droppings / urine from large numbers of bats. The following boxes are recommended:
 - Schwegler 1F bat tube (or similar), good for a wide range of bat species.
 - Ibstock bat brick B (or similar), as above, good for a wide range of bat species.
- 5.23 The tubes would be placed within suitable walls at least 4m from the ground on a suitable aspect i.e. south, east or west and away from lighting to ensure roosting behaviour is not affected. The tubes should be placed on buildings on the site periphery, adjacent tree lines or hedgerows for cover once the bats have emerged These measures are suitable for a wide range of British bat species.
- 5.24 It is considered that with the above mitigation measures in place and with the retention and enhancement of key habitat resources on-Site, a net gain for bat species could be achieved.

¹³ Bat Conservation Trust (2018) Guidance Note 08/18, Bats and artificial lighting in the UK.

APPENDIX A: STATIC DETECTOR RESULTS TABLE

iod				ý	our	ions	C Pi	ommc pistre	on Ile	١	loctu	ıle	N S	yctal Speci	us es	l S	Myot Speci	is es	Pi S	pistr Speci	elle es	S Pi	opra ipistr	no elle	Lo	Brow ng-e	n ared
Recording Per	Unit No.	Start Date	End Date	Survey Hour	Total Av. per h	Total Registrat	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour
Maria	_	14/05/	19/05/	44:4	37.4	4077	4.400	050	33.5	0.4	2	1.81		1	0.98	•	0	0.06	40	1	1.09			0.02	0	0	0.00
IMay 1	9	19	19	3	92	1677	1499	353	9.72	81	4	1 54	44	5	0.82	3	2	/	49	9	0 11	1	1	2	0	0	0 00
May 2	10	19	19	3	28	547	435	144	5.72	69	8	3	37	3	7	0	0	0.00	5	2	2	1	1	2	0	0	0.00
		10/06/	15/06/	39:5	27.1				25.3		1	0.45		1	0.57			0.00		1	0.80			0.02			0.00
June 1	11	19	19	4	61	1084	1010	482	07	18	0	1	23	1	6	0	0	0	32	5	2	1	1	5	0	0	0
June 2	12	10/06/ 19	15/06/ 19	39:5 4	24.4	974	771	303	19.3 20	30	2	0.75	16 8	4 9	4.21	0	0	0.00	5	4	0.12	0	0	0.00	0	0	0.00
June 2	12	06/07/	11/07/	41:1	95.9	574		129	84.6	27	6	6.74	14	5	3.59		1	0.67			0.19			0.02	0	0	0.09
July 1	1	18	18	2	97	3956	3489	9	65	8	8	6	8	3	1	28	4	9	8	3	4	1	1	4	4	3	7
		06/07/	11/07/	41:1	82.2				79.3		2	1.65			0.14			0.02		1	0.87			0.19			0.00
July 2	2	18	18	2	66	3390	3271	760	78	68	3	0	6	2	6	1	1	4	36	4	4	8	4	4	0	0	0
August	3	01/08/ 18	06/08/	47:2 Q	57.4 03	2726	2680	124	56.6 24	25	1	0.52	6	3	0.12	1	1	0.08	0	0	0.00	0	0	0.00	2	1	0.04
August	5	01/08/	06/08/	47:2	35.6	2120	2003	2	34.8	25	5	0.42	0	5	0.04	4	- 1	0.12	0	0	0.00	0	0	0.19	2		0.02
2	4	18	18	9	11	1691	1653	444	11	20	9	1	2	1	2	6	3	6	0	0	0	9	4	0	1	1	1
Septem		19/09/	24/09/	64:0	3.24				1.74			0.25			0.20		2	1.03			0.00			0.00			0.01
ber 1	5	18	18	1	9	208	112	57	9	16	7	0	13	5	3	66	5	1	0	0	0	0	0	0	1	1	6
Septem	6	19/09/	24/09/	64:0 1	49.8	2102	2005	196	48.3	e	2	0.09	6	5	0.09	00	2	1.25	1	4	0.01	4	1	0.06	1	1	0.01
	0	10	10	71.0	25.8	3193	3095	0	25.2	0	3	0.02	0	1	0.54	00	3	0.01	<u> </u>	- 1	0.00	4	4	2	1	1	0.00
1	7	18	18	3	49	1837	1795	761	58	2	1	8	39	6	9	1	1	4	0	0	0.00	0	0	0.00	0	0	0.00
October		09/10/	14/10/	71:0	64.7			156	64.6			0.00			0.08			0.01			0.01			0.02			0.00
2	8	18	18	3	57	4602	4592	1	16	0	0	0	6	2	4	1	1	4	1	1	4	2	2	8	0	0	0
			Totals	616:	41.9	2588	2441	196	39.5	61	6	0.99	49	5	0.80	19	2	0.30	13	1	0.22	2	4	0.04	0	2	0.01
				50	64	5		6	74	3	ð	4	ŏ	3	1	0	Э	8	1	9	2	1	4	4	9	3	5



FPCR Environment and Design Ltd, Lockington Hall, Lockington, Derby, DE74 2RH = t:01509 672 772 • f:01509 674 565 • e: mail@fpcr.co.uk • w: www.fpcr.co.uk masterplanning • environmental assessment • landscape design • urban design • ecology • architecture • arboricul ture

This drawing is the property of FPCR Environment and Design Ltd and is issued on the condition it is not reproduced, retained or disclosed to any unauthorised person, either wholly or in part without written consent of FPCR Environment and Design Ltd.

Ordnance Survey material - Grown Copyright, All rights reserved. Licence Number: 100019980

Site Boundary

Static Detector Locations



For habitat symbology see Phase 1 Habitat Plan



ID Planning

Woodhouse Garden Suburb Extension, Calderdale

STATIC DETECTOR LOCATIONS PLAN

SH

1:5000 Figure 1



FPCR Environment and Design Ltd, Lockington Hall, Lockington, Derby, DE74 2RH = t:01509 672 772 • f:01509 674 565 • e: mail@fpcr.co.uk • w: www.fpcr.co.uk masterplanning • environmental assessment • landscape design • urban design • ecology • architecture • arboricul ture

This drawing is the property of FPCR Environment and Design Ltd and is issued on the condition it is not reproduced, retained or disclosed to any unauthorised person, either wholly or in part without written consent of FPCR Environment and Design Ltd.

Ordnance Survey material - Orown Copyright, All rights reserved, Licence Number: 100019980



For habitat symbology see Phase 1 Habitat Plan

REF	TIME	SPECIES	BEHAVIOUR	HABITAT	PASSES				
1	21:49:27	Nn	foraging	non visual	6				
2	21:59:11	Nn	foraging	woodland edge	12				
3	22:00:00	Ррі	commuting	non visual	12				
4	22:06:28	Ррі	2 commuting	hedge 8	3				
5	22:11:28	Ррі		non visual	continuous to 22.13				
6	22:15:27	Ррі		non visual	con tinuo us				
7	22:19:01	Ррі	foraging	field edge	8				
8	22:22:12	Ррі	foraging	woodland edge	con tinuo us				
9	22:28:30	Ррі	foraging	woodland edge	con tinuo us				
10	22:36:00	Ррі	foraging	lane	7				
11	22:41:39	Ppi	foraging	hedge 21	7				
12	22:45:39	Ррі	foraging		7				
13	22:49:45	Ррі	foraging	hedge 27/plantation	9				
14	22:56:58	Ррі	foraging	garden/field	10				
15	22:59:13	Ррі	foraging	lane	7				
16	23:00:55	Ррі	foraging	gardens	11				
17	23:03:31	Nn	commutin g	non visual	1				
18	23:04:58	Ppi	foraging	Ĵ.	10				
19	23:06:08	Ррі	foraging	scrub	8				
20	23:09:27	Ррі	foraging	scrub/hedge 20	4				
21	23:13:41	Ррі	foraging	scrub/hedge 20	1				
22	23:16:42	Рру		non visual	1				
23	23:16:44	Ppi	foraging	field	continuo us				
24	23:20:06	Ppi	foraging	field	8				
25	23:21:12	Ppi	foraging	lane/hedge 16	2				
26	23:22:05	Ppi	foraging	lane/hedge 16	8				
27	23:28:01	Ppi	foraging	lane/hedge 15	13				
28	23:37:12	Ppi	foraging	field edge	1				
29	23:46:20	Ppi	commuting	non visual	1				



ID Planning

Woodhouse Garden Suburb Extension, Calderdale

BAT TRANSECT PLAN (12/07/2018)

GK

1:500 Figure 2

rev



FPCR Environment and Design Ltd, Lockington Hall, Lockington, Derby, DE74 2RH = t:01509 672 772 • f:01509 674 565 • e: mail@fpcr.co.uk • w: www.fpcr.co.uk masterplanning • environmental assessment • landscape design • urban design • ecology • architecture • arboriculture



This drawing is the property of FPCR Environment and Design Ltd and is issued on the condition it is not reproduced, retained or disclosed to any unauthorised person, either wholly or in part without written consent of FPCR Environment and Design Ltd.

