Daimler Chrysler site, Wentworth Industrial Park

Tankersley

Bat survey

August 2006

Report ref: 06-009/Appendix B5

Client: Gladman Developments Ltd.

Paul Lupton MSc, Mary Toomey MSc AIEEM

Version 2

13th March 2007

Argus Ecology

Unit 14, The Greenhouse

Greencroft Industrial Park

Annfield Plain, Co. Durham

DH9 7XN

Tel: 01207 524859

Fax: 01207 524895

E-mail: paul@argusecology.co.uk

A CONTENTS

B Introduction 3

B1 Background to the development
B2 Consideration of alternative solutions

C Survey and site assessment 3
C1 Pre-existing information on bats at the survey site
C2 Status of the species in the local/regional area
C3 Objective(s) of the survey
C4 Survey area
C5 Habitat description
C6 Field survey
- C6.1 Methods
- C6.2 Timing
- C6.3 Weather conditions
- C6.4 Personnel

C7 Results
- C7.1 Daytime survey
- C7.2 Evening activity survey

C8 Interpretation and evaluation
- C8.1 Presence/Absence
- C8.2 Population assessment
- C8.3 Site status assessment
- C8.4 Constraints

C9 Maps/ Photographs
- Fig. 1: Location plan
- Fig 2: Habitat survey plan (refer to drawing no. ES06-009/02)

D Impact assessment 10
D1 Pre- and mid-development impacts
D2 Long term impacts
D3 Post development impacts

E Mitigation and compensation 10
E1 Mitigation strategy
E2 Roost creation, restoration and or enhancement

F Summary 12

F1 Summary of the development and mitigation

G References 12

H Annexes 13

H1 Bats and the law

H2 Method Statement to Protect Bats During Development

B Introduction

B1 Background to the development

Wentworth Industrial Park is located in Tankersley, Barnsley (SK 334 996). Access to the site can be gained from Wentworth Way, just off the A61 (see Figure 1 – Location Plan at page 8). Daimler Chrysler owns part of the site and it is currently used as a truck storage depot. Gladman Developments Ltd. have purchased a section of the site and wish to construct three new warehouses.

There is a strip of semi-natural woodland running along the western boundary of the site. A band of scattered trees and shrubs and an area of disturbed ground run along the northern boundary of the site. The northern half of the woodland strip, the band of trees and shrubs and the disturbed ground will be lost as a result of the proposed development.

B2 Consideration of alternative solutions

N/A

C Survey and site assessment

C1 Pre-existing information on bats at the survey site

No existing information on bats at the survey site has been obtained. The National Biodiversity Network (NBN) gateway site holds records of common pipistrelle, Daubenton's, brown long-eared and noctule bats for the general area.

C2 Status of species in the regional/ local area

Pipistrelle (Pipistrellus pipistrellus and Pipistrellus pygmaeus) are listed as a priority species in the Barnsley Biodiversity Action Plan (BAP). These species have been recorded from 22% of the 1km grid squares covering the Barnsley district.

The status of other species in the area is less well known. All bats are fully protected under the Wildlife and Countryside Act 1981 and the Conservation (Natural Habitats, etc.) Regulations 1994 as many bats species have declined in recent years. In the absence of detailed information on bats in the local are one must take a precautionary approach and assume that the local bat population follows a similar trend to the regional bat population and that the local bat population may currently be undergoing a decline in numbers.

C3 *Objectives of the survey*

The main objectives of the survey were:

- To investigate the potential for the site to offer roosting and feeding opportunities for bats.
- To identify any potential roosts on site.
- To identify important flight corridors and feeding areas on site.
- To assess the site in the context of the locality.

C4 *Survey area*

The site is located within the Coal Measures character area that is characterised by dense populations centred on a number of towns and cities, which developed largely as a result of underlying coalfields. The topography of the Natural Area is gently undulating and the network of towns and cities is characterised by a matrix of acidic ancient and secondary woodlands, valley wetlands, neutral and acid grasslands, and mixed agriculture. Canals, mill-ponds and natural rivers are also important features.

The industrial site comprises a large area of hard standing with undeveloped areas including woodland, scrub, rough grassland, disturbed ground and water bodies around the perimeter.

