

**EXTENDED PHASE 1 HABITAT SURVEY
REPORT AND BAT SCOPING REPORT**

**at
Vale Works
25 Morley Lane
Huddersfield
HD3 4NS**

Client:

Mr Alan Batley

Client Address:

Vale Works
25 Morley Lane
Milnsbridge
Huddersfield
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JCA Ref:

13910/DB

Version:


Planning Application

Date of Report:

17/01/2018

Quality Assurance

Version	Desktop Survey Completed:		Site Surveyed:		Report Completed:		Checked:	
	Date	Name	Date	Name	Date	Name	Date	Name
Planning Application	11/01/18	David Bodenham	08/01/18	David Bodenham	17/01/18	David Bodenham	17/01/18	Jenny Butler

Risk Assessment Completed	
Bio-security Procedure Completed	
Lone Worker Procedure Completed	

Summary

A report is required for **Vale Works, 25 Morley Lane** to assess the ecological value of the site by documenting the habitat types present and the site's potential for supporting rare and protected species. The development proposed on this site is the demolition of the current factory and the construction of residential units.

A desktop study has been undertaken in order to obtain any relevant ecological records that may be present within a 2km radius of the site. This includes protected and notable species records, as well as nature conservation designations. A thorough site assessment was undertaken following the guidelines set out in the JNCC's *Handbook for Phase 1 habitat surveys*. The entire site was walked over by an experienced consultant who mapped and described each habitat type that was present. Whilst conducting the site walk-over, any features that may be of value to or have the potential to support protected species were noted and photographic evidence taken.

A desktop study was also undertaken in order to obtain any records of bats and designated conservation sites within a 2km radius of the site to determine the significance of the area for supporting these protected species. A thorough assessment of the habitat, buildings and trees on site was carried out to assess the site's potential for supporting roosting and foraging bats.

After conducting a thorough site investigation and a detailed Desktop Study, we consider **Vale Works, 25 Morley Lane** to contain habitats of moderate ecological value (please see **Section 3.2**).

The site is situated within influencing distance of **the Huddersfield Narrow Canal** which is part of the **Huddersfield Wildlife Habitat Network**. The proposed residential properties will be built in close proximity to this site, and may disturb wildlife such as otters and bats during and post-construction.

Habitats on site are of low conservation value, mainly consisting of hard standing and bare ground, with little natural vegetation. The buildings on site however have potential for roosting bats. Because of the proximity to the canal, it is likely bats will pass through the area, and potentially utilise the building in summer.

Based on the findings outlined in this report the following recommendations are made:

- **Bats:** As the buildings on site have been considered to have a moderate potential of supporting bat roosting sites, we recommend that dawn/dusk emergence surveys should be carried out to establish the absence/presence of roosting bats at **7 Ridgeway**. Dawn and dusk bat surveys are conducted between May until September, and are used to determine whether bats are currently roosting at a site. It can also give you an indication of the level of bat activity at a survey site and any specific foraging patterns. Dawn surveys are started around 1.5 hours before sunrise, when swarming behaviour can be observed around roost sites.

Dusk surveys are started around 30 minutes before sunset and up to 2 hours after, and look for the emergence of bats from their roost sites. If bats are then confirmed to be roosting on the site, a **Bat Mitigation Licence** may be applied for from Natural England, and a mitigation plan devised so development causes as little impact on local bat populations as possible. As the site has been considered to have a moderate potential of supporting bat roosting sites, at least **two emergence/re-entry surveys** will be required, with **six** surveyors needed to cover all aspects of the buildings. Both of the surveys should be carried out between May and September, with at least one of the surveys carried out between May and August when bats are most active.

- **Birds:** It is recommended that any trees planned to be removed should be removed between October-February, outside the nesting bird season, otherwise there is a risk that conducting this task after this time will impact upon nesting birds, which is a criminal offence. Any activity which risks disturbance of any species of nesting bird must be preceded by a breeding bird survey to confirm that such activity will not impact upon any active nests. Work can take place outside of these months, but must be preceded by a nesting bird survey which must produce a negative result for nesting activity.
- **Otters:** As the site is in close proximity to The Huddersfield Narrow Canal, which has potential to support otters, an **Initial Otter Survey** is needed. The proposed development has the potential to disturb the local otter population both during and after construction. An initial otter survey will establish if there is an active otter population along this stretch of the canal. This should cover at least 250m either side of the site on both banks of the canal. Please see **Appendix 7** for a calendar showing the survey season for these additional surveys.

Contents

1	Introduction and Terms of Reference	7
1.1	Purpose of the Report	7
1.2	Terms of Reference	7
1.3	Scope of the Report	7
1.4	Details of Proposed Development	7
1.5	Site Description	7
2.1	Bats in the UK	8
2.2	Bat Ecology	8
2.3	UK Bat Species	9
2.4	Bats and the Law	12
2	Methodology	14
2.1	Desktop Study Methodology	14
2.2	Site Assessment Methodology	14
2.5	Bat Scoping Survey Methodology	15
3	Results	16
3.1	Desktop Study Results	16
3.2	Site Assessment Results	18
3.3	Scoping Survey Results	20
4	Discussion and Analysis of Results	22
4.1	Nature Conservation Designations	22
4.2	On-site Habitat	22
4.3	Potential for Protected Species	22
5	Conclusions and Recommendations	25
6	References	27
	Appendix 1: Phase 1 Habitat Map	30
	Appendix 2: Photographic Evidence	31
	Appendix 3: Data Search	43
	Appendix 4: Site Map	44
	Appendix 5: Floral Species List	45
	Appendix 6: Protected Species Information	46

Appendix 7: Survey Calendar	47
Appendix 8: Bat Survey Calendar	48
Appendix 9: Glossary	49
Appendix 10: Author Qualifications.....	50

1 Introduction and Terms of Reference

1.1 Purpose of the Report

1.1.1 A report is required for **Vale Works, 25 Morley Lane** to assess the ecological value of the site by documenting the habitat types present and the site's potential for supporting rare and protected species.

1.2 Terms of Reference

1.2.1 I am instructed by **Mr Alan Batley** to visit the site and prepare my findings in a report.

1.2.2 For this purpose I have been supplied with a site map and brief details of the proposal.

1.3 Scope of the Report

1.3.1 This survey was carried out in accordance with the Joint Nature Conservation Committee's (JNCC's) *Handbook for Phase 1 habitat survey - A technique for environmental audit* (2010).

1.4 Details of Proposed Development

1.4.1 The development proposed on this site is the demolition of the current factory and the construction of residential units.

1.5 Site Description

1.5.1 **Vale Works, 25 Morley Lane** is situated approximately 3km west of Huddersfield city centre, at grid reference: SE 11509 15862.

1.5.2 The site itself is an active industrial factory, and associated yards and grounds surrounding the facility.

1.5.3 The site is surrounded by predominantly urban areas, with a mix of commercial structure and residential properties. The site sits between two parts of the River Colne to the north and south. Following the river is a strip of riparian habitat that continues west of the proposed development site. A map of the site in relation to the surrounding habitats can be seen in **Appendix 4**.

2.1 Bats in the UK

2.1.1 In the UK there are thought to be 18 native species of bat (17 known to be breeding), and may account for more than a quarter of mammal species present in the UK. Nearly all UK bat species have experienced serious declines over the last century and all species are protected under UK and European Law.

2.2 Bat Ecology

2.2.1 All species of bat in the UK are insectivorous and have evolved to hunt a different set of insects, present in different habitat types. Preferred bat habitats include woodland, grassland, agricultural land, wetland and rivers.

2.2.2 Bats typically roost close to foraging sites, and use linear features such as hedgerows, tree lines and rivers to navigate. Removal of these linear features is thought to have a significant negative impact on their movement, which could be contributing to their decline.

2.2.3 Bats will roost in a wide range of different sites including built structures, underground sites and mature trees. Due to bats ecology different roost sites will be used at different times of the year. Known roost types include:

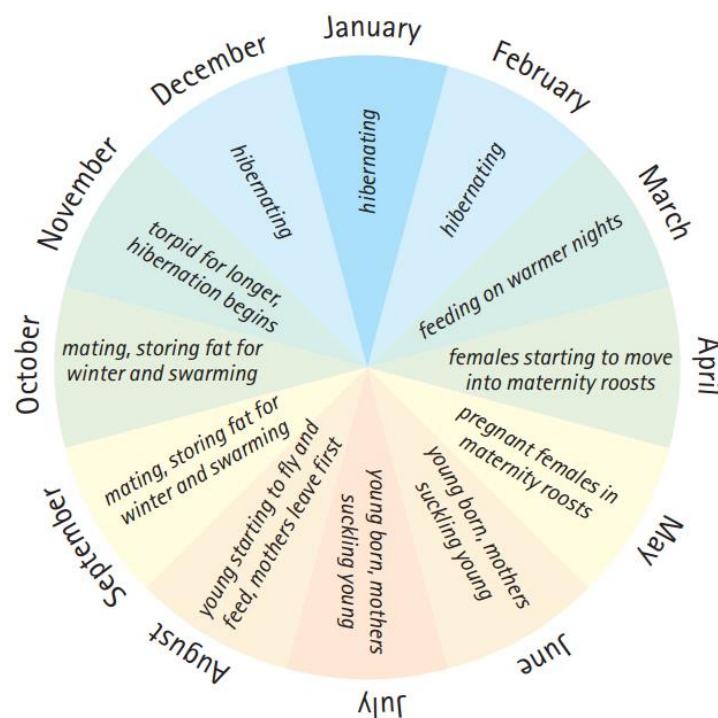
- **Night Roosts:** A place where individual bats, or sometimes the colony, rest or shelter in the night, but are rarely found in the day. Can be used throughout the year.
- **Day Roosts:** A place where individual bats, or small groups of males, rest or shelter during the day but are rarely found by night in the summer months.
- **Feeding Roosts:** A place where individual or a few individuals rest or feed during the night, but are rarely found in the day during the summer months.
- **Transitional/Occasional Roosts:** Used by a few individuals or occasionally by small groups for short periods of time on waking from hibernation, or in the period prior to hibernation. Usually found during February-April or during September to November.
- **Swarming Sites:** Where large numbers of males and females gather during late summer to autumn. Appear to be important mating sites. September – November.
- **Mating Sites:** Where mating takes place from late summer and can continue through the winter. August – March.
- **Maternity Roosts:** Where female bats give birth and raise their young to independence. May-September.
- **Hibernation Roosts:** Where bats may be found individually or together during the winter. They have a constant cool temperature and high humidity. December-February.