Ordnance Survey material - Crown Copyright, All rights reserved, Licence Number: 100019980



For habitat symbology see	Phase 1 Habitat Plan
---------------------------	----------------------

REF	TIME	SPECIES	BEHAVIOUR	HABIT AT	PASSES
1	21:03:52	Ppi	commuting/foraging	grassland/scrub	3
2	21:13:12	Nn	commuting	arable	1
3	21:15:50	Ррі	commutin g	non visual	1
4	21:16:15	Ррі	commutin g	non visual	1
5	21:17:04	Ррі	commuting	grassland/scrub	4
6	21:19:15	Ррі	commuting	double hedge	1
7	21:20:04	Ррі	23 commuting	hedge	23
8	21:22:27	Nn	foraging	grassland	1
9	21:32:57	Ppi	commutin g	hedge	2
10	21:42:45	Ррі	commuting	hedge	1
11	21:44:06	Ррі	commuting	hedge	3
12	22:00:07	Ррі	commuting	tree line	1
13	22:00:43	Ppi	foraging	tree line	continuous
14	22:04:18	Ppi	foraging	tree line	continuous
15	22:08:49	Ррі	foraging	grassland	3
16	22:11:23	Ррі	foraging	grassland	7
17	22:15:11	Ррі	foraging	grassland	8
18	22:18:42	Ррі	foraging	grassland	3
19	22:31:38	Ррі	commuting	grassland	1
20	22:40:33	Ррі	commutin g	tree line	1
21	22:43:35	Myotis	commuting	treeline	1
22	22:44:32	Ppi	c ommutin g	tree line	1
23	22:48:08	Ррі	foraging	tree line	3
24	22:50:45	Ppi	foraging	tree line	3



ID Planning

Woodhouse Garden Suburb Extension, Calderdale

BAT TRANSECT PLAN (08/08/2018)