C5 *Habitat description*

Birch trees that have a low risk of supporting roosting bats dominate the strip of woodland. However, there are some oak trees also present. A clump of six mature oaks is located at the northern end of the woodland, these have numerous holes and crevices which are suitable for roosting bats and were the only features to be impacted with potential for roosting bats.

C6 *Field survey*

C6.1 *Methods*

Bats are active during the hours of darkness but can leave physical signs of their presence that are best seen during daylight hours. At dusk bats are most readily identified using ultrasonic bat detectors that make the bat's sonar audible to humans. Roosts of some bat species (e.g. brown long-eared bats *Plecotus auritus*) are most readily identified by observing physical signs including collections of droppings and feeding signs such as moth wings because they tend to roost in accessible locations whilst being difficult to detect using bat detectors. Roosts of other species (e.g. common pipistrelle *Pipistrellus pipistrellus*) are best detected using ultrasonic detectors to identify roost emergence points because the roosts may be located in very inaccessible locations.

A daytime survey was undertaken to allow physical examination of the site and its associated structures, in order to investigate the potential for the site to support bats in relation to feeding and roosting opportunities. The daytime survey was followed up with evening activity surveys to assess the use of the site by bats.

During daylight the trees within the woodland and around the boundary of the site were inspected for holes and crevices that could provide roosting opportunities for bats. This survey was undertaken in March 2006 before the leaves developed on trees.

Three evening bat activity surveys were carried out to assess the level of bat activity on site and to determine if bats were roosting in any of the mature oak trees. From dusk, surveyors, equipped with Stag electronics `Batbox 3`, watched the mature oak trees so that any emerging bats could be detected. The time and location of detected bats were noted, as was their direction of flight. A Pettersson Elektronic time expansion detector was used to record the calls of bats on site, and these recordings were subsequently transferred to Bat Sounds v3.31 for analysis of species composition.

C6.2 Timing

The daytime survey was carried out during March 2005 and the evening activity surveys were carried out on the 25th of May and the 15th and 29th of June 2006. During this time one would expect bats to be active and that if bats are present on site then it should be possible to detect them at this time.

C6.3 Weather conditions

The weather conditions during the evening surveys were warm and dry and relatively calm. Table 1, below, includes the survey times, weather conditions and temperature for each survey occasion.

Table 1: Survey times, weather conditions and temperature for each evening survey.

Date	Time	Weather	Temperature
25/05/06	8.30pm – 10pm	Dry, calm, overcast	14°c
15/06/06	9.30pm – 11pm	Dry, calm, overcast	16°c
29/06/07	9.30pm – 11pm	Dry, light breeze, clear	20°c

C6.4 Personnel

The daytime survey was carried out by Paul Lupton. Mary Toomey and Claire Henderson carried out the evening activity surveys. Paul Lupton is a director of Argus Ecological Services and a qualified ecologist with many years of experience in mammal surveys. He has carried out numerous faunal surveys including work on badgers, bats, deer, and other protected species. Mary Toomey and Claire Henderson are employees of Argus Ecological Services and are also qualified ecologists. Mary Toomey compiled the report.

C7 Results

C7.1 Daytime Survey

The site and the surrounding area offer excellent foraging opportunities for bats. Insects were abundant within the woodland and grassland on site. There are numerous ponds in the surrounding area that provide excellent foraging habitat, as well as blocks of woodland including Westwood Park (a large area of deciduous woodland).

Roosting opportunities on site were limited. There were holes and crevices in the cluster of six mature oak trees located close to the northwestern corner of the site. A few other mature oak trees with roosting potential were present in the southern section of the woodland, although these trees will not be impacted by the development.

C7.2 Evening Activity Surveys

No bats were detected emerging from any of the mature oak trees during the three survey occasions. Numerous *pipistrelles* were detected flying around the outside of the trees. These appeared to be coming onto the site from the northeast (in the direction of Pilley), flying around the outside of the cluster of oak trees and heading offsite in a westerly direction. Pipistrelles were also detected foraging up and down the roadside adjacent to the northern boundary of the site, which is close to the cluster of mature oaks.

Some foraging occurred on site, although the majority of bats appeared to be just passing through the site. Daubenton's and pipistrelles were detected feeding offsite and were concentrated around a pond located 80m to the west of the woodland.

C8 *Interpretation and Evaluation*

C8.1 Presence/ absence

No bats appear to be using the trees as summer roosts.