- **Satellite Roosts:** An alternative roost found in close proximity to the main nursery colony used by a few individual breeding females to small groups of breeding females throughout the breeding season. May-September.

2.2.4 The three main roosts to be considered, with respect to buildings and development, are maternity roosts, satellite and hibernation roosts. Disturbance of these roosts can have significant negative impacts on local bat populations.

2.2.5 **Figure 1** below provides a visual representation of the life cycle of a bat; showing the life cycle on a month by month basis.

Figure 1: Diagram of a bat's life-cycle (taken from the BCT: Bat surveys for professional Ecologists, Good Practice Guidelines; 3rd Edition).



2.3 UK Bat Species

2.3.1 Within the UK there are 17 species of bat known to be breeding, with a further one species listed as a resident, non-breeding species within the UK. **Table 1** below details the roosting preferences of the non-breeding species of bats currently listed as being found within the UK.

Table 1: Roosting preferences of the known UK breeding resident bat species (taken from the BCT: Bat surveys for professional Ecologists, Good Practice Guidelines; 3rd Edition).

Species Common Name	Species Scientific Name	Species Roosting Preferences
Greater Horseshoe Bat	<i>Rhinolophus ferrumequinum</i>	During the summer females use large, old, undisturbed buildings including coach houses, stable blocks and barns. This species prefers to fly directly into the roost and to their roosting position and bats hang freely. Maternity sites are often found in large spaces at least 3–4m high, providing a sufficiently large flight area. This species generally uses night roosts to rest whilst foraging, which are found in a variety of structures, for example outbuildings, garages, stables, milking sheds, porches and trees. In winter, both male and female bats choose underground sites for hibernation, including tunnels, mines, caves or cold building basements.
Lesser Horseshoe Bat	<i>Rhinolophus hipposideros</i>	Roost sites include attics, chimneys and boiler rooms of buildings, rural houses and outbuildings in the summer, and cellars, tunnels, disused mines and caves for hibernation. Also found in industrial buildings. This species prefers to fly directly into roost sites and into their roosting position. Maternity sites are often found in large roof spaces at least 3–4m high providing a large flight area. A range of conditions is required throughout the year but this may be found in one building with, for example, an attic for the summer and a cellar for the winter. Summer and winter roost sites are generally no more than 5–10km apart. The lesser horseshoe bat also uses alternative roost sites during the night and day.
Daubenton's Bat	<i>Myotis daubentonii</i>	Roosts are found in hollow trees, bridges or sometimes buildings and generally close to water. Nursery roosts are not exclusively female – males may make up 25% or more of the colony and large male-only colonies have also been recorded. This species selected oaks over beech trees and preferred roosts on the edges of woodlands in a study in the Netherlands. Hibernation sites are usually underground including caves, mines and suitable tunnels where bats are found both in crevices and on open walls. They may also hibernate in tree cavities.
Bandt's Bat, Whiskered Bat and Alcatheo's Bat	<i>Myotis Brandtii</i> , <i>Myotis mystacinus</i> , <i>Myotis alcathoe</i>	These species can roost in trees and a wide range of buildings in the summer. These species hibernate in caves or other underground sites, where they can be found in the open or in cracks and crevices.
Natterer's Bat	<i>Myotis nattereri</i>	Roost sites include tree holes and different types of buildings but has also been found in bridges. Usually roost in attics between late May and mid-July and often roosts have enough space for internal flight (Swift, 1997). This species also breeds in bat boxes. Timber-framed barns built between the 12th and 19th centuries may be particularly important to this species, with roosts found in mortise joints in both the summer and winter. Hibernates in cracks and crevices in caves and mines. Other hibernation sites recorded are canal and railway tunnels, ice houses and tree cavities.

Bechstein's Bat	<i>Myotis bechsteinii</i>	Maternity roosts are found in tree holes in the canopy, generally in old trees with dead branches. May be found in woodpecker holes in old oaks. Recorded switching roosts frequently. One study recorded roosts in rot holes, woodpecker holes and in a gap behind thick ivy. A study of ten colonies across the Isle of Wight found 90% of maternity roosts in woodpecker holes in ash trees. Another study found a maternity roost in a woodpecker hole in an oak tree on a golf course. Hibernates in trees and sometimes caves or other underground sites. Chilmark Quarry is an example of Bechstein's bats using an abandoned mine for hibernation.
Noctule	<i>Nyctalus noctula</i>	Roosts almost exclusively in tree holes, but sometimes found in bat boxes or buildings. One Netherlands study found that woodpecker holes are preferred, in trees close to woodland edge. Hibernates in trees but sometimes found in buildings.
Leisler's Bat	<i>Nyctalus leisleri</i>	Roosts in trees, bat boxes and buildings such as houses; for example, around the gable end of lofts, under tiles, under soffit boards and in disused chimneys. Often uses a variety of sites in the summer. Hibernates in tree holes, buildings and sometimes underground sites.
Common Pipistrelle and Soprano Pipistrelle	<i>Pipistrellus pipistrellus</i> , <i>Pipistrellus pygmaeus</i>	Maternity colonies are found mainly in buildings, usually roosting out of sight in crevices. Colonies may use a number of sites through the summer but are often loyal to the same sites for many years. Maternity colonies are extremely variable in terms of numbers, from 20 to over 1,000 bats. Soprano pipistrelle colonies tended to be larger than those of the common pipistrelle. Common pipistrelle shift roosts between pregnancy and lactation. Roost selection is based on temperature for common pipistrelle and on surrounding habitats (woodland and water) for both species. Males roost singly or in small groups in the summer, in buildings or trees. Bat boxes are used by both males and females but generally only males use them during the summer. These species do not use underground sites for hibernation but are sometimes found in the cracks and crevices of buildings in the winter.
Nathusius' Pipistrelle	<i>Pipistrellus nathusii</i>	The very few known British nursery roosts are in buildings, with hibernation roosts in hollow trees and crevices in cliffs, walls and caves. One study recorded males roosting under lead flashing and roof tiles.
Serotine	<i>Eptesicus serotinus</i>	Roosts in buildings in small cavities or crevices with high access points such as gables but occasionally also found in trees. Recorded hibernation sites include cavity walls, disused chimneys and occasionally caves.

Barbastelle	<i>Barbastella barbastellus</i>	In summer, breeding females move regularly between large numbers of different tree roosts. One study found that they preferred dead trees surrounded by holly under-storey and another found them in tree crevices and cavities, between overlapping limbs and behind ivy, on average 6.9m above ground level. Tree roosts are in relatively undisturbed places and frequently in thick cover, although cracks much higher up in trees were used at the time of birth. Bat boxes are also used. Almost all roosts found in two studies were behind loose bark and in mixed locations not always surrounded by under-storey. Winter roosts include deep, hollow trees (usually dead and among holly under-storey) and sometimes buildings or underground sites. Other winter roosts recorded are flaking bark and splits less than 2m above the ground and disused railway tunnels, barns, outbuildings, church porches and lime kilns. Chilmark Quarry is an example of barbastelle bats using an abandoned mine for hibernation. 24 Spring and autumn roosts have been recorded behind loose bark, in dead tree stumps and in splits in limbs mainly less than 2m above ground level.
Brown Long-Eared Bat	<i>Plecotus auritus</i>	Maternity roosts found in trees, in the voids of large, old buildings and bat boxes in woodland. Usually roosts against wooden beams at the roof apex in attics or farm buildings. Bats often cluster at the highest part of the roof and require enough space for unobstructed, internal flight. Shows high roost fidelity. Commonly uses feeding perches and night roosts in porches or outbuildings separate from the main roost. Hibernates in underground sites, tree holes and buildings.
Grey Long-Eared Bat	<i>Plecotus austriacus</i>	Frequently roosts on ridge beam in spaces between rafters. Maternity colonies show high roost fidelity. Number of males in maternity colony increases through summer. Many males are, however, solitary.