GK

1:500 Figure 3

22

E Read - C C C C C C C C C C C C C C C C C C		A 1916	A	H12	A H111 A A 211 9 H8 10 8	H10	adle	5				Adversaria of the second
31 32 320	÷	19	11 - 11 - 11	100	*					-		
31 H2A 25 22 21 22 21 22	REF	TIME	SPECIES	BEHAVIOUR	ABITAT	PASSES	REF	TIME	SPECIES	BEHAVIOUR	HABIT AT	PASSES
31 32 33 33 33 33 33 33 33 33 33 33 33 33	REF 1	TIME 19:07	SPECIES NYCSP	BEHAVIOUR Foraging	HABITAT Above woodland	PASSES	REF 21	TIME 19:45	SPECIES PIPPIP	BEHAVIOUR Pass	HABIT AT Along treeline	PASSES 1
31 32 33 33 33 22 21 22 21 22 21 22 21 22 21 22 21 22 22	REF 1 2	TIME 19:07 19:10	SPECIES NYCSP PIPPIP	BEHAVIOUR Foraging Foraging	HABITAT Above woodland Along treeline	PASSES 1 3	REF 21 22	TIME 19:45 19:46	SPECIES PIPPIP PIPPIP	BEHAVIOUR Pass Foraging	HABITAT Along treeline Along treeline	PASSES 1 Constant
	REF 1 2 3	TIME 19:07 19:10 19:12	SPECIES NYCSP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Foraging	HABITAT Above woodland Along treeline Along treeline	PASSES 1 3 Constant	REF 21 22 23	TIME 19:45 19:46 19:48	SPECIES PIPPIP PIPPIP PIPPIP	BEHAVIOUR Pass Foraging Pass	HABIT AT Along treeline Along treeline Along treeline	PASSES 1 Constant 1
	REF 1 2 3 4	TIME 19:07 19:10 19:12 19:15	SPECIES NYCSP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Foraging Foraging	HABITAT Above woodland Along treeline Along treeline Along treeline	PASSES 1 3 Constant 1	REF 21 22 23 24	TIME 19:45 19:46 19:48 19:50	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Pass Foraging Pass Foraging	HABITAT Along treeline Along treeline Along treeline Along treeline	PASSES 1 Constant 1 Constant
	REF 1 2 3 4 5 5	TIME 19:07 19:10 19:12 19:15 19:16	SPECIES NYCSP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Foraging Foraging	HABITAT Above woodland Along treeline Along treeline Along treeline	PASSES 1 3 Constant 1 2	REF 21 22 23 24 25	TIME 19:45 19:46 19:48 19:50 19:55	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Pass Foraging Pass Foraging Foraging	HABIT AT Along treeline Along treeline Along treeline Along treeline Along treeline	PASSES 1 Constant 1 Constant 2
	REF 1 2 3 4 5 6 7	TIME 19:07 19:10 19:12 19:15 19:16 19:19	SPECIES NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Foraging Foraging Foraging Pass	HABITAT Above woodland Along treeline Along treeline Along treeline Hedgerow	PASSES 1 3 Constant 1 2 3	REF 21 22 23 24 25 26	TIME 19:45 19:46 19:48 19:50 19:55 19:59	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Pass Foraging Pass Foraging Foraging Foraging	HABIT AT Along treeline Along treeline Along treeline Along treeline Along treeline Along woodland	PASSES 1 Constant 1 Constant 2 Constant
31 32 32 33 33 20 21 22 21 22 22 21 22 22 22 22 22 22 22	REF 1 2 3 4 5 6 7	TIME 19:07 19:10 19:12 19:15 19:16 19:19 19:21	SPECIES NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Foraging Foraging Pass Commuting	HABITAT Above woodland Along treeline Along treeline Along treeline Hedgerow Hedgerow	PASSES 1 3 Constant 1 2 3 3	REF 21 22 23 24 25 26 27	TIME 19:45 19:46 19:48 19:50 19:55 19:55 20:01	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Pass Foraging Pass Foraging Foraging Foraging	HABIT AT Along treeline Along treeline Along treeline Along treeline Along treeline Along woodland	PASSES 1 Constant 1 Constant 2 Constant 1
	REF 1 2 3 4 5 6 7 8 0	119 TIME 19:07 19:10 19:12 19:15 19:16 19:19 19:21 19:24	SPECIES NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Foraging Foraging Foraging Pass Commuting Foraging	HABITAT Above woodland Along treeline Along treeline Along treeline Hedgerow Hedgerow	PASSES 1 3 Constant 1 2 3 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	REF 21 22 23 24 25 26 27 28	TIME 19:45 19:46 19:50 19:55 19:59 20:01 20:04	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Pass Foraging Pass Foraging Foraging Foraging Foraging Foraging	HABITAT Along treeline Along treeline Along treeline Along treeline Along treeline Along woodland Along woodland Hedgerow	PASSES 1 Constant 1 Constant 2 Constant 1 1
	REF 1 2 3 4 5 6 7 8 9	TIME 19:07 19:10 19:12 19:15 19:16 19:19 19:21 19:24 19:24	SPECIES NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Foraging Foraging Foraging Pass Commuting Foraging	HABITAT Above woodland Along treeline Along treeline Along treeline Hedgerow Hedgerow Hedgerow	PASSES 1 3 Constant 1 2 3 3 3 2 2 2	REF 21 22 23 24 25 26 27 28 29	TIME 19:45 19:46 19:50 19:55 19:55 19:59 20:01 20:04 20:05	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Pass Foraging Pass Foraging Foraging Foraging Foraging Foraging	HABIT AT Along treeline Along treeline Along treeline Along treeline Along treeline Along woodland Along woodland Hedgerow	PASSES 1 Constant 1 Constant 2 Constant 1 1 1
	REF 1 2 3 4 5 6 7 8 9 10 10 10	119 TIME 19:07 19:10 19:12 19:15 19:16 19:19 19:21 19:24 19:24 19:25 19:25	SPECIES NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Foraging Foraging Foraging Pass Commuting Foraging Foraging	HABITAT Above woodland Along treeline Along treeline Along treeline Hedgerow Hedgerow Hedgerow Hedgerow	PASSES 1 3 Constant 1 2 3 3 3 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	REF 21 22 23 24 25 26 27 28 29 30	TIME 19:45 19:46 19:50 19:59 19:59 20:01 20:04 20:05 20:07	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Pass Foraging Pass Foraging Foraging Foraging Foraging Foraging Foraging	HABIT AT Along treeline Along treeline Along treeline Along treeline Along treeline Along woodland Along woodland Hedgerow Hedgerow	PASSES 1 Constant 1 Constant 2 Constant 1 1 1 Constant
	REF 1 2 3 4 5 6 7 8 9 10 11	TIME 19:07 19:10 19:12 19:15 19:16 19:21 19:24 19:24 19:25 19:26	SPECIES NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Foraging Foraging Pass Commuting Foraging Foraging Foraging Commute	HABITAT Above woodland Along treeline Along treeline Along treeline Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow	PASSES 1 3 Constant 1 2 3 3 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	REF 21 22 23 24 25 26 27 28 29 30 31 22	TIME 19:45 19:46 19:50 19:55 19:59 20:01 20:04 20:05 20:07 20:15	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Pass Foraging Pass Foraging Foraging Foraging Foraging Foraging Foraging Foraging Foraging	HABIT AT Along treeline Along treeline Along treeline Along treeline Along treeline Along woodland Along woodland Hedgerow Hedgerow Hedgerow	PASSES 1 Constant 1 Constant 2 Constant 1 1 1 Constant Constant
	REF 1 2 3 4 5 6 7 8 9 10 11 12 12	119 TIME 19:07 19:10 19:12 19:15 19:16 19:19 19:21 19:24 19:25 19:25 19:26 19:27 19:27	SPECIES NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Foraging Foraging Pass Commuting Foraging Foraging Commute Foraging	HABITAT Above woodland Along treeline Along treeline Along treeline Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow	PASSES 1 3 Constant 1 2 3 3 3 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	REF 21 22 23 24 25 26 27 28 29 30 31 31 32	TIME 19:45 19:46 19:50 19:59 20:01 20:04 20:05 20:07 20:15 20:21	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Pass Foraging Pass Foraging Foraging Foraging Foraging Foraging Foraging Foraging Foraging	HABIT AT Along treeline Along treeline Along treeline Along treeline Along treeline Along woodland Along woodland Hedgerow Hedgerow Along scrub	PASSES 1 Constant 1 Constant 2 Constant 1 1 Constant 1 Constant Constant Constant
	REF 1 2 3 4 5 6 7 8 9 10 11 12 13	TIME 19:07 19:10 19:12 19:15 19:16 19:21 19:24 19:24 19:25 19:26 19:27 19:29	SPECIES NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Foraging Foraging Pass Commuting Foraging Foraging Foraging Foraging Foraging Foraging	HABITAT Above woodland Along treeline Along treeline Along treeline Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow	PASSES 1 3 Constant 1 2 3 3 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	REF 21 22 23 24 25 26 27 28 29 30 31 32 33	TIME 19:45 19:46 19:50 19:59 20:01 20:04 20:05 20:07 20:15 20:21 20:24	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Pass Foraging Pass Foraging Foraging Foraging Foraging Foraging Foraging Foraging Foraging Foraging Foraging	HABIT AT Along treeline Along treeline Along treeline Along treeline Along treeline Along woodland Along woodland Hedgerow Hedgerow Hedgerow Along scrub Along scrub Along scrub	PASSES 1 Constant 1 Constant 2 Constant 1 1 Constant 1 Constant Constant 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	REF 1 2 3 4 5 6 7 8 9 10 11 12 13 14	TIME 19:07 19:10 19:12 19:15 19:16 19:19 19:21 19:24 19:24 19:24 19:24 19:25 19:26 19:27 19:29 19:31	SPECIES NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Foraging Foraging Pass Commuting Foraging Foraging Foraging Foraging Foraging Pass Foraging	HABITAT Above woodland Along treeline Along treeline Along treeline Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow	PASSES 1 3 Constant 1 2 3 3 2 2 1 1 1 1 1 2 1 1 1 1 1 1 1 1	REF 21 22 23 24 25 26 27 28 29 30 31 31 32 33 34 25	TIME 19:45 19:46 19:50 19:50 19:59 20:01 20:04 20:05 20:07 20:15 20:21 20:24 20:20	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Pass Foraging Pass Foraging Foraging Foraging Foraging Foraging Foraging Foraging Foraging Foraging Foraging Foraging Foraging	HABIT AT Along treeline Along treeline Along treeline Along treeline Along treeline Along woodland Along woodland Hedgerow Hedgerow Along scrub Along scrub Along scrub Along scrub Hedgerow	PASSES 1 Constant 1 Constant 2 Constant 1 1 Constant 1 Constant Constant 2 3 3 2
	REF 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 15	119 TIME 19:07 19:10 19:12 19:15 19:16 19:21 19:24 19:25 19:26 19:27 19:29 19:31 19:32	SPECIES NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEH AVIOUR Foraging Foraging Foraging Foraging Pass Commuting Foraging Foraging Foraging Foraging Foraging Pass Foraging Commuting	HABITAT Above woodland Along treeline Along treeline Along treeline Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow	PASSES 1 3 Constant 1 2 3 3 2 2 1 1 1 1 2 1 1 2 1 1 1 1 1 1	REF 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 34	TIME 19:45 19:46 19:50 19:59 20:01 20:04 20:05 20:07 20:21 20:21 20:24 20:30	SPECIES PIPPIP	BEHAVIOUR Pass Foraging Pass Foraging Foraging Foraging Foraging Foraging Foraging Foraging Foraging Social Foraging Social	HABIT AT Along treeline Along treeline Along treeline Along treeline Along treeline Along woodland Along woodland Hedgerow Hedgerow Along scrub Along scrub Along scrub Hedgerow Hedgerow Hedgerow	PASSES 1 Constant 1 Constant 2 Constant 1 1 Constant 1 Constant Constant 2 3 3 1
	REF 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 16 17	119 TIME 19:07 19:10 19:12 19:15 19:16 19:21 19:24 19:25 19:26 19:27 19:29 19:31 19:32 19:33	SPECIES NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Foraging Foraging Pass Commuting Foraging Foraging Foraging Foraging Pass Foraging Pass Foraging Commuting Commuting	HABITAT Above woodland Along treeline Along treeline Along treeline Along treeline Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow	PASSES 1 3 Constant 1 2 3 3 2 2 1 1 1 1 2 1 1 1 1 1 1 1 1 1	REF 21 22 23 24 25 26 27 28 29 30 31 31 32 33 33 34 35 36 37	TIME 19:45 19:46 19:50 19:50 19:59 20:01 20:04 20:05 20:07 20:15 20:21 20:24 20:30 20:32	SPECIES PIPPIP PIPPIP	BEHAVIOUR Pass Foraging Pass Foraging Foraging Foraging Foraging Foraging Foraging Foraging Foraging Social Foraging Social Foraging Eoraging	HABIT AT Along treeline Along treeline Along treeline Along treeline Along treeline Along woodland Along woodland Along woodland Hedgerow Hedgerow Along scrub Along scrub Along scrub Along scrub Along scrub Hedgerow Hedgerow Hedgerow	PASSES 1 Constant 1 Constant 2 Constant 1 1 Constant 1 Constant Constant 2 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	 REF 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 	119 TIME 19:07 19:10 19:12 19:15 19:16 19:19 19:21 19:24 19:24 19:25 19:26 19:27 19:29 19:31 19:31 19:32 19:33 19:35 19:38	SPECIES NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEH AVIOUR Foraging Foraging Foraging Foraging Pass Commuting Foraging Commute Foraging Foraging Foraging Pass Foraging Commute Commuting Commuting	HABITAT Above woodland Along treeline Along treeline Along treeline Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow	PASSES 1 3 Constant 1 2 3 3 2 2 1 1 1 1 2 1 1 1 1 1 1 1 1 1	REF 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38	TIME 19:45 19:46 19:50 19:59 20:01 20:04 20:05 20:07 20:21 20:21 20:21 20:24 20:30 20:32 20:33	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Pass Foraging Pass Foraging Foraging Foraging Foraging Foraging Foraging Foraging Social Foraging Social Foraging Foraging Eoraging	HABIT AT Along treeline Along treeline Along treeline Along treeline Along treeline Along woodland Along woodland Hedgerow Hedgerow Along scrub Along scrub Along scrub Along scrub Hedgerow Hedgerow Hedgerow Hedgerow	PASSES 1 Constant 1 Constant 2 Constant 1 Constant 1 Constant Constant 2 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	REF 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	119 TIME 19:07 19:10 19:12 19:15 19:16 19:21 19:24 19:25 19:26 19:27 19:30 19:31 19:32 19:33 19:35 19:36 19:37	SPECIES NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Foraging Foraging Pass Commuting Foraging Foraging Foraging Foraging Pass Foraging Commuting Commuting Commuting Foraging	HABITAT Above woodland Along treeline Along treeline Along treeline Along treeline Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Along treeline	PASSES 1 3 Constant 1 2 3 3 3 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	REF 21 22 23 24 25 26 27 28 29 30 31 31 32 33 34 35 35 36 37 38 39	TIME 19:45 19:46 19:50 19:50 19:59 20:01 20:04 20:05 20:07 20:15 20:21 20:24 20:30 20:32 20:32 20:32 20:40	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Pass Foraging Pass Foraging Foraging Foraging Foraging Foraging Foraging Foraging Foraging Social Foraging Social Foraging Social Foraging Foraging Foraging Foraging Foraging Foraging	HABIT AT Along treeline Along treeline Along treeline Along treeline Along treeline Along woodland Along woodland Along woodland Hedgerow Hedgerow Along scrub Along scrub	PASSES 1 Constant 1 Constant 2 Constant 1 Constant 1 Constant Constant 2 Constant 2 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