C8.2 Population assessment

The results of the survey suggest that the trees do not support any summer roosting bats. However, several common pipistrelles are present in the area and were detected flying through and feeding on site.

C8.3 Site status assessment

Although no bats appear to be using the trees for summer roosting, there is potential for bats to use these trees for hibernation. Such use is very difficult to determine.

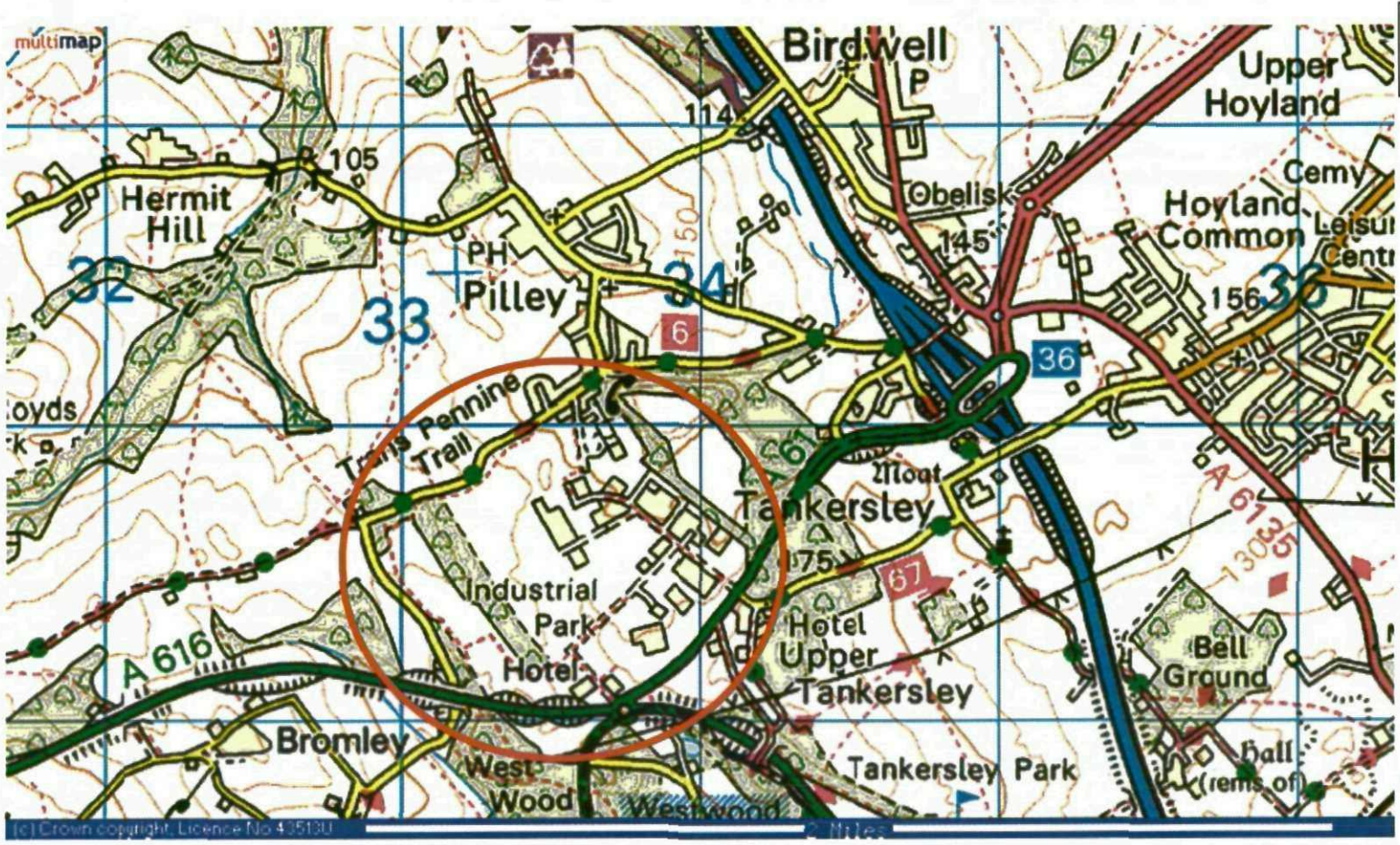
In terms of foraging habitat, the site and the surrounding area provide excellent areas for feeding. During the evening surveys bats were noted feeding on site as they passed through. However, the majority of feeding occurred offsite, the pond to the west of the site being a foraging hotspot. This relatively low level of activity is most likely due to the availability of high quality foraging habitat in the wider area.