2.3.2 Greater Mouse-eared bats (*Myotis myotis*) are extremely rare in Britain and little is known about where they roost in the summer or winter, they are listed as a resident, non-breeding species within the UK within this species currently found at one site in Sussex.

2.4 Bats and the Law

2.4.1 All bat species and their roosts in the UK are protected under European and UK law. The main piece of legislation protecting UK bats is the Conservation of Habitats and Species Regulations 2017.

2.4.2 In addition to this, bats and their roosts are also protected in England and Wales under the Wildlife and Countryside Act 1981 and The Countryside and Rights of Way Act 2000.

2.4.3 Under these legislations, it is an offense to:

- Deliberately capture, injure or kill a bat.

- Deliberately disturb a bat in a way that would affect its ability to survive, breed or rear young (or hibernate or migrate in England, Wales and Northern Ireland) or (significantly in England, Wales and Scotland) affect the local distribution or abundance of the species.
- Damage or destroy a roost (this is an ‘absolute’ offence).
- Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead bat or any part of a bat.
- Intentionally or recklessly disturb a bat at a roost.
- Intentionally or recklessly obstruct access to a roost.

If it is discovered that development may impact upon bat roosts (thus leading to an offence being committed) a **Mitigation Plan** should be devised and a **Bat Mitigation Licence** applied for from the relevant government department (i.e. Natural England). Gaining a licence will depend on many variables, such as the bat species present, roost type, roost size and its local/regional/national importance.

2 Methodology

2.1 Desktop Study Methodology

- 2.1.1 A desktop study was undertaken on 11/01/2018 in order to obtain any relevant ecological records that may be present within a 2km radius of the site. This includes protected and notable species records, as well as nature conservation designations. For this information, West Yorkshire Ecology and the West Yorkshire Bat Group were contacted.
- 2.1.2 The Multi-Agency Geographic Information for the Countryside (MAGIC) website was used to locate any designated sites, both statutory and non-statutory, such as Local Nature Reserves (LNRs), Ramsar Sites, Special Areas of Conservation (SACs), Special Protection Areas (SPAs) or Sites of Special Scientific Interest (SSSIs) that may be present within 2km of the survey site.

2.2 Site Assessment Methodology

- 2.2.1 A thorough site assessment was undertaken on 08/01/2018 by David Bodenham *BSc Ind (Hons), MSc*, following the guidelines set out in the JNCC's *Handbook for Phase 1 habitat surveys*.
- 2.2.2 The entire site was walked over by an experienced consultant who mapped and described each habitat type that was present. The dominant floral species of each habitat were noted as well as any faunal species that were encountered.
- 2.2.3 Whilst conducting the site walk-over, any features that may be of value to or have the potential to support protected species were noted and photographic evidence taken (please refer to **Appendix 2**). Such protected species include, but are not limited to, Badgers, Bats, Dormice, Great Crested Newts, Nesting Birds, Otters, Reptiles, Water Voles, White-Clawed Crayfish (please see **Appendix 6**).
- 2.2.4 Limitations: The survey was conducted during the sub-optimal time for botanical surveys. Therefore, many of the plant species encountered were either not in flower/leaf or were dead. Plant species that may be present in the summer months are often not visible in the winter. If a more accurate and comprehensive floral record is required, the optimum time to conduct botanical surveys would be between the months of April and September. This limitation made floral identification difficult, meaning this report will not represent a comprehensive indication of the site's biodiversity. However, this constraint will not affect the overall conclusion of the report, as habitat types can still be classified and the potential for protected species can still be accurately assessed.

2.5 Bat Scoping Survey Methodology

- 2.5.1 The site was surveyed for foraging, commuting and roosting potential. A detailed search of habitat, buildings and trees was conducted during daylight hours in order to identify potential bat roosting sites and look for evidence of bat activity. Potential roost sites and features deemed to be of value to bats were documented on the site map (please refer to **Appendix 1**) and photographic evidence was taken (please refer to **Appendix 2**).
- 2.5.2 All surveys are conducted by experienced surveyors using the following equipment to ensure an accurate assessment; a printed site map, camera, 1 million candlelight torch, binoculars, ladders and a duet heterodyne bat detector.
- 2.5.3 Signs that bats have previously or are currently using a potential roost site include:
- Scratch marks, urine and oil stains around holes in buildings or trees.
 - Droppings, carcasses and/or food remains found around the site.
 - Bats observed flying in/out of a hole in a building or tree.
 - Bats heard ‘chattering’ within a potential roost site, especially on warm summer days.
- 2.5.4 Limitations: It must be highlighted that the absence of any of these signs is not proof that the site is not being used by bats. Weathering and other factors will often remove any signs of bat activity, especially when present on the exterior of a building or a tree. As previously explained, many bat species will have several roost sites which they regularly move between and therefore an absence during a survey visit does not exclude their presence at a later date.

3 Results

3.1 Desktop Study Results

3.1.1 Local Data Centre Records: West Yorkshire Ecology and the West Yorkshire Bat Group have been commissioned to provide the records held for protected and notable species within a 2km radius of the survey site. The results have been summarised below. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area. Please see **Appendix 3** for full desktop study results.

Legally Protected Species

3.1.2 Legally protected species are those protected under EU and UK legislation such as the Wildlife and Countryside Act (1981), Countryside and Rights of Way Act (2000), Protection of Badgers Act 1992 and the EU's Habitats Directive.

3.1.3 Badgers: Badger (*Meles meles*) have been recorded within 2km of the proposed development site dating from as recently as 2013.

3.1.4 Bats:

Table 1: Summary of bat records held by West Yorkshire Ecology and the West Yorkshire Bat Group within 2km of the site. Those marked with an asterisk * were recorded with 500m of the site.

Common Name	Scientific Name	Number of Records	Most Recent Record
Leisler's Bat	<i>Nyctalus leisleri</i>	1	2003
Common Pipistrelle*	<i>Pipistrellus pipistrellus</i>	19	2014
Pipistrelle Bat species	<i>Pipistrellus sp.</i>	4	2007
Brown Long-Eared Bat	<i>Plecotus auritus</i>	1	2003
Vesper Bat species	Vespertilionidae	8	2005

Table 2: Summary of bat roost records held by West Yorkshire Ecology the West Yorkshire Bat Group within 2km of the site.

Common Name	Latin Name	Record Date	Roost type	Location
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	2006	Roost	SE1120415322
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	23/07/2003	Roost (possible)	SE1200417682
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	01/07/2013	Roost	SE12611543
Pipistrelle Bat species	<i>Pipistrellus sp.</i>	10/07/2006	Roost (excluded)	SE1120615322
Pipistrelle Bat species	<i>Pipistrellus sp.</i>	07/06/2004	Roost	SE1254116297
Vesper Bat species	Vespertilionidae	20/08/2002	Roost (maternity)	SE1037015800
Vesper Bat species	Vespertilionidae	1993	Roost	SE1076416867
Vesper Bat species	Vespertilionidae	10/07/2004	Roost (possible)	SE1244916896
Vesper Bat species	Vespertilionidae	2004	Roost	SE1254116292

There are three confirmed species of bat that have been recorded within 2km of the proposed development site. These include the common pipistrelle (*Pipistrellus pipistrellus*), the Leisler's bat (*Nyctalus leisleri*) and the brown long-eared bat (*Plecotus auritus*). There is only one record of a bat (common pipistrelle) found within 500m of the site dating from 2009. This is a field record located northwest of the site. The nearest roost record is a common pipistrelle roost located just over 500m southwest of the site, dating from 2006.

3.1.5 Water Voles: Water vole (*Arvicola terrestris*) have been recorded within 2km of the proposed development site. Only two records exist, dating from 1999 and located in the River Holme, nearly 2km southeast from the proposed development site.

3.1.6 White-clawed Crayfish: Six records of white-clawed crayfish (*Austropotamobius pallipes*) exist from between 1990-1995. These were located in T.P. Pond, over 2km northeast of the proposed development site.

Statutory Nature Conservation Sites

3.1.7 There are no statutory nature conservation sites within the boundary of the site.

Non-Statutory Nature Conservation Sites

3.1.8 The search revealed three non-statutory conservation sites within 2km of the site, which can be seen in **Table 3** below.

Table 3: Non-statutory designated sites with 2km of the site.

Name	Designation	Description	Distance from Site
Huddersfield Narrow Canal	Sites of Scientific Interest (SSI), Local Wildlife Site (LWS)	The Huddersfield Narrow Canal supports a representative range of aquatic and emergent communities which contain a diverse range of species including regionally uncommon species such as <i>Ceratophyllum demersum</i> , <i>Nymphoides peltata</i> and the nationally rare <i>Luronium natans</i> .	2m S
Delves Wood	Local Wildlife Site (LWS)	As the woodland appears to be mainly natural regeneration after quarrying, it is not considered to meet Criteria Wd1 for ancient semi-natural woodland over 0.5ha in size. It meets Criteria Wd3 for acid species richness, scoring 10 points for botanical diversity, with the threshold for Wd3 being 8 points. Bluebells are present to the south of the site but scattered with few dense patches covering less than 10% of woodland area, therefore, it does not meet Criteria Wd5.	1957m S
Gledholt Woods	Local Wildlife Site (LWS), Sites of Wildlife Significance (SWS), Local Nature Reserves (LNR)	No information available	1487m NE

3.1.9 The proposed development site is also located within 2m of the Kirklees Wildlife Habitat Network.

3.2 Site Assessment Results

3.2.1 The site was surveyed on 08/01/2018 by David Bodenham *BSc Ind (Hons), MSc*. Survey conditions are summarised in **Table 4**.