FPCR Environment and Design Ltd, Lockington Hall, Lockington, Derby, DE74 2RH = t:01509 672 772 • f:01509 674 565 • e: mail@fpcr.co.uk • w: www.fpcr.co.uk masterplanning • environmental assessment • landscape design • urban design • ecology • architecture • arboriculture



This drawing is the property of FPCR Environment and Design Ltd and is issued on the condition it is not reproduced, retained or disclosed to any unauthorised person, either wholly or in part without written consent of FPCR Environment and Design Ltd.

Ordnance Survey material - Grown Copyright, All rights reserved, Licence Number: 100019980



For habitat symbology see Phase 1 Habitat Plan



ID Planning

Woodhouse Garden Suburb Extension, Calderdale

BAT TRANSECT PLAN (25/09/2018)

MB

Figure 4

rev

Vest Access Block of the Read	419	Bernh V ***	40 5 H 39 30 10 29 11	A HR H	A A 12 H111 A H8 7 8	H	38 Brow	adley	6			
16 15	N/	/	94	and a start	Selle .	10		19 N 197			49 14	18
16 15 24 25 26 25	REF	TIME	SPECIES	BEHAVIOUR	HABITAT	PASSES	REF	TIME	SPECIES	BEHAVIOUR	HABITAT	PASSES
16 15 24 25 12 AV 26	REF	TIME 18:38:52	SPECIES PIPPIP	BEHAVIOUR Foraging	HABITAT Woodland edge	PASSES Constant	REF 21	TIME 19:25:09	SPECIES PIPPIP	BEHAVIOUR Foraging	HABITAT Along hedgerows	PASSES 4
16 15 24 25 12 26 26 26 26 26 26 27 26 26 26 27 26 26 27 26 27 26 26 27 26 27 26 27 26 26 26 26 26 26 26 26 26 26 26 26 26	REF	TIME 18:38:52 18:40:13	SPECIES PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging	HABITAT Woodland edge Woodland edge	PASSES Constant Constant	REF 21 22	TIME 19:25:09 19:27:01	SPECIES PIPPIP PIPPIP	BEHAVIOUR Foraging Pass	HABITAT Along hedgerows Along hedgerows	PASSES 4 1
16 24 23 15 10 10 10 10 10 10	REF 1 2 3	TIME 18:38:52 18:40:13 18:42:20	SPECIES PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Foraging	HABITAT Woodland edge Woodland edge Woodland edge	PASSES Constant Constant 1	REF 21 22 23	TIME 19:25:09 19:27:01 19:29:01	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass	HABITAT Along hedgerows Along hedgerows Along hedgerows	PASSES 4 1 2
16 15 24 25 17 10 10 10 10 10 10 10 10 10 10 10 10 10	REF 1 2 3 4	TIME 18:38:52 18:40:13 18:42:20 18:43:00 18:44:58	SPECIES PIPPIP PIPPIP PIPPIP NYCSP	BEHAVIOUR Foraging Foraging Foraging Commuting	HABITAT Woodland edge Woodland edge Woodland edge Woodland edge Hedgerow	PASSES Constant Constant 1 1	REF 21 22 23 24	TIME 19:25:09 19:27:01 19:29:01 19:30:28 19:31:01	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass Pass	HABITAT Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows	PASSES 4 1 2 1
	REF 1 2 3 4 5 6	TIME 18:38:52 18:40:13 18:42:20 18:43:00 18:44:58 18:45:59	SPECIES PIPPIP PIPPIP PIPPIP NYCSP NYCSP PIPPIP	BEHAVIOUR Foraging Foraging Commuting Commuting Pass	HABITAT Woodland edge Woodland edge Woodland edge Woodland edge Hedgerow	PASSES Constant Constant 1 1 1 2	REF 21 22 23 24 25 26	TIME 19:25:09 19:27:01 19:29:01 19:30:28 19:31:01 19:34:06	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass Pass Foraging	HABITAT Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows	PASSES 4 1 2 1 1 1 Constant
	REF 1 2 3 4 5 6 7	TIME 18:38:52 18:40:13 18:42:20 18:43:00 18:44:58 18:45:59 18:50:39	SPECIES PIPPIP PIPPIP NYCSP NYCSP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Commuting Commuting Pass Pass	HABITAT Woodland edge Woodland edge Woodland edge Woodland edge Hedgerow Hedgerow	PASSES Constant Constant 1 1 1 2 2	REF 21 22 23 24 25 26 27	TIME 19:25:09 19:27:01 19:29:01 19:30:28 19:31:01 19:34:06 19:37:00	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass Pass Foraging Pass	HABITAT Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows	PASSES 4 1 2 1 1 1 Constant 1
	REF 1 2 3 4 5 6 7 8	TIME 18:38:52 18:40:13 18:42:20 18:43:00 18:44:58 18:45:59 18:50:39 18:51:17	SPECIES PIPPIP PIPPIP PIPPIP NYCSP NYCSP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Commuting Commuting Pass Pass	HABITAT Woodland edge Woodland edge Woodland edge Woodland edge Hedgerow Hedgerow Hedgerow	PASSES Constant Constant 1 1 2 1 1 2	REF 21 22 23 24 25 26 27 28	TIME 19:25:09 19:27:01 19:29:01 19:30:28 19:31:01 19:34:06 19:37:00 19:42:55	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass Pass Foraging Pass Pass	HABITAT Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows	PASSES 4 1 2 1 1 1 Constant 1 1
	REF 1 2 3 4 5 6 7 8 9	TIME 18:38:52 18:40:13 18:42:20 18:43:00 18:44:58 18:45:59 18:50:39 18:51:17 18:54:28	SPECIES PIPPIP PIPPIP NYCSP NYCSP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Commuting Commuting Pass Pass Pass Pass	HABITAT Woodland edge Woodland edge Woodland edge Woodland edge Hedgerow Hedgerow Hedgerow Hedgerow	PASSES Constant Constant 1 1 2 1 1 1 1 1 1 1	REF 21 22 23 23 24 25 26 27 28 29	TIME 19:25:09 19:27:01 19:29:01 19:30:28 19:31:01 19:34:06 19:37:00 19:42:55 19:46:24	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass Pass Foraging Pass Pass Pass Pass	HABITAT Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows	PASSES 4 1 2 1 1 2 1 1 Constant 1 1 1 1 1
	REF 1 2 3 4 5 6 7 8 9 10	TIME 18:38:52 18:40:13 18:42:20 18:43:00 18:44:58 18:45:59 18:50:39 18:51:17 18:51:17 18:54:28 18:57:17	SPECIES PIPPIP PIPPIP PIPPIP NYCSP NYCSP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Commuting Commuting Pass Pass Pass Pass	HABITAT Woodland edge Woodland edge Woodland edge Woodland edge Hedgerow Hedgerow Hedgerow Hedgerow Over grassland Around buildings	PASSES Constant Constant 1 1 2 1 1 1 1 2 2	REF 21 22 23 24 25 26 27 28 29 30	TIME 19:25:09 19:27:01 19:29:01 19:30:28 19:31:01 19:37:00 19:42:55 19:46:24 19:47:05	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass Pass Foraging Pass Pass Pass Pass Pass	HABITAT Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows	PASSES 4 1 2 1 1 1 Constant 1 1 1 1 Constant
	REF 1 2 3 4 5 6 7 8 9 10 11	TIME 18:38:52 18:40:13 18:42:20 18:43:00 18:44:58 18:45:59 18:50:39 18:51:17 18:54:28 18:57:17 19:01:42	SPECIES PIPPIP PIPPIP NYCSP NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Commuting Commuting Pass Pass Pass Pass Pass Pass Pass	HABITAT Woodland edge Woodland edge Woodland edge Woodland edge Hedgerow Hedgerow Hedgerow degerow Over grassland Around buildings	PASSES Constant Constant 1 1 2 1 1 1 1 2 1 2 2 2 2 0 0 5 5 1 5 1 2 2 5 5 5 5 5 5 5 5 5 5 5 5 5	REF 21 22 23 24 25 26 27 28 29 30 31	TIME 19:25:09 19:27:01 19:29:01 19:30:28 19:31:01 19:34:06 19:37:00 19:42:55 19:46:24 19:47:05 19:49:09	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass Pass Foraging Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows	PASSES 4 1 2 1 1 2 1 1 Constant 1 1 1 1 Constant 1 1 1