The majority of pipistrelles that passed through the site came form the northeast and headed west towards the pond and woodland/ pastoral fields. It is likely that pipistrelles roosting in houses in the village of Pilley will use the woodland on site as a flight corridor that connects roosting and foraging areas.

C8.4 Constraints

There are no major constraints associated with the survey, the weather was excellent on all survey occasion and similar results were obtained on each occasion.

C9 Maps / Photographs



Site Location

Figure 1 – Location plan

Figure 2 – Habitat Plan (refer to plan ES06-009/02)

(this page deliberately left blank to conform to DEFRA licence format)

D Impact Assessment

D1 Pre- and mid-development impacts

As there is some potential for bats to use the trees for hibernation the felling of trees during the winter months could result in injury and/ or disturbance to bats.

D2 Long-term impacts

If bats were using any of the trees on site for hibernating then adverse impacts associated with the loss of a hibernation roost would occur. Pipistrelles appear to use the site as a flight corridor and woodland clearance works would result in the loss of habitat connectivity between roosting and foraging areas.

D3 Post-development impacts

The presence of warehouses will result in more intensive use of the site. This may result in minor disturbances to bats passing through the site as a result of an increase in noise and human activity, although this is unlikely to be significant.

E Mitigation and Compensation

E1 Mitigation Strategy

The mitigation and compensation proposals will be dealt with under the following headings:

- Protection of bats during tree felling
- The provision of alternative roosting sites
- Habitat enhancement for bat

Protection of bats during tree felling

Bats do not appear to be using the mature oak trees on site for summer roosting although there is still some potential for bats to use them for hibernation. The felling of these trees will be undertaken during March-May or September-October to minimise disturbance to bats. A bat emergence survey will be carried out immediately prior to the felling of these trees to ensure that roosting bats are not present. The trees will be soft-felled (i.e. cutting the tree in sections and gently lowering the sections to the ground). The cut sections should be re-examined for bats immediately prior to removal. If cavities are evident in the trunk or elsewhere, it is important that these should be brought down intact (rather than sawn through). Should bats be discovered at any time during felling, then work must stop immediately and a licensed bat worker and the project ecologist must both be called to assess the situation. Works will not continue until the welfare of any bats discovered is secured.

E2 *Roost Creation, Restoration and Enhancement*

Bat boxes will be erected on mature oak/ birch trees in the remaining area of woodland. Two types of Schwegler bat box (1FF and 1FW), made from 'woodcrete' (a mixture of wood shavings and cement) will be used (see Figure 3). The 1FF box is a rectangular bat box with a width of 27cm and a height of 43cm. This particular bat box is said to be suitable for pipistrelles and long-eared bats with narrow internal spaces. Noctules can also use this box. The 1FW bat box has been designed for hibernating bats and provides a more constant temperature during particularly cold weather. There are three internal panels inside imitating crevices. The box has a diameter of 38cm and a height of 50cm. This boxes will be put in place prior to felling the oak trees to ensure that a mixture of maternity/ summer roosting sites and hibernating sites are available at all times.

A total of 8 bat boxes (4 1FF and 4 1FW) will be used. Bat boxes will be placed at least 4m above the ground, on trees within the remaining area of woodland. Four bat boxes (2 1FF and 2 1FW) will be placed on each tree so that bats are offered a range of aspects with slightly different microclimates. This final result will be two trees, each with four bat boxes facing north, south, east and west.

Figure 3



1FF Bat Box



1FW Bat Box

The trees and shrubs around the boundary of the site will be retained which will continue to provide bats with a flight corridor between the roosting sites and the remaining area of woodland and the pond to the west of the woodland.

F Summary of the Development and Mitigation

No evidence of bats using the trees for summer roosting was found during the daytime survey or the evening activity surveys. There is some potential for bats to hibernate in the trees during winter. Numerous pipistrelles were detected flying through the site with some occasional feeding occurring. However, the majority of feeding appeared to be concentrated offsite and the main function of the northern end of the woodland was as a flight corridor.

In order to avoid damage or injury to possible bats hibernating bats the trees will be felled March-May or September-October, outside the hibernation period. A bat survey will be undertaken immediately prior to felling and the trees will subsequently be soft-felled. Bat boxes will be erected on trees in the remaining area of woodland prior to the felling taking place.