Table 4: Survey times and weather conditions.

Survey date	Lead surveyor	Temp	Humidity	Wind speed/Direction		Cloud Cover	Precipitation
08/01/2018	David Bodenham	0°C	63%	BF0	N/A	0%	None

3.2.2 The site comprises of an active industrial factory, and associated yards and grounds surrounding the facility.

Habitats Present

3.2.3 The following habitat types are present at Vale Works 25 Morley Lane (in alphabetical order):

- Bare ground/hard standing
- Buildings
- Scattered trees

3.2.4 **Bare ground/hard standing:** The majority of the site is covered in bare ground or hard standing (**Appendix 2, Photos 1-4**). This includes the driveway into the property at the northwest of the site, and the rear yard area which is currently being used to store scrap. There is very little natural vegetation in this area of the site, with the exception of some Bramble (*Rubus fruticosus* agg.) and Rosebay Willowherb (*Chamerion angustifolium*) found along the edge of the hard standing.

3.2.5 **Buildings:** The center of the site is dominated by the main warehouse. There is also a steel shipping container at the east of the site.

3.2.6 **Scattered trees:** Along the southern boundary of the site is a row of young scattered trees (**Appendix 2, Photo 5**). These are technically not on the proposed development site, but may be affected by works. Species include Sessile Oak (*Quercus petraea*) and Sycamore (*Acer pseudoplatanus*).

Target Notes

3.2.7 Target Note 1: Piles of tires and wood (**Appendix 2, Photo 6**).

3.2.8 Target Note 2: Building with bat roosting potential.

Fauna Species Encountered

3.2.9 The following species were either seen, heard or evidence of their presence was found during the site investigation:

- Wood pigeon (*Columba palumbus*)
- Wren (*Troglodytes troglodytes*)

Invasive Plant Species

3.2.10 No invasive plant species were found at this site whilst conducting the site investigation.

3.3 Scoping Survey Results

3.3.1 The site was surveyed on the 08/01/2018 by lead surveyor David Bodenham *BSc Ind (Hons), MSc*, NE Level 2 Class Licence – 2016-26848-CLS-CLS. Survey conditions are summarised in **Table 5**.

Table 5: Survey times and weather conditions.

Survey date	Lead surveyor	Temp	Humidity	Wind speed/Direction		Cloud Cover	Precipitation
08/01/2018	David Bodenham	0°C	63%	BF0	N/A	0%	None

3.3.2 Habitats and Features Present

There is very little in the way of natural habitats on site. Much of the site is either covered by bare ground, hard standing or the warehouse itself. On the southern boundary of the site, there is a row of young trees which run along the banks of the Huddersfield Narrow Canal. This canal is part of the Kirklees Wildlife Habitat Network, and forms a corridor of connectivity to the rest of the landscape.

3.3.3 Building Assessment/ Built Structure Assessment

Building 1 External Inspection: Building 1 is a single story warehouse built in the 1970s (**Appendix 2, Photos 7-14**). The roof is double gable-ended forming a valley between both roofs. The roof is covered with corrugated asbestos panels which overlap with each other, forming gaps (**Appendix 2, Photo 8**). At the gable ends of this structure, it is covered with metal barge boards, which overlap the roofing panels. These have numerous gaps along their length where they meet the wall and the roof (**Appendix 2, Photo 9**). This building also has a single story flat-roofed extension on the south of the structure. There are gaps under the weather boards and soffits along the edge of this structure (**Appendix 2, Photos 11 and 12**). The walls are constructed from an outer layer of brick and an inner layer of breeze block. The pointing on the walls are in good condition with only a few visible gaps around, for example, the flue pipe which enters the building on the west elevation (**Appendix 2, Photo 14**).

Building 1 Internal Inspection: Internally, the warehouse is one large space (**Appendix 2, Photo 19**). Filled with machinery, the factory is still active, and produces a loud level of noise throughout the working day. The roof is constructed from a steel frame, with the asbestos panels attached above. These all seem in good condition with no holes to the outside. Internal pointing is in good condition with no visible gaps

Building 1 Signs of Bat Use: No evidence of bats were found within Building 1.

Building 2 External Inspection: Building 2 is a single to two story flat-roofed structure that connects directly north of building 1 (**Appendix 2, Photos 15-18**). The

roof is covered in felt, with presumably a concrete base below. A small soffit runs along the northern side of this structure. There are gaps into the soffit (**Appendix 2, Photo 16**). Walls are constructed from brick, and pointing is in good condition with no visible gaps.

Building 2 Internal Inspection: Internally, part of the structures roof is covered by a ceiling. There are several gaps in the ceiling where water ingress has occurred (**Appendix 2, Photo 20**). Internal pointing is in good condition and the walls have been painted with a thick layer of paint. No gaps could be seen to the outside of the structure. Other parts of the structure, which are used as an office, are plastered (**Appendix 2, Photo 21**).

Building 2 Signs of Bat Use: No evidence of bats were found within Building 2.

Building 3 External Inspection: Building 3 is a small lean-to garage at the east of Building 1. This is constructed from breeze-block and covered with corrugated metal sheets. No major gaps can be seen on the outside of the structure, excluding the garage door itself which has gaps around its frame.

Building 3 Internal Inspection: Internally the walls are bare and the pointing is in good condition (**Appendix 2, Photo 22**). Where the roof panels meet the wall, there are gaps above the wall.

Building 3 Signs of Bat Use: No evidence of bats were found within Building 3.

3.3.4 Tree Assessment

Although there are no trees on site, a row of trees along the southern boundary of the site were assessed for bat roosting potential. All of the trees were young, and lacked any crevices or rot holes capable of supporting roosting bats.

4 Discussion and Analysis of Results

4.1 Nature Conservation Designations

- 4.1.1 No designated nature conservation sites are located within the boundary of the site.
- 4.1.2 There are three non-statutorily designated sites within 2km of the site. The closest is the Huddersfield Narrow Canal which is located 2m from the southern boundary of the site. This is part of the Kirklees Wildlife Habitat Network, and forms a network of riparian habitat, which is key for the distribution and mobility of riparian species, such as otters. The other designated sites are located nearly 2km from the site, and are unlikely to be affected by the development because of their distance from site. The proposed development may have an effect on the canal as the proposed flat will be built in close proximity to the Wildlife Network. Disturbance during and post-construction is a concern.

4.2 On-site Habitat

- 4.2.1 The site as a whole has no natural habitats, apart from stray vegetation from surrounding land and scattered trees to the south of the site. However, its close proximity to the Kirklees Wildlife Habitat Network makes the site a potentially valuable piece of connecting land for a number of species, including bats and otter. The site itself is fenced off, however, it is located only 2m from the canal and this network.
- 4.2.2 The buildings on site are of the most ecological value. The main warehouse, as well as connecting buildings have bat roosting potential. Considering its close proximity to the canal, it is likely bats will commute by this site, and may utilize it in the summer months.

4.3 Potential for Protected Species

- 4.3.1 Amphibians: There are no records of protected amphibian species within 2km of the site. The site itself contains no suitable aquatic or terrestrial habitat for amphibians. There are also no ponds within 500m of the site. It is unlikely protected amphibian species will be present on site.
- 4.3.2 Badgers: There are badger records within 2km of the, however these are over 1km away. The site contains no suitable foraging habitat, nor evidence of badger. It is unlikely this species will be present on site.
- 4.3.3 Bats: Bat records are sparse within 500m of the site, with only one record of a common pipistrelle having been found. The site is located next to The Huddersfield Narrow Canal, a key riparian corridor, which is likely utilised by foraging and commuting bats. The buildings on site have a moderate potential for supporting roosting bat species. This is because of a number of entrance holes in the structure, which have bat roosting

potential, as well as the building’s close proximity to the canal. Please see **Table 6** below for the guidelines used for assessing the roosting potential of a site. Please note these guidelines are applied using the professional judgement of the licenced bat worker undertaking the assessment.

Table 6: Guidelines used for assessing the bat roosting suitability of a site (taken from the *BCT: Bat surveys for professional Ecologists, Good Practice Guidelines; 3rd Edition*).

Roosting Suitability	Roosting Features Present
Negligible	No visible features on the site likely to be used by roosting bats. No signs of bats found during the initial assessment.
Low	A structure with one or more potential roosting opportunities that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough shelter, protection, surrounding habitats, or the appropriate conditions to be used on a regular basis by larger numbers of bats e.g. unlikely to support hibernation or maternity roosts. A tree of sufficient size and age to contain features suitable for bat roosting, but with no features seen from the ground. No signs of bat use found during the initial assessment.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to the size of the potential roosting feature which is sufficient to provide: shelter, protection, optimal conditions and surrounding habitats. The feature(s) are unlikely to support a roost of high conservation status. Signs (potential signs) of bat use found during the initial assessment.
High	A structure or tree with one or more potential roost sites that could be used by bats due to the size of the potential roosting feature which is sufficient to provide: shelter, protection, optimal conditions and surrounding habitats. The features have the potential to support large colonies of bats (e.g. maternity or hibernation) for long periods of time. Signs of bat use present.