	REF 1 2 3 4 5 6 7 8 9 10 11 12	TIME 18:38:52 18:40:13 18:42:20 18:43:00 18:44:58 18:45:59 18:50:39 18:51:17 18:51:17 18:57:17 19:01:42 19:03:05	SPECIES PIPPIP PIPPIP NYCSP NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Commuting Commuting Pass Pass Pass Pass Pass Pass Foraging	HABITAT Woodland edge Woodland edge Woodland edge Woodland edge Hedgerow Hedgerow Hedgerow Hedgerow Over grassland Avound buildings Along scrub	PASSES Constant Constant 1 1 2 1 1 1 1 2 2 2 Constant 1	REF 21 22 23 24 25 26 27 28 29 30 31 31 32	TIME 19:25:09 19:27:01 19:29:01 19:30:28 19:31:01 19:37:00 19:42:55 19:46:24 19:46:24 19:47:05 19:49:09 19:50:01	SPECLES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass Pass Foraging Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows	PASSES 4 1 2 1 1 2 1 1 Constant 1 1 Constant 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	REF 1 2 3 4 5 6 7 8 9 10 11 12 13	TIME 18:38:52 18:40:13 18:42:20 18:43:00 18:44:58 18:45:59 18:50:39 18:51:17 18:54:28 18:57:17 19:01:42 19:03:05 19:04:10	SPECIES PIPPIP PIPPIP NYCSP NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Commuting Commuting Pass Pass Pass Pass Pass Foraging Foraging Pass	HABITAT Woodland edge Woodland edge Woodland edge Woodland edge Woodland edge Hedgerow Hedgerow Hedgerow Alengerow Along scrub Along scrub	PASSES Constant Constant 1 1 2 1 1 1 2 1 2 Constant 1 1 2 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1	REF 21 22 23 24 25 26 27 28 29 30 30 31 32 33	TIME 19:25:09 19:27:01 19:29:01 19:30:28 19:31:01 19:34:06 19:37:00 19:42:55 19:46:24 19:46:24 19:47:05 19:49:09 19:50:01 19:51:04	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass Pass Foraging Pass Pass Foraging/Social Pass Pass Pass Pass	HABITAT Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows Along hedgerows	PASSES 4 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	REF 1 2 3 4 5 6 7 8 9 10 11 12 13 14	TIME 18:38:52 18:40:13 18:42:20 18:43:00 18:44:58 18:45:59 18:55:17 18:51:17 18:54:28 18:57:17 19:01:42 19:03:05 19:04:10 19:05:07	SPECIES PIPPIP PIPPIP NYCSP NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Commuting Commuting Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Woodland edge Woodland edge Woodland edge Woodland edge Woodland edge Hedgerow Hedgerow Hedgerow Alogerow Along scrub Along scrub Along scrub	PASSES Constant Constant 1 1 2 1 1 1 1 2 Constant 1 1 Constant 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	REF 21 22 23 24 25 26 27 28 29 30 30 31 32 33 33 34	TIME 19:25:09 19:27:01 19:29:01 19:30:28 19:31:01 19:31:00 19:42:55 19:46:24 19:46:24 19:47:05 19:49:09 19:50:01 19:51:04	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass Pass Pass Foraging Pass Pass Foraging/Social Pass Pass Pass Pass Pass	HABITAT Along hedgerows Along hedgerows	PASSES 4 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	REF 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	TIME 18:38:52 18:40:13 18:42:20 18:43:00 18:44:58 18:45:59 18:50:39 18:51:17 18:54:28 18:57:17 19:01:42 19:03:05 19:04:10 19:05:07 19:07:05	SPECLES PIPPIP PIPPIP NYCSP NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Commuting Commuting Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Woodland edge Woodland edge Woodland edge Woodland edge Hedgerow Hedgerow Hedgerow Over grassland Around buildings Along scrub Along scrub Along scrub	PASSES Constant Constant 1 1 2 1 1 2 1 1 2 Constant 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	REF 21 22 23 24 25 26 27 28 27 28 29 30 31 31 32 33 33 34 35	TIME 19:25:09 19:27:01 19:29:01 19:30:28 19:31:01 19:34:06 19:37:00 19:42:55 19:46:24 19:47:05 19:49:09 19:50:01 19:50:01 19:51:04 19:54:10	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Along hedgerows Along hedgerows	PASSES 4 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	REF 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	TIME 18:38:52 18:40:13 18:42:20 18:44:58 18:44:58 18:45:59 18:55:39 18:55:17 18:54:28 18:57:17 19:01:42 19:03:05 19:04:10 19:05:07 19:07:05 19:10:33	SPECIES PIPPIP PIPPIP NYCSP NYCSP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Commuting Commuting Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Woodland edge Woodland edge Woodland edge Woodland edge Woodland edge Hedgerow Hedgerow Hedgerow Alogerow Along scrub Along scrub Along scrub Along hedgerows Along hedgerows	PASSES Constant Constant 1 1 2 1 1 2 1 1 2 Constant 1 1 1 1 1 1 1 1 1 1 2 2 2 1 1 1 1 1 1	REF 21 22 23 24 25 26 27 26 27 28 29 30 30 31 32 33 32 33 34 35 36	TIME 19:25:09 19:27:01 19:29:01 19:30:28 19:31:01 19:31:00 19:42:55 19:46:24 19:46:24 19:47:05 19:49:09 19:50:01 19:51:04 19:51:04 19:59:12 20:08:36	SPECLES PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Along hedgerows Along hedgerows	PASSES 4 1 2 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1
	REF 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	TIME 18:38:52 18:40:13 18:42:20 18:44:58 18:44:58 18:45:59 18:50:39 18:51:17 18:54:28 18:57:17 19:01:42 19:03:05 19:04:10 19:05:07 19:07:05 19:10:33 19:15:16	SPECLES PIPPIP PIPPIP NYCSP NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Commuting Commuting Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Woodland edge Woodland edge Woodland edge Woodland edge Hedgerow Hedgerow Hedgerow Over grassland Along scrub Along scrub Along scrub Along scrub Along hedgerows Along hedgerows	PASSES Constant Constant 1 1 2 1 1 1 2 Constant 1 1 1 1 1 1 1 2 Constant 1 2 Constant	REF 21 22 23 24 25 26 27 28 27 28 29 30 31 31 32 33 33 34 35 36 37	TIME 19:25:09 19:27:01 19:29:01 19:30:28 19:31:01 19:34:06 19:37:00 19:42:55 19:46:24 19:47:05 19:49:09 19:50:01 19:50:01 19:51:04 19:54:10 19:59:12 20:08:36 20:10:32	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass Pass Foraging Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Along hedgerows Along hedgerows	PASSES 4 1 2 1 1 1 Constant 1 1 1 Constant 1 1 1 1 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1
	REF 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	TIME 18:38:52 18:40:13 18:42:20 18:44:58 18:44:58 18:45:59 18:55:17 18:54:28 18:57:17 19:01:42 19:03:05 19:04:10 19:05:07 19:05:07 19:07:05 19:10:33 19:15:16 19:18:06	SPECIES PIPPIP PIPPIP NYCSP NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Commuting Commuting Pass Pass Pass Pass Pass Pass Foraging Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Woodland edge Woodland edge Woodland edge Woodland edge Hedgerow Hedgerow Hedgerow Alogerow Along scrub Along scrub Along scrub Along scrub Along hedgerows Along hedgerows Along hedgerows	PASSES Constant Constant 1 1 2 2 1 1 1 2 Constant 1 1 1 1 1 1 1 2 Constant 1 2 Constant 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	REF 21 22 23 24 25 26 27 28 29 30 30 31 32 33 32 33 33 34 35 36 37 38	TIME 19:25:09 19:27:01 19:29:01 19:30:28 19:31:01 19:31:01 19:37:00 19:42:55 19:46:24 19:46:24 19:46:24 19:50:01 19:50:01 19:51:04 19:51:04 19:59:12 20:08:36 20:10:32	SPECLES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Along hedgerows Along hedgerows	PASSES 4 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	REF 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	TIME 18:38:52 18:40:13 18:42:20 18:44:58 18:44:58 18:45:59 18:55:17 18:57:17 18:57:17 19:01:42 19:03:05 19:04:10 19:05:07 19:07:05 19:10:33 19:15:16 19:18:66 19:19:31	SPECLES PIPPIP PIPPIP NYCSP NYCSP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Foraging Commuting Commuting Pass Pass Pass Pass Pass Foraging Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Woodland edge Woodland edge Woodland edge Woodland edge Hedgerow Hedgerow Hedgerow Alegerow Over grassland Along scrub Along scrub Along scrub Along scrub Along hedgerows Along hedgerows Along hedgerows Along hedgerows	PASSES Constant Constant 1 1 2 1 1 2 1 1 2 Constant 1 1 1 1 1 2 Constant 1 2 2 Constant 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	REF 21 22 23 24 25 26 27 28 27 28 29 30 31 31 32 33 33 34 35 35 36 37 38 39	TIME 19:25:09 19:27:01 19:29:01 19:30:28 19:31:01 19:34:06 19:37:00 19:42:55 19:46:24 19:47:05 19:49:09 19:50:01 19:50:01 19:51:04 19:54:10 19:59:12 20:08:36 20:10:32 20:16:13	SPECIES PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging Pass Pass Pass Pass Foraging Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Along hedgerows Along hedgerows	PASSES 4 1 2 1 1 2 1 1 Constant 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