The retention of the trees and shrubs around the boundary of the site should continue to provide bats with a flight corridor between roosting sites and foraging habitats.

G References

English Nature (Northumbria Team). *Bat Surveys for development proposals in north-east England.* English Nature.

Mitchell-Jones, A.J. 2004. *Bat Mitigation Guidelines.* English Nature.

Mitchell-Jones, A.J. & McLeish A.P. (1999) *The Bat Workers' Manual.* JNCC, Peterborough.

H Annexes

H1 Bats and the law

All bats species are listed on schedule 5 of the Wildlife and Countryside Act (1981) and are therefore subject to provisions under section 9 which makes it an offence to:

- Intentionally kill, injure or take a bat [section 9(4)(a)]
- Possess or control any live or dead specimen or anything derived from a bat [section 9(2)]
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a bat [section 9(3)]
- Intentionally or recklessly disturb a bat while it is occupying a structure of place that it uses for that purpose [section 9(4)(b)]

The Conservation (Natural Habitats &c.) Regulations 1994 (the Habitats Regulations) transpose into UK law Council Directive 92/43/EEC of 21 st May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (often referred to as the 'Habitats [and Species] Directive'). All bats are listed on Annex IV of the Directive and some are also listed on Annex II. The latter Annex relates to the designation of Special Areas of Conservation (SACs) and covers greater and lesser horseshoe bats, barbastelle and Bechstein's bat. Inclusion on Annex IV ('European protected species') means that member states are required to put in place a system of strict protection as outlined in Article 12; this is done through inclusion on Schedule 2 of the Regulations. Regulation 39 makes it an offence to:

- Deliberately capture or kill a bat [Regulation 39(1)(a)]
- Deliberately disturb a bat [R. 39(1)(b)]
- Damage or destroy a breeding site or resting place of a bat [R. 39(1)(d)]
- Keep, transport, sell or exchange, or offer for sale or exchange a live or dead bat or any part of a bat [R. 39(2)]

Licences permit otherwise unlawful activities, and can only be granted for certain purposes.

English Nature issues licences for scientific, educational and conservation purposes. Surveys for bats which involve otherwise unlawful acts (such as intentional disturbance or taking) may be authorised for scientific and educational purposes; this includes surveys of potential development sites.

The Department for Environment, Food and Rural Affairs (Defra) issues licences for the purposes of *"preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment"* [R. 44(2)(e)].

In every case, a licence cannot be granted unless:
"There is no satisfactory alternative" [R. 44(3)(a)], and
"The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range" [R. 44(3)(b)].

H2 Method statement to protect bats during the development

This method statement has been produced by Argus Ecological Services as a guide for clients, developers, contractors and any other parties that have responsibility and/ or an active role in the development of **Wentworth Industrial Park**. It provides advice on good working practise when undertaking works on sites where there is a risk of bats being present, in order to minimise the risk of breaking the law and prevent bats being disturbed and/ or harmed. The advice given here includes site-specific instructions for works undertaken on **Wentworth Industrial Park**, as well as more general advice that is likely to be applicable to any sites where bats are present. All groups mentioned above should read this document and it is considered the responsibility of the client to ensure that copies are made available and clearly understood by all relevant parties involved in the development.

Tree Felling

- Mature trees on site which are to be removed, must be felled during March-May or September-October to minimise disturbance to bats.
- A bat emergence/ dawn swarming survey should be carried out immediately prior to the felling of mature trees to ensure that roosting bats are not present.
- Mature trees must be soft-felled (i.e. cutting the tree in sections and gently lowering the sections to the ground). The cut sections should be re-examined for bats immediately prior to removal. If cavities are evident in the trunk or elsewhere, it is important that these should be brought down intact (rather than sawn through).

Erection of Bat Boxes

- Two types of Schwegler bat box (1FF and 1FW), made from 'woodcrete' (a mixture of wood shavings and cement) should be used.
- Bat boxes should be placed at a minimum of 4m, and preferably 5-6m, above the ground.
- Four bat boxes (2 1FF and 2 1FW) will be placed on each tree so that bats are offered a range of aspects with slightly different microclimates. This final result will be two trees, each with four bat boxes facing north, south, east and west.