4.3.4 Nesting Birds: The scattered trees to the south of the site do have potential for birds to nest within the canopies.

4.3.5 Otters: The development area of the site does not contain any aquatic habitat to support otters, nor was any evidence of otter found on site during the survey. There are also no records of otter within 2km of the site. The Huddersfield Narrow Canal is located only 2m south of the boundary of the site and contains habitat suitable for otters.

4.3.6 Reptiles: There are records of three species of reptile within 2km of the proposed development site. The habitat on site is unsuitable for reptiles and lacks the necessary cover, hunting habitat and suitable resting areas for reptiles.

4.3.7 Water vole: Although there are historical records of water vole within 2km of the site, the development area of the site does not contain any aquatic habitat to support water

vole. The Huddersfield Narrow Canal is located only 2m south of the boundary of the site and contains habitat suitable for the species.

- 4.3.8 White-clawed Crayfish: Although there are historical records of white-clawed crayfish within 2km of the site, the development area of the site does not contain any aquatic habitat to support crayfish and there are no records of crayfish within 2km of the site. The Huddersfield Narrow Canal is located only 2m south of the boundary of the site and contains habitat suitable for the species.

*The absence of any signs of or features considered valuable for supporting protected species, can **not** be considered evidence that these species are absent from a site, or that these species will not occupy the site in the future. It must therefore always be recommended that work be conducted with care and vigilance. Should any protected species be encountered during work (please see **Appendix 6**), work should stop immediately and JCA or Natural England contacted.*

5 Conclusions and Recommendations

- 5.1 After conducting a thorough site investigation and a detailed Desktop Study, we consider **Vale Works, 25 Morley Lane** to contain habitats of moderate ecological value (please see **Section 3.2**).
- 5.2 The site is situated within influencing distance of **the Huddersfield Narrow Canal** which is part of the **Huddersfield Wildlife Habitat Network**. The proposed residential properties will be built in close proximity to this site, and may disturb wildlife such as otters and bats during and post-construction.
- 5.3 Primary habitats on site are of low conservation value, mainly consisting of hard standing and bare ground, with little natural vegetation. The buildings on site however have potential for roosting bats. Because of the proximity to the canal, it is likely bats will pass through the area, and potentially utilise the buildings in summer.
- 5.4 Based on the findings outlined in this report the following recommendations are made:
 - **Bats:** As the buildings on site have been considered to have a moderate potential of supporting bat roosting sites, we recommend that dawn/dusk emergence surveys should be carried out to establish the absence/presence of roosting bats at **7 Ridgeway**. Dawn and dusk bat surveys are conducted between May until September, and are used to determine whether bats are currently roosting at a site. It can also give you an indication of the level of bat activity at a survey site and any specific foraging patterns. Dawn surveys are started around 1.5 hours before sunrise, when swarming behaviour can be observed around roost sites. Dusk surveys are started around 30 minutes before sunset and up to 2 hours after, and look for the emergence of bats from their roost sites. If bats are then confirmed to be roosting on the site, a **Bat Mitigation Licence** may be applied for from Natural England, and a mitigation plan devised so development causes as little impact on local bat populations as possible. As the site has been considered to have a moderate potential of supporting bat roosting sites, at least **two emergence/re-entry surveys** will be required, with **six** surveyors needed to cover all aspects of the buildings. Both of the surveys should be carried out between May and September, with at least one of the surveys carried out between May and August when bats are most active.
 - **Birds:** It is recommended that any trees planned to be removed should be removed between October-February, outside the nesting bird season, otherwise there is a risk that conducting this task after this time will impact upon nesting birds, which is a criminal offence. Any activity which risks disturbance of any species of nesting bird must be preceded by a breeding bird survey to confirm that such activity will not impact upon any active nests. Work can take place outside of these months, but must be preceded by a nesting bird survey which

must produce a negative result for nesting activity.

- **Otters:** As the site is in close proximity to The Huddersfield Narrow Canal, which has potential to support otters, an **Initial Otter Survey** is needed. The proposed development has the potential to disturb the local otter population both during and after construction. An initial otter survey will establish if there is an active otter population along this stretch of the canal. This should cover at least 250m either side of the site on both banks of the canal. Please see **Appendix 7** for a calendar showing the survey season for these additional surveys.

JCA Ltd. can provide these and other ecological surveys if required, please do not hesitate to contact us for further information.

6 References

Guidelines for surveys and report writing:

British Standards Institute (BSI), (2013) *BS 42020:2013, Biodiversity - Code of practice for planning and development*. London.

Chartered Institute of Ecology and Environmental Management (CIEEM), (2015) *Guidelines for Ecological Report Writing*. Winchester.

Joint Nature Conservation Committee (JNCC), (2010) *Handbook for Phase 1 habitat survey: A technique for environmental audit*.

Websites:

Advice on protected species is consolidated at:

Environmental management: Wildlife and habitat conservation - GOV.UK (2016) *Gov.uk*. Available at: <https://www.gov.uk/topic/environmental-management/wildlife-habitat-conservation> (Accessed: 21 September 2016).

Magic Map Application (2016) *Magic.defra.gov.uk*. Available at: <http://magic.defra.gov.uk/MagicMap.aspx> (Accessed: 21 September 2016).

The RSPB (2016). Available at: <http://www.rspb.org.uk/> (Accessed: 21 September 2016).

Surveys and mitigation plans: protected species - Detailed guidance (2015) *Gov.uk*. Available at: <https://www.gov.uk/guidance/surveys-and-mitigation-plans-protected-species> (Accessed: 21 September 2016).

Within this detailed guidance on surveys and mitigation information is available on the following protected species:

- Bats
- Natterjack toads
- Otters
- Reptiles
- Water voles
- White-clawed crayfish
- Wild birds
- Hazel dormice
- Great crested newts
- Badgers

Wildlife licences: when you need to apply - Detailed guidance (2014) *Gov.uk*. Available at: <https://www.gov.uk/guidance/wildlife-licences> (Accessed: 21 September 2016).

Within this detailed guidance on licensing information is available on licences for the following protected species:

- Bats
- Natterjack toads
- Otters
- Reptiles
- Water voles
- White-clawed crayfish
- Wild birds
- Hazel dormice
- Great crested newts
- Badgers

As well as:

- Non-native Bumblebee species
- Deer
- Freshwater fish
- Invertebrates
- Mink, coypu, muskrat and grey squirrel
- Plants

Species specific information:

Badgers:

Natural England, (2007) *Badgers and Development: A Guide to Best Practice and Licensing*.

Bats:

Bat Conservation Trust, (2007) *Bats, Development & Planning in England*. London.

Mitchell-Jones, A. and McLeish, A. (ed.). (2004) *Bat Workers' Manual*. 3rd ed. JNCC.

Dormice:

Bright, P., Morris, P. and Mitchell-Jones, A. (1996) *The dormouse conservation handbook*. Peterborough: English Nature.

Great crested newts:

Langton, T., Beckett, C. and Foster, J. (2001) *Great Crested Newt Conservation Handbook*. Halesworth: Froglife.

Otters:

Natural England, (2007) *Species Information Note SIN006, Otter: European protected species*.

Reptiles and Amphibians:

Baker, J., Beebee, T., Buckley, J., Gent, T. and Orchard, D. (2011) *Amphibian Habitat Management Handbook*. 1st ed. Bournemouth: Amphibian and Reptile Conservation.

Edgar, P., Foster, J. and Baker, J. (2010) *Reptile Habitat Management Handbook*. 1st ed. Bournemouth: Amphibian and Reptile Conservation.

English Nature, (2004). *Reptiles: guidelines for developers*. Peterborough.

Gent, T. and Gibson, S. (ed.) (2003) *Herpetofauna Workers Manual*. Bournemouth: JNCC.

Water voles:

Natural England, (2008) *Water voles - the law in practice. Guidance for planners and developers*.

White-clawed crayfish:

Peay, S. (2002) *Guidance on Habitat for White-clawed Crayfish and its Restoration*. Kendal: English Nature

Relevant Legislation:

Wildlife and Countryside Act 1981, (c. 69) (as amended). Available at: <http://www.legislation.gov.uk/ukpga/1981/69> (Accessed: 21 September 2016)

Countryside and Rights of Way Act 2000 (c.37). Available at: <http://www.legislation.gov.uk/ukpga/2000/37/contents> (Accessed: 21 September 2016)