FPCR Environment and Design Ltd, Lockington Hall, Lockington, Derby, DE74 2RH = t:01509 672 772 • f:01509 674 565 • e: mail@fpcr.co.uk • w: www.fpcr.co.uk

masterplanning environmental assessment elandscape design eurban design ecology architecture arboriculture



This drawing is the property of FPCR Environment and Design Ltd and is issued on the condition it is not reproduced, retained or disclosed to any unauthorised person, either wholly or in part without written consent of FPCR Environment and Design Ltd.

Ordnance Survey material - Grown Copyright, All rights reserved. Licence Number: 100019980



For habitat symbology see Phase 1 Habitat Plan



ID Planning Woodhouse Garden Suburb Extension, Calderdale

BAT TRANSECT PLAN (09/10/2018) iham MB

5/7/2019

97

drawing) figure mamber Figure 5

1:4910

their

A CALL A CALL	Riverant Lane	A 27 34		14 H12H11 1 6 5 23 H8 1 24 24 24 24 24		P P P P P P P P P P P P P P P P P P P	dley ood	1				And a set of the set o
	1	20:46:21	PIPPIP	NV Pass	Стор	1	REF	TIME	SPECIES			
HUS .	2	20:49:04	DIDDID	S			and the second sec	1.1.1.1.		BEHAVIOUR	HABITAT	PASSES
			FIFFIF	Pass	Grop	1	17	21:40:54	PIPPIP	BEHAVIOUR Foraging x 2	HABITAT Hedgerow	PASSES 1
	2	20:50:23	PIPPIP	Pass x 4	Grop Hedgerow	1 Continuous	17 18	21:40:54 21:48:43	P IPP IP P IPP IP	BEHAVIOUR Foraging x 2 Foraging	HABITAT Hedgerow Græssland	PASSES 1 Continuous
LEE HEL	2	20:50:23 20:51:00	PIPPIP NYCSPP	Pass x 4 Pass	Grop Hedgerow Hedgerow	1 Continuous Continuous	17 18 19	21:40:54 21:48:43 21:52:32	PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging x 2 Foraging Foraging	HABITAT Hedgerow Grassland Grassland	PASSES 1 Continuous 1
The Hel	2 2 3	20:50:23 20:51:00 20:56:41 20:58:39	PIPPIP NYCSPP PIPPIP PIPPIP	Pass × 4 Pass Foraging Pass	Grop Hedgerow Hedgerow Hedgerow	1 Continuous Continuous 2 2	17 18 19 20 21	21:40:54 21:48:43 21:52:32 21:54:31 21:56:40	P IPP IP P IPP IP P IPP IP P IPP IP	BEHAVIOUR Foraging × 2 Foraging Foraging Foraging	HABITAT Hedgerow Græssland Græssland Woodland	PASSES 1 Continuous 1 3 2
HER HER	2 2 3 4 5	20:50:23 20:51:00 20:56:41 20:58:39 21:00:54	PIPPIP NYCSPP PIPPIP PIPPIP PIPPIP	Pass x 4 Pass Foraging Pass Pass	Grop Hedgerow Hedgerow Hedgerow Hedgerow	1 Continuous Continuous 2 2 2	17 18 19 20 21 22	21:40:54 21:48:43 21:52:32 21:54:31 21:56:40 21:58:44	PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging × 2 Foraging Foraging Foraging Foraging Pass	HABITAT Hedgerow Græssland Græssland Woodland Woodland Hedgerow	PASSES 1 Continuous 1 3 2 3
HEI HEI MEI	2 2 3 4 5 6	20:50:23 20:51:00 20:56:41 20:58:39 21:00:54 21:07:14	PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	Pass x 4 Pass Foraging Pass Pass NV Pass	Grop Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow	1 Continuous Continuous 2 2 2 2	17 18 19 20 21 22 23	21:40:54 21:48:43 21:52:32 21:54:31 21:56:40 21:58:44 22:04:23	PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging × 2 Foraging Foraging Foraging Pass Pass	HABITAT Hedgerow Græssland Græssland Woodland Woodland Hedgerow	PASSES 1 Continuous 1 3 2 3 3 2
	2 2 4 5 6 7	20:50:23 20:51:00 20:56:41 20:58:39 21:00:54 21:07:14 21:09:32	PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	Pass x 4 Pass Foraging Pass Pass NV Pass NV Pass	Grop Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow Dung	1 Continuous 2 2 2 2 2 2 1	17 18 19 20 21 22 23 24	21:40:54 21:48:43 21:52:32 21:54:31 21:56:40 21:58:44 22:04:23 22:05:01	P IPP IP P IPP IP P IPP IP P IPP IP P IPP IP	BEHAVIOUR Foraging × 2 Foraging Foraging Foraging Pass Pass Pass	HABITAT Hedgerow Græssland Græssland Woodland Woodland Hedgerow Hedgerow Stream	PASSES 1 Continuous 1 3 2 3 2 2 Continuous
	2 2 4 5 6 7 8	20:50:23 20:51:00 20:56:41 20:58:39 21:00:54 21:07:14 21:09:32 21:10:02	PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	Pass x 4 Pass Foraging Pass Pass NV Pass Foraging Foraging	Grop Hedgerow Hedgerow Hedgerow Hedgerow Dung Hedgerow	1 Continuous 2 2 2 2 2 2 1 2 2 2 2 2 2 2 2	17 18 19 20 21 22 23 24 24	21:40:54 21:48:43 21:52:32 21:54:31 21:56:40 21:58:44 22:04:23 22:05:01 22:09:03	PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	BEHAVIOUR Foraging × 2 Foraging Foraging Foraging Pass Pass Pass Pass	HABITAT Hedgerow Græssland Græssland Woodland Woodland Hedgerow Hedgerow Stream	PASSES 1 Continuous 1 3 2 2 3 2 2 Continuous Continuous
HERE HERE MEZ	2 2 4 5 6 7 8 9	20:50:23 20:51:00 20:56:41 20:58:39 21:00:54 21:07:14 21:09:32 21:10:02 21:15:15	PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	Pass x 4 Pass Foraging Pass Pass NV Pass Foraging Foraging	Grop Hedgerow Hedgerow Hedgerow Hedgerow Dung Hedgerow Arable	1 Continuous 2 2 2 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2	17 18 19 20 21 22 23 24 24 24 24	21:40:54 21:48:43 21:52:32 21:54:31 21:56:40 21:58:44 22:04:23 22:05:01 22:09:03 22:11:13	P IPP IP P IPP IP P IPP IP P IPP IP P IPP IP	BEHAVIOUR Foraging × 2 Foraging Foraging Foraging Pass Pass Pass Pass Pass Pass	HABITAT Hedgerow Græsland Græsland Woodland Woodland Hedgerow Hedgerow Stream Stream	PASSES 1 Continuous 1 3 2 2 2 2 Continuous Continuous Continuous
HEIL HEIL	2 2 3 4 5 6 7 8 9 9	20:50:23 20:51:00 20:56:41 20:58:39 21:00:54 21:07:14 21:09:32 21:10:02 21:15:15 21:15:25	PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	Pass x 4 Pass Foraging Pass Pass NV Pass Foraging Foraging Foraging	Grop Hedgerow Hedgerow Hedgerow Hedgerow Dung Hedgerow Arable Arable	1 Continuous 2 2 2 2 2 2 1 2 2 2 2 3 3	17 18 19 20 21 22 23 24 24 24 24 24 27	21:40:54 21:48:43 21:52:32 21:54:31 21:56:40 21:58:44 22:04:23 22:05:01 22:09:03 22:11:13 22:21:01	P IPP IP P IPP IP P IPP IP P IPP IP P IPP IP	BEHAVIOUR Foraging × 2 Foraging Foraging Foraging Pass Pass Pass Pass Pass Pass Pass	HABITAT Hedgerow Græssland Græssland Woodland Woodland Hedgerow Stream Stream Stream	PASSES 1 Continuous 1 3 2 2 3 2 2 Continuous Continuous Continuous 4