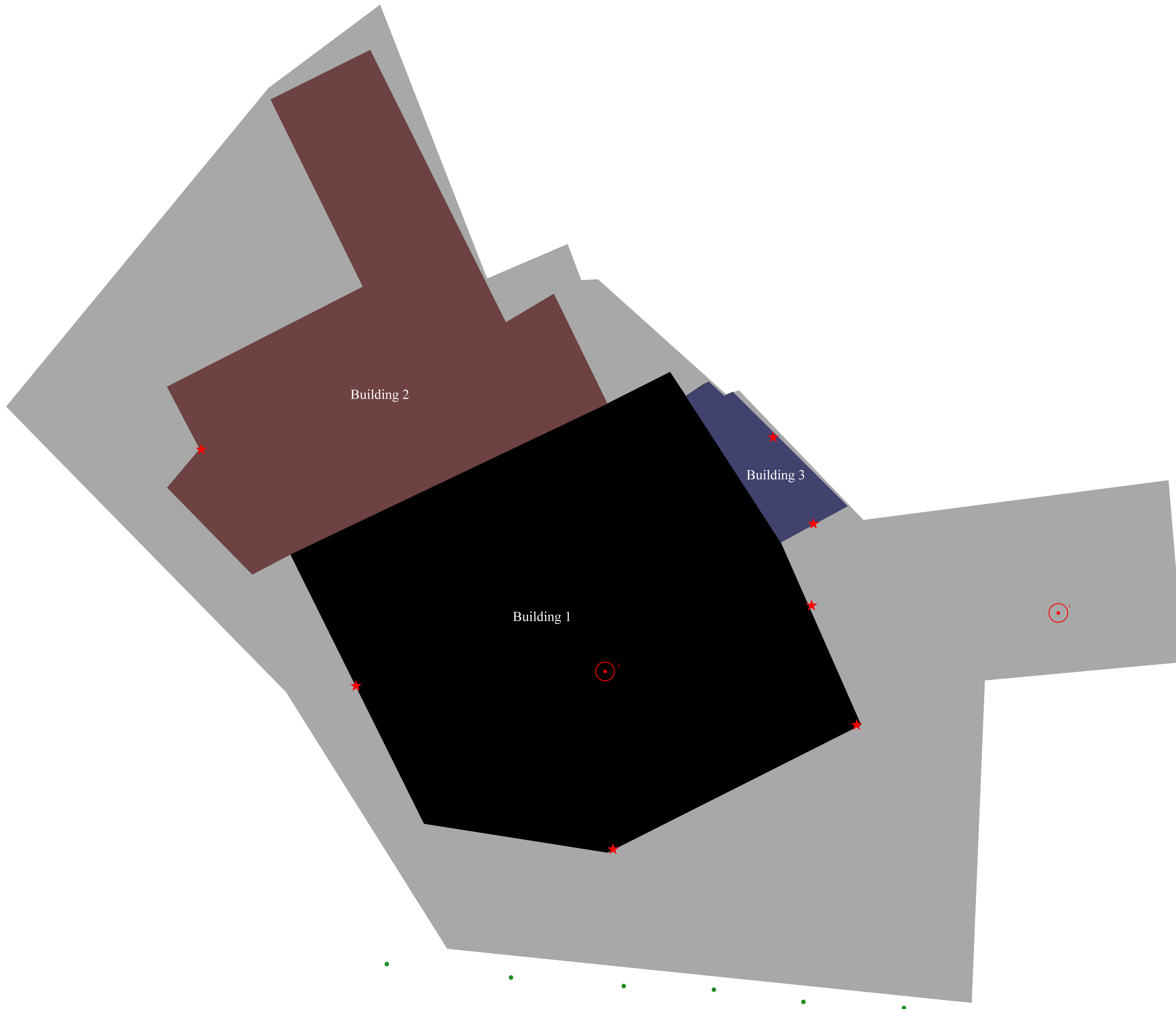
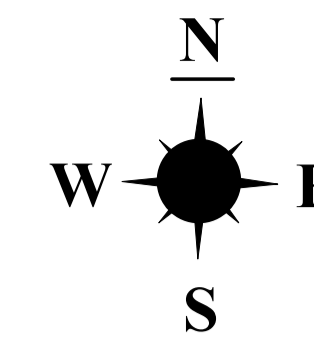
The Conservation of Habitats and Species Regulations 2010 (No. 490). Available at: <http://www.legislation.gov.uk/uksi/2010/490/contents/made> (Accessed: 21 September 2016)

Conservation of natural habitats and of wild fauna and flora Council Directive (92/43/EEC) (The Habitats Directive) (as amended) Available at: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043> (Accessed: 21 September 2016)

Protection of Badgers Act 1992 (c. 51). Available at: <http://www.legislation.gov.uk/ukpga/1992/51/contents> (Accessed: 21 September 2016)

The Hedgerow Regulations 1997 (No. 1160). Available at: <http://www.legislation.gov.uk/uksi/1997/1160/contents/made> (Accessed: 21 September 2016)

Appendices



Appendix 1: Phase 1 Habitat Map

Vale Works, 25 Morley Lane,
Huddersfield, HD3 4NS.
JCA Ref: 13910/DB

NOT TO SCALE PAPER SIZE : A1

KEY	
	Buildings
	Bare ground/hard standing
	Scattered broad-leaved trees
	Target note
	Bat roosting potential

JCA Limited
Arboricultural & Forestry Consultants

Appendix 2: Photographic Evidence

Photo 1: A view of the rear yard looking west.



Photo 2: A view of the rear yard looking east.



Photo 3: A view of the main drive looking north.



Photo 4: A view of the front of the warehouse looking east.



Photo 5: A view the land south of the proposed development site.



Photo 6: Target Note 1: Wood and tire piles in the rear yard.



Photo 7: Building 1 looking northwest. Bat roost potential circled.



Photo 8: Gaps under rood panels.



Photo 9: Gaps under metal barge board.



Photo 10: South of Building 1 looking northwest. Bat roost potential circled.



Photo 11: Gaps under weather board.



Photo 12: Gaps under soffit.



Photo 13: Building 1 looking northeast. Bat roost potential circled.



Photo 14: Gaps in brick below flue.



Photo 15: Building 2 looking southeast. Bat roost potential circled.



Photo 16: Gaps into flat roof.

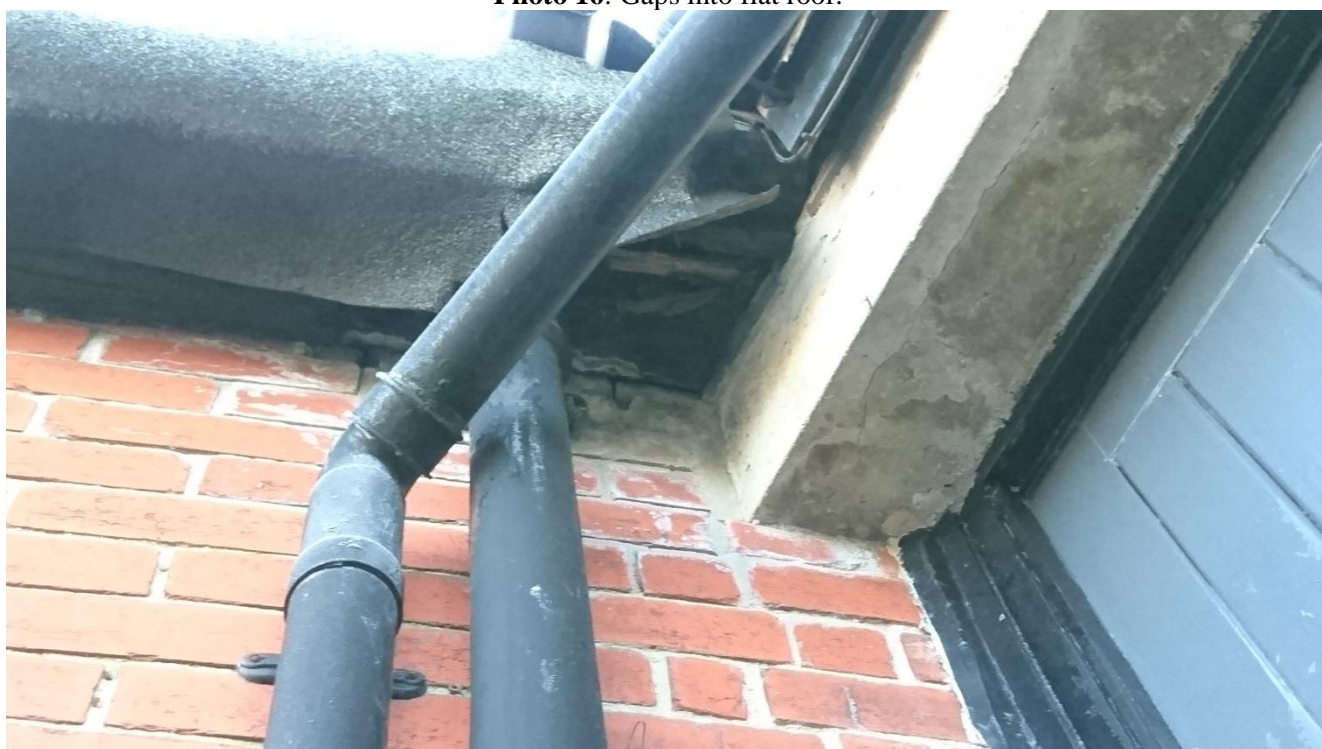


Photo 17: Building 2 looking southeast.



Photo 18: Buildings 2 looking south.