HER	2 3 4 5 6 7 8 9 9 10	20:50:23 20:51:00 20:56:41 20:58:39 21:00:54 21:07:14 21:09:32 21:10:02 21:15:15 21:15:25 21:16:39	PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	Pass x 4 Pass Foraging Pass Pass NV Pass Foraging Foraging Foraging	Grop Hedgerow Hedgerow Hedgerow Hedgerow Dung Hedgerow Arable Arable Arable	1 Continuous 2 2 2 2 2 1 2 2 3 1 Continuous 3 1	17 18 19 20 21 22 23 24 24 24 24 24 27 28	21:40:54 21:48:43 21:52:32 21:54:31 21:56:40 21:58:44 22:04:23 22:05:01 22:09:03 22:11:13 22:21:01 22:26:24	P IPP IP P IPP IP P IPP IP P IPP IP P IPP IP	BEHAVIOUR Foraging × 2 Foraging Foraging Foraging Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Hedgerow Græssland Græssland Woodland Hedgerow Stream Stream Stream Stream Hedgerow	PASSES 1 Continuous 1 3 2 2 3 2 2 Continuous Continuous 4 Continuous
	2 2 3 4 5 6 7 8 9 9 9 10 11	20:50:23 20:51:00 20:56:41 20:58:39 21:00:54 21:07:14 21:07:14 21:10:02 21:15:15 21:15:25 21:15:25 21:16:39 21:21:57	PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	Pass x 4 Pass Foraging Pass Pass NV Pass Foraging Foraging Foraging Foraging	Grop Hedgerow Hedgerow Hedgerow Hedgerow Dung Hedgerow Arable Arable Hedgerow	1 Continuous 2 2 2 2 2 2 1 2 2 1 2 Continuous 3 1 Continuous	17 18 19 20 21 22 23 24 24 24 24 24 24 24 27 28 29	21:40:54 21:48:43 21:52:32 21:54:31 21:56:40 21:58:44 22:04:23 22:09:03 22:11:13 22:21:01 22:22:02 22:22:02 22:22:02	P IPP IP P IPP IP P IPP IP P IPP IP P IPP IP	BEHAVIOUR Foraging × 2 Foraging Foraging Foraging Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Hedgerow Græssland Græssland Woodland Woodland Hedgerow Stream Stream Stream Stream Hedgerow	PASSES 1 Continuous 1 3 2 2 3 2 2 3 2 2 3 2 2 3 3 2 3 2 3 3 2 3 3 2 3 3 3 2 3
	2 3 4 5 6 7 8 9 9 10 11 12	20:50:23 20:51:00 20:56:41 20:58:39 21:00:54 21:07:14 21:07:14 21:10:02 21:15:15 21:15:25 21:15:25 21:16:39 21:21:57 21:23:09	PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	Pass x 4 Pass Foraging Pass Pass NV Pass Foraging Foraging Foraging Foraging Foraging Foraging Foraging	Grop Hedgerow Hedgerow Hedgerow Hedgerow Dung Dung Arable Arable Arable Hedgerow Hedgerow	1 Continuous 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 3 1 2 Continuous 3 1 Continuous 3 2	17 18 19 20 21 22 23 24 24 24 24 24 24 24 27 28 29 30	21:40:54 21:48:43 21:52:32 21:54:31 21:56:40 21:58:44 22:04:23 22:05:01 22:09:03 22:11:13 22:21:01 22:26:24 22:29:31 22:32:36	P IPP IP P IPP IP P IPP IP P IPP IP P IPP IP	BEHAVIOUR Foraging × 2 Foraging Foraging Foraging Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Hedgerow Grassland Grassland Woodland Hedgerow Stream Stream Stream Stream Hedgerow Hedgerow	PASSES 1 Continuous 1 3 2 3 2 Continuous Continuous 4 Continuous 1 4 Continuous 1 4 Continuous
	2 3 4 5 6 7 8 9 9 10 11 12 13 14	20:50:23 20:51:00 20:56:41 20:58:39 21:00:54 21:07:14 21:09:32 21:10:02 21:15:15 21:15:25 21:16:39 21:21:57 21:23:09 21:26:23 21:31:31	PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	Pass x 4 Pass Foraging Pass Pass Pass NV Pass Foraging	Grop Hedgerow Hedgerow Hedgerow Hedgerow Dung Hedgerow Arable Arable Hedgerow Hedgerow	1 Continuous 2 2 2 2 2 2 1 2 3 1 Continuous 3 1 Continuous 3 4	17 18 19 20 21 22 23 24 24 24 24 24 24 27 28 29 30 31 22	21:40:54 21:48:43 21:52:32 21:54:31 21:56:40 21:58:44 22:04:23 22:05:01 22:09:03 22:11:13 22:21:01 22:26:24 22:29:31 22:32:36 22:34:10	P IPP IP P IPP IP P IPP IP P IPP IP P IPP IP	BEHAVIOUR Foraging × 2 Foraging Foraging Foraging Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Hedgerow Græssland Græssland Woodland Hedgerow Stream Stream Stream Stream Hedgerow Hedgerow Hedgerow	PASSES 1 Continuous 1 3 2 2 3 2 2 Continuous 4 Continuous 1 4 Continuous 1 4 Continuous
	2 2 3 4 5 6 7 8 9 9 10 11 12 13 14 15	20:50:23 20:51:00 20:56:41 20:58:39 21:00:54 21:07:14 21:07:14 21:09:32 21:15:15 21:15:15 21:15:25 21:16:39 21:21:57 21:23:09 21:26:23 21:31:31	PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	Pass x 4 Pass Foraging Pass Pass Pass NV Pass Foraging	Grop Hedgerow Hedgerow Hedgerow Hedgerow Dung Hedgerow Arable Arable Hedgerow Hedgerow Hedgerow Hedgerow	1 Continuous 2 2 2 2 2 2 1 2 2 1 2 2 3 1 2 Continuous 3 1 Continuous 3 4 4 4 1	17 18 19 20 21 22 23 24 24 24 24 24 24 24 24 27 28 29 30 31 32 33	21:40:54 21:48:43 21:52:32 21:54:31 21:56:40 21:58:44 22:04:23 22:09:03 22:11:13 22:21:01 22:22:21:01 22:22:31 22:32:36 22:34:10 22:44:48 22:47:57	P IPP IP P IPP IP P IPP IP P IPP IP P IPP IP	BEHAVIOUR Foraging × 2 Foraging Foraging Foraging Pass Pass Pass Pass Pass Pass Pass Pas	HABITAT Hedgerow Græssland Græssland Woodland Woodland Hedgerow Stream Stream Stream Stream Hedgerow Hedgerow Hedgerow Hedgerow	PASSES 1 Continuous 1 3 2 2 3 3 2 3 2 3 3 2 3 3 2 3 3 3 2 3
All	2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16	20:50:23 20:51:00 20:56:41 20:58:39 21:00:54 21:07:14 21:09:32 21:10:02 21:15:15 21:15:25 21:15:25 21:16:39 21:21:57 21:23:09 21:26:23 21:31:31 21:34:02 21:39:02	PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP PIPPIP	Pass x 4 Pass Foraging Pass Pass Pass NV Pass Foraging	Grop Hedgerow Hedgerow Hedgerow Hedgerow Dung Hedgerow Arable Arable Arable Hedgerow Hedgerow Hedgerow Hedgerow	1 Continuous 2 2 2 2 2 2 2 2 1 2 2 2 1 2 2 1 2 2 1 2 2 3 1 2 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7	17 18 19 20 21 22 23 24 24 24 24 24 24 24 24 24 27 28 29 30 31 32 33 33	21:40:54 21:48:43 21:52:32 21:54:31 21:56:40 21:58:44 22:04:23 22:05:01 22:09:03 22:11:13 22:26:24 22:29:31 22:26:24 22:32:36 22:34:10 22:44:48 22:47:57 22:53:27	P IPP IP P IPP IP P IPP IP P IPP IP P IPP IP	BEHAVIOUR Foraging × 2 Foraging Foraging Pars Pass Pass Pass Pass Pass Pass Pass	HABITAT Hedgerow Grassland Woodland Woodland Hedgerow Stream Stream Stream Stream Hedgerow Hedgerow Hedgerow Hedgerow Hedgerow	PASSES 1 Continuous 1 3 2 3 2 3 2 Continuous Continuous 4 Continuous 1 4 Continuous 1 4 Continuous 2

FPCR Environment and Design Ltd, Lockington Hall, Lockington, Derby, DE74 2RH = t:01509 672 772 • f:01509 674 565 • e: mail@fpcr.co.uk • w: www.fpcr.co.uk masterplanning environmental assessment elandscape design eurban design ecology architecture arboriculture



This drawing is the property of FPCR Environment and Design Ltd and is issued on the condition it is not reproduced, retained or disclosed to any unauthorised person, either wholly or in part without written consent of FPCR Environment and Design Ltd.

Ordnance Survey material - Grown Copyright, All rights reserved. Licence Number: 100019980



For habitat symbology see Phase 1 Habitat Plan



Extension, Calderdale BAT TRANSECT PLAN (30/04/2018)

1:5000 account of a management of the

draver. MB-

IN.

5/7/2019

Figure 6



FPCR Environment and Design Ltd, Lockington Hall, Lockington, Derby, DE74 2RH = t:01509 672 772 • f:01509 674 565 • e: mail@fpcr.co.uk • w: www.fpcr.co.uk masterplanning environmental assessment elandscape design eurban design ecology architecture arboriculture



This drawing is the property of FPCR. Environment and Design Utd and is issued on the condition it is not reproduced, retained or disclosed to any unauthorised. person, either wholly or in part without written consent of FPCR Environment and Design Ltd.

Ordnance Survey material - Grown Copyright, All rights reserved, Licence Number: 100019980

KEY

Transect Route

Bat Contacts (Species) Common Pipistrelle V Nyctalus Species

V Noctule

Start Point

🕞 Finish Point

U Woodhouse Site boundary

For habitat symbology see Phase 1 Habitat Plan

REF	TIME	SPECIES	BEHAVIOUR	HABITAT	PASSES
1	21.46	PIPPIP	Non visual	Grassland	1
2	51.52	PIPPIP	x2 Commuting	Treeline	2
3	21.56	PIPPIP	Commuting	Treeline	1
4	22	PIPPIP	Commuting	Grassland	1
5	22	NYONOC	Commuting	Grassland	1
6	22.02	PIPPIP	Commuting	Grassland	1
7	22.03	PIPPIP	Foraging	Hedgerow	2
8	22.06	PIPPIP	Foraging	x2 Edge of wood	Constant
9	22.07	PIPPIP	Foraging	Edge of wood	Constant
10	22.09	PIPPIP	Foraging	×2 Edge of wood	Constant
11	22.11	PIPPIP	Foraging	x3 Edge of wood	Constant
12	22.13	PIPPIP	Foraging	x2 Edge of wood	Constant
13	22.17	PIPPIP	Foraging	6+Edge of wood	Constant
14	22.2	PIPPIP	Foraging	Hedgerow	Constant
15	22.22	PIPPIP	Foraging	Hedgerow	3
16	22.23	PIPPIP	Commuting	Grassland	1
17	22.39	NYCSPP	Foraging	x3 Grassland	Constant
18	22.32	PIPPIP	Foraging	Near house	Constant
19	22.34	PIPPIP	Foraging	x3 Arable	Constant



BAT TRANSECT PLAN (30/05/2019)

ihan JS

Woodhouse Garden Suburb Extension, Calderdale

5/7/2019

Figure 7

drawing/ figure mamber

1:5600



FPCR Environment and Design Ltd, Lockington Hall, Lockington, Derby, DE74 2RH = t:01509 672 772 = f:01509 674 565 = e: mail@fpcr.co.uk w: www.fpcr.co.uk	0	25	50	75	100 m
masterplanning = environmental assessment =landscape design = urban design = ecology = architecture =arboriculture	1	1	1	1	1

This drawing is the property of FPCR Environment and Design Ltd and is issued on the condition it is not reproduced, retained or disclosed to any unauthorised person, either wholly or in part without written consent of FPCR Environment and Design Ltd.

Ordnance Survey material - Crown Copyright. All rights reserved. Licence Number: 100019980



For habitat symbiology refer to Phase 1 Plan

Reference	Time	Species	Behaviour	Habitat	Passes
1	21:46:57	NYCNOC	Non visual	Hedgerow/grass	2
2	21:54:00	NYCNOC	Foraging	Hedgerow/grass	4
3	21:53:44	PIPPIP	Non visual	Grassland	2
4	22:01:19	NYCNOC	Non visual	Hedgerow/grass	2
5	22:04:43	PIPPIP	Pass	Hedgerow/grass	1
6	22:19:12	PIPPIP	x 2	Hedgerow/grass	5
7	22:22:48	PIPPIP	Foraging	Hedgerow/grass	2
8	22:26:03	PIPPIP	Pass	Hedgerow/grass	2
9	22:30:17	PIPPIP	Foraging	Hedgerow/grass	2
10	22:32:18	PIPPIP	x2 foraging	Hedgerow/grass	5
11	22:38:36	PIPPIP	Non visual	Hedgerow/grass	3
12	22:40:04	PIPPIP	Non visual	Hedgerow/grass	1
13	22:42:24	NYCSPP	Non visual	Hedgerow/grass	1
14	22:42:45	PIPPIP	Non visual	Hedgerow/grass	1
15	22:44:09	PIPPIP	Non visual	Hedgerow/grass	2
16	22:45:36	NYCSPP	Non visual	Hedgerow/grass	2
17	22:49:01	PIPPIP	Non visual	Hedgerow/grass	2
18	22:50:05	PIPPIP	Non visual	Hedgerow/grass	1
19	22:52:02	PIPPIP	Non visual	Hedgerow/grass	1
20	22:55:00	PIPPIP	Non visual	Hedgerow/grass	1
21	22:57:55	PIPPIP	Non visual	Hedgerow/grass	2
22	22:58:41	NYCSPP	Non visual	Hedgerow/grass	1
23	23:00:08	PIPPIP	Non visual	Hedgerow/grass	1
24	23:04:11	PIPPIP	Non visual	Hedgerow/grass	5
25	23:11:21	PIPPIP	Non visual	Hedgerow/grass	1
26	23:14:00	PIPPIP	Non visual	Hedgerow/grass	1
27	23:16:11	PIPPIP	Non visual	Hedgerow/grass	1
28	23:20:17	NYCSPP	Non visual	Hedgerow/grass	1
29	23:20:39	PIPPIP	Non visual	Hedgerow/grass	1
30	23:22:05	PIPPIP	Non visual	Hedgerow/grass	1



clent ID Planning project Woodhouse Gardens drawing title BAT TRANSECT PLAN (27.06.2019) scale @ A3 1:1 rev drawing / fgure number

Figure 8