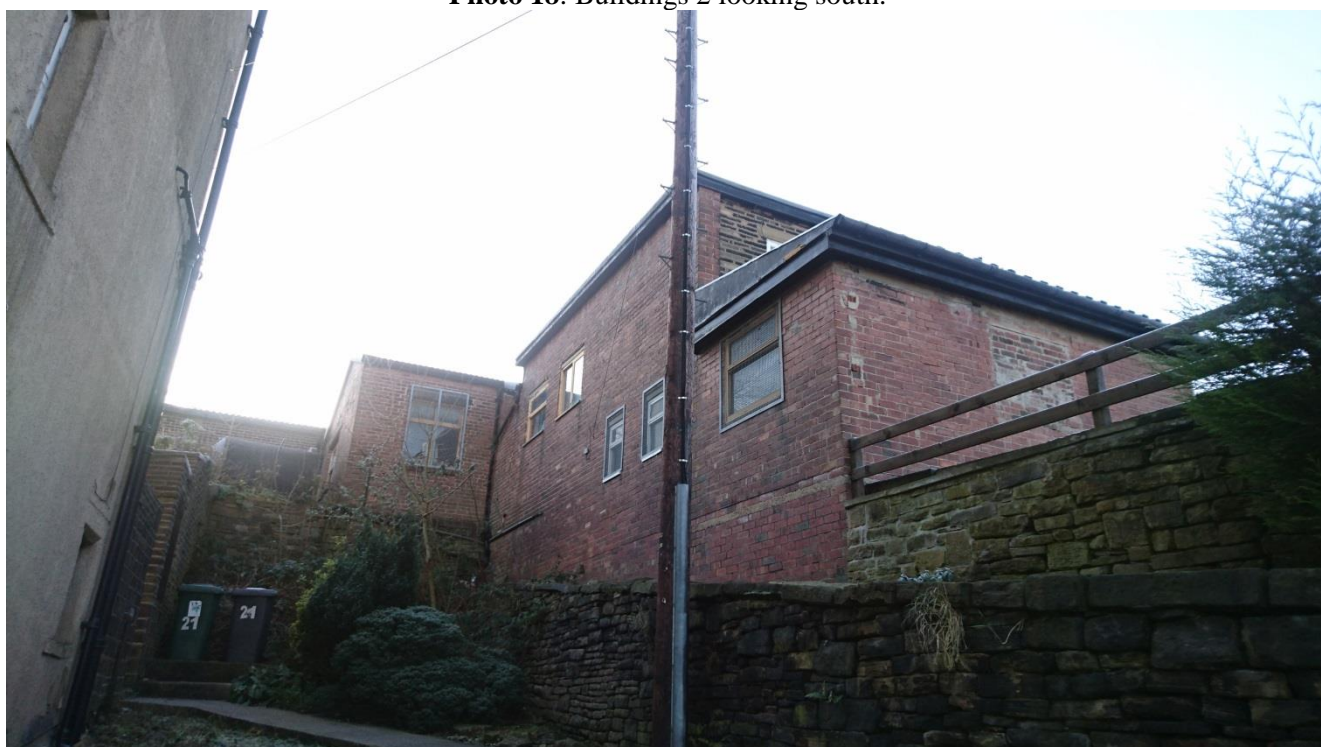


Photo 19: Internal view of Building 1.



Photo 20: Internal view of Building 2.



Photo 21: Internal view of Building 2.



Photo 22: Internal view of Building 3.



Photo 23: Shipping container.



Photo 24: Internal view of shipping container.



Appendix 3: Data Search

Table 7: West Yorkshire Ecology's records of protected and notable species within a 2km radius of the site.

Taxon Group	Common Name	Scientific Name	Number of Records	Latest Record
Amphibian	Common Frog	<i>Rana temporaria</i>	7	2015
	Palmate Newt	<i>Triturus helveticus</i>	2	2010
Bird	Common Kingfisher	<i>Alcedo atthis</i>	1	2015
	Mallard	<i>Anas platyrhynchos</i>	13	2015
	Swift	<i>Apus apus</i>	4	2012
	Goldfinch	<i>Carduelis carduelis</i>	1	2005
	Stock Dove	<i>Columba oenas</i>	1	2005
	House Martin	<i>Delichon urbica</i>	1	2005
	Kestrel	<i>Falco tinnunculus</i>	4	2005
	Swallow	<i>Hirundo rustica</i>	1	2005
	Tree Sparrow	<i>Passer montanus</i>	1	2015
	Willow Warbler	<i>Phylloscopus trochilus</i>	1	2005
	Green Woodpecker	<i>Picus viridis</i>	1	2005
	Dunnock	<i>Prunella modularis</i>	2	2011
	Bullfinch	<i>Pyrrhula pyrrhula</i>	2	2011
	Song Thrush	<i>Turdus philomelos</i>	3	2011
	Mistle Thrush	<i>Turdus viscivorus</i>	2	2011
Crustacean	Freshwater Crayfish	<i>Austropotamobius pallipes</i>	6	1995
Flowering plant	Japanese Knotweed	<i>Fallopia japonica</i>	15	2015
	Indian Balsam	<i>Impatiens glandulifera</i>	2	2006
	Rhododendron	<i>Rhododendron ponticum</i>	1	2006
Terrestrial Mammal	Water Vole	<i>Arvicola terrestris</i>	2	1999
	Leisler's Bat	<i>Nyctalus leisleri</i>	1	2003
	Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	19	2014
	Pipistrelle Bat species	<i>Pipistrellus sp.</i>	4	2007
	Brown Long-Eared Bat	<i>Plecotus auritus</i>	1	2003
	Vesper Bat species	Vespertilionidae	8	2005

Appendix 4: Site Map

Figure 1: Google Maps image of Vale Works, 25 Morley Lane, showing the survey site in relation to the surrounding landscape and habitats.



Appendix 5: Floral Species List

Table 8: Complete list of floral species encountered during survey.

Common Name	Scientific Name
Sycamore	<i>Acer pseudoplatanus</i>
Daisy	<i>Bellis perennis</i>
Creeping Thistle	<i>Cirsium arvense</i>
Cocksfoot	<i>Dactylis glomerata</i>
Common Ash	<i>Fraxinus excelsior</i>
Ivy	<i>Helix hедера</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Sessile Oak	<i>Quercus petraea</i>
Bramble	<i>Rubus fruticosus</i> agg.
Willow	Salix sp.
Dandelion	<i>Taraxacum</i> sp.
Nettle	<i>Urtica dioica</i>

Appendix 6: Protected Species Information

The following species are protected under EU law, such as the Conservation (Natural Habitats, &c.) Regulations (2010):

- All UK bat species
- Dormouse
- Great Crested Newt and Natterjack Toad
- Large Blue Butterfly
- Otter
- Pine Marten
- Polecat
- Scottish Wild Cat
- Smooth Snake and Sand Lizard
- Various aquatic and plant species

These species are afforded the highest protection in the UK. Under this protection it is an offence to; deliberately capture, injure or kill any wild animal of a European protected species; deliberately disturb wild animal of any such species; deliberately take or destroy the eggs of such an animal, or damage or destroy a breeding site or resting place of such an animal.

In addition to this it is an offence to be in possession of, or to control, transport, sell or exchange, or to offer for sale or exchange, a European Protected species.

The following species are protected under UK law, such as the Wildlife and Countryside Act 1981:

- Badger
- Nesting birds
- Red Squirrel
- Reptiles (Adder, Common lizard, Grass snake, Slow worm)
- Water Vole
- White Clawed Crayfish
- Various bird species i.e. Barn Owl
- Various plant species

Therefore under this protection it is an offence to; kill, injure or take any of the above species.

Nesting birds are only protected during the breeding season whilst on their nest. In addition to the adults being protected, the eggs, young and nest itself whilst in use are protected.

The Wildlife and Countryside Act 1981 also contains measures to prevent the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 in England and Wales (e.g. Japanese Knotweed and Himalayan Balsam).

Badgers are protected under The Protection of Badgers Act 1992. Under this legislation it is an offence to; take, injure, kill, or cruelly ill-treat a badger; interfere with a badger sett; sell or possess a live badger; or mark or ring a badger.

The following habitat types are protected under UK Law:

- Habitats that are used by protected species
- Habitats that fall within designated sites
- Hedgerows
- Individual trees/woods can be protected under Tree Preservation Orders

Appendix 7: Survey Calendar

Figure 2: Survey calendar for protected species and habitat surveys.


	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Extended Phase 1 Habitat	Sub-optimal	Sub-optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Sub-optimal	Sub-optimal	Sub-optimal
Botanical				Optimal	Optimal	Optimal	Optimal	Optimal	Optimal			
Bat Scoping	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal
Bat Activity				Sub-optimal	Optimal	Optimal	Optimal	Optimal	Sub-optimal			
Bat Hibernation	Optimal	Optimal	Sub-optimal									Optimal
Great Crested Newt (Habitat Assessment)	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal
Great Crested Newt (Presence/Absence)			Optimal	Optimal	Optimal	Optimal						
Reptiles			Optimal	Optimal	Optimal	Optimal	Sub-optimal	Sub-optimal	Optimal			
Badger	Initial	Sub-optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Sub-optimal	Sub-optimal	Sub-optimal
	Bait-marking		Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal			
Water Vole			Sub-optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Sub-optimal		
Otter	Sub-optimal	Sub-optimal	Optimal	Optimal	Optimal	Optimal	Sub-optimal	Sub-optimal	Sub-optimal	Sub-optimal	Sub-optimal	Sub-optimal
Birds (winter)	Optimal	Optimal										Optimal
Birds (nesting)			Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Sub-optimal			
White Clawed Crayfish	Night-torching			Sub-optimal	Sub-optimal	Sub-optimal	Sub-optimal	Sub-optimal	Sub-optimal	Sub-optimal		
	Trapping						Sub-optimal	Sub-optimal	Sub-optimal			
Manual search						Sub-optimal	Sub-optimal	Sub-optimal				
Dormouse	Sub-optimal	Sub-optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal

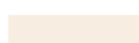
Optimal Survey Time
Sub-optimal Survey Time
Survey Not Possible


Appendix 8: Bat Survey Calendar

Figure 3: Survey timings calendar (taken from BCT: Bat surveys for professional Ecologists, Good Practice Guidelines; 3rd Edition).

Survey type	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Preliminary ecological appraisal – fieldwork												
Preliminary roost assessment – structures ^a												
Emergence/re-entry survey for maternity or summer roosts ^b												
Emergence/re-entry ^c survey for transitional roosts ^b												
Emergence survey for mating roosts ^b												
Hibernation survey – structures ^a												
Preliminary ground level roost assessment – trees ^d												
Potential roost feature (PRF) inspection survey – trees												
Ground level bat activity survey – transects and automated/static												
Pre-, during and post-hibernation – automated/static bat activity survey												
Swarming survey												
Back-tracking survey												
Trapping survey ^e												
Radio tagging and tracking survey ^e												

 = optimal period

 = sub-optimal period

 = weather or location dependent (i.e. may not be suitable due to spring and autumn conditions in any one year or in more northerly latitudes). Note that October surveys are not acceptable in Scotland.

^a Not including trees

Appendix 9: Glossary

Activity surveys - are used to assess the level of bat activity at a site. This can be done either by using equipment such as an AnaBat device, or manually walking around a site with a heterodyne detector, documenting the number of bat passes and interceptions.

Dawn surveys - begin around 2 hours before and up to sunrise when bats are returning to their roosts from foraging, and swarming behaviour can be seen close to roost entrances.

Dusk surveys - begin around 30 minutes before sunset and up to 2 hours afterwards. These are done in order to see bats emerging from their roost sites at night.

Echolocation – is a system similar to sonar that allows bats to travel and forage even in total darkness. Bats make a call and then listen to the returning echoes in order to build up a map of their surrounding area. This allows bats to gauge the identity and distance of an object by how long the echo takes to return to them.

Habitat - the ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism.

Hibernation - is a state of inactivity and metabolic depression characterized by lower body temperature, slower breathing, and lower metabolic rate. Hibernating animals conserve energy, especially during winter when food is short, tapping energy reserves, i.e. body fat, at a slow rate.

Hibernacula - typically consist of underground sites, such as caves and cellars, which remain relatively cold and humid. Bats will hibernate to conserve energy over the winter months when falling temperatures cause a drop in the abundance of insects. These will typically be colonised around November to around March.

Insectivorous – is when an organism feeds exclusively on insects.

Nocturnal - a behaviour characterized by being active during the night and sleeping during the day.

Maternity roosts – colonised around late May early June and consist of mature females and their young. These roosts need to be warm and quiet, and are used up until around August, with females typically leaving first and then the young.

Mating roosts – mating begins around late October to November. Males of most species use special mating calls to attract females. These can include purrs, clicks and buzzing.

Roost – a site where bats live during the day, rear young and hibernate. These can be in man-made structures, such as buildings, bridges, tunnels, cellars and mines, or natural features such as mature trees and caves.

Roosts in buildings – many types of buildings will be used by bats. The most likely sites are agricultural buildings (e.g. farmhouses and barns), buildings with exposed wooden beams (greater than 20cm thick), buildings with weather boarding and/or hanging tiles, and buildings close to woodland and/or water.

Roosts in trees – these are typically in mature trees with deep sheltered cracks, under loose sections of bark, or in woodpecker holes.

Species – a group of organisms in which all members can interbreed and produce viable offspring.

Summer roosts (non-breeding) - these are generally occupied by groups of males and immature females during the summer, and are usually only occupied for a short period before the group moves to another location.

Swarming – a behaviour exhibited by bats returning to their roost sites at dawn. Bats can be seen repeatedly flying to and from the roost entrance, making it much easier for consultants to identify where roosts are on a building or structure.

Temporary/Transitory roosts – These are used after hibernation (March – April) before mature females disperse to maternity roosts and male/immature females colonise summer (non-breeding) roosts. Similarly, temporary roosts form before hibernation (August -October).

Underground Roosts – these are typically used during the winter and can be mines, caves, tunnels or cellars.

Appendix 10: Author Qualifications

Principal Consultant and Managing Director

Jonathan Cocking *F.R.E.S., Tech. Cert. (Arbor.A), PDipArb (RFS) FArborA CBiol MSB. MICFor.* Jonathan is a Registered Consultant and Fellow of the Arboricultural Association and sits on its Professional Committee. He has 31 years experience in the Arboricultural profession and served for eight years as Senior Arboriculturist with a large local authority before establishing JCA in 1997. Jonathan has since developed JCA's portfolio of services and its extensive client base. He is a Chartered Biologist, a Chartered Arboriculturalist and an Expert Witness with much experience of litigation work.

Technical Director

Toby Thwaites *BSc (Hons), HND (Arboriculture).* Toby joined JCA in 1998 after graduating in Ecology at the University of Huddersfield and has since graduated in Arboriculture at the University of Central Lancashire. A former JCA team leader and Consulting Arboriculturist, Toby is now Technical Director and oversees all office and on-site activities at JCA and is on hand to offer technical support and advice.

Consulting Staff: Arboriculture

Toby Parsons *Cert. Arb. (RFS), Tech. Cert. (Arbor.A).* Toby joined JCA after spending 6 years working as a senior climber for various Arboricultural contractors in the East Midlands and the South-West. He has gained the Level 2 Certificate in Arboriculture (RFS) and an Arboricultural Technicians Certificate. Toby is LANTRA certified in Professional Tree Inspection.

Scott Reid *ND (Arboriculture and Forestry).* Scott joined JCA after working with other consultancy companies in the south of England. He specialises in trees in relation to development and holds a National Diploma, various NPTC qualifications and is currently studying for his Level 4 Diploma in Arboriculture.

Andrew Bussey. Andrew joined JCA having spent 12 years working as a tree surgeon for various private companies and a Local Authority. He has various NPTC qualifications, is QTRA qualified and is currently studying for his Arboricultural Technicians Certificate.

Phil Humeniuk *FdSc (Arboriculture).* Phil joined JCA having spent 3 years working for various tree surgery companies and as a Tree Officer for a Local Authority. He also has several years experience working as a consultant both for JCA and for another consultancy. Phil obtained his foundation degree in Arboriculture at the University of Central Lancashire and has various NPTC's and is LANTRA certified in Professional Tree Inspection.

Emily Wilde *FdSc (Arboriculture).* Emily joined JCA having previously worked for various private tree surgery and consultancy companies over the past 8 years. She initially obtained a ND in Forestry & Arboriculture, followed by a FdSc in Arboriculture at Askham Bryan College, York. Emily has various NPTC certificates and is QTRA qualified.

Mick Eltringham *ND (Forestry).* Mick joined JCA after spending 12 years working in the industry for various private companies in the north and south of England. He has also spent the last five years working as a consultant for two canopy research projects in the Amazon Rainforest, working with Oxford University and the University of Arizona. He has various NPTC Qualifications.

Charles Cocking *(FdSc Arboriculture).* Charles joined JCA in January 2014 as an Apprentice having previously worked for the company on a part time basis during 2013. Charles obtained his Foundation Degree in Arboriculture at Askham Bryan College, York, and is now part of our qualified Arboricultural consultancy team.

Consulting Staff: Ecology

David Bodenham *BSc Ind (Hons) Zoology, MSc Biodiversity and Conservation.* David joined JCA as an addition to the expanding ecology department. An advocate of evidence based conservation, he studied Zoology (Ind) at University and moved onto an MSc in Biodiversity and Conservation where he gained the myriad of skills needed as an ecologist. With over 7 years of experience, David specialises in bat and amphibian ecology.

Jenny Butler *Bsc (Hons) Environmental Science.* Jenny joined JCA's ecology department in 2017, bringing with her a bachelor degree in Environmental Science from Bangor University. Jenny has previously worked as an Environmental Consultant for an Agri-Environment company and as a freelance ecological consultant. Jenny specialises in great crested newt and bat ecology.

Amanda Beck *Cert He in Field Ecology.* Amanda joined JCA's ecology department in 2018, previously working as a freelance Ecological Consultant in North Wales and Liverpool and as a trainee Ecologist in South Wales. Amanda has extensive practical experience in surveying for botanical, amphibians, terrestrial and marine mammals along with invertebrate research work. She has practical experience in habitat management and creation and is a CIEEM student member.

Administrative Staff

Sue Guest Administrative Team Leader.

Catherine Cocking Accounts Manager.

Simeon Haigh *BSc (Hons).* IT Director.

Lorraine Spink Administrative Assistant.

We confirm that the opinions expressed are our true and bona fide opinions.

Signed



.....
David Bodenham *BSc Ind (Hons), MSc*

17/01/2018

Proofread by



.....
Jenny Butler *BSc (Hons) Environmental Science*

17/01/2018

For and on behalf of *JCA Ltd*

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Ecological Post-Planning Services

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- Protected Species Mitigation
- Ecological Management (Bat and Bird box installation and inspection)

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