



Paper House Cottage, Norden

Bat and Barn Owl Assessment

November 2023

Control sheet

Project No & Title: 324. Paper House Cottage, Norden. Bat and Barn Owl Assessment

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1. Introduction

- 1.1 Rhodes Ecology Ltd were commissioned by Jordan Stephenson and Emily Laithwaite to undertake a Bat and Barn Owl Assessment of Paper House Cottage, Norden. This assessment was undertaken in support of a planning application for the demolition of existing outbuildings and their replacement with residential accommodation.
- 1.2 The survey was undertaken by Kerry Rhodes BSc (Hons) MCIEEM. Kerry Rhodes is an ecologist with over twenty years experience of ecological assessment and the holder of a Natural England Class Licence for bats (Level 2) since 2007. As a full member of the Chartered Institute of Ecology and Environmental Management, Kerry Rhodes undertakes all work under their professional code of conduct specified by CIEEM and in accordance with published guidance. Such guidance in relation to bat surveys includes Bat Surveys – Good Practice Guidelines, Bat Conservation Trust, 3rd Edition (2016). This guidance has recently been updated (Collins, J. (ed) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London) since the surveys for this project were completed. However, it is considered that this assessment still meets the requirements of the new guidelines.
- 1.3 The site is situated approximately 5km north west of the centre of Rochdale at SD 85481 14061.
- 1.4 The objectives of the assessment include the following:
- To investigate the presence of roosting bats within the property in order to investigate potential direct and indirect impacts on bats;
 - To undertake activity surveys as necessary to investigate further the presence of roosting bats;
 - To identify and assess any impacts that could result from the proposed development on bat roosting habitat;
 - To suggest mitigation measures to reduce the potential impacts of the proposed development on bats;
 - To investigate the presence of barn owl and, if present, to classify the site status;
 - To outline measures to mitigate potential impacts on barn owl.

2. Background Information

Bats

Ecology

- 2.1 A total of eighteen bat species are known to have resident populations in Britain. Bats have been confirmed to roost in a variety of structures including caves, mines, trees, buildings and other built structures. Woodland, pasture, standing water and slow flowing rivers or canals all provide suitable habitat for foraging bats as these habitats can support an abundance of insect life. Generally the main period of foraging activity for most species of bat is during the first two to three hours after sunset and similarly a period of time three hours prior to dawn, when insect activity is at its most intense.
- 2.2 Bat activity over the course of a year reflects the seasonal climate and the availability of food and tends to adhere to the following yearly pattern (English Nature [now Natural England], 2004).
 - **January - March** – Hibernation period; insect prey is scarce and bats will hibernate alone or in small groups, there may be limited activity in periods of mild weather.
 - **April - May** - insects become more plentiful as the temperature becomes warmer and bats become active. They may become torpid (cool and inactive) in cooler weather. Females will start to form groups and will roost in several sites.
 - **June - July** - females gather in maternity roosts and give birth to young, which are suckled for several weeks (young are independent by July-August). Males roost alone nearby.
 - **August - September** – mothers leave the roost before the young. Swarming activity occurs as bats mate and build up fat for the winter.
 - **October - December** – Bats search for potential hibernation sites. They become torpid for longer periods and then commence hibernation, subject to temperature reduction and periods of frost.
- 2.3 Bats seldom stay in the same roost throughout the year. They have different roost requirements at different times of the year. For instance, in summer the females require warm roosts when they are producing young and in winter they require cool roosts in order to conserve their energy. Summer roosts may be occupied between April and October, with peak activity from May to September. The remaining part of the year is a hibernation period. These timings can differ slightly depending on the bat species.
- 2.4 There are several different types of roost sites used by bats throughout the year; these are described below (BCT, 2007).
 - **Spring gathering roost** used by breeding females before moving to a maternity roost;
 - **Maternity or nursery roost** where females give birth and raise their offspring;
 - **Daytime summer roost** used by breeding and/or non-breeding males;
 - **Mating roost** (spring or autumn) occupied by males seeking to attract females for breeding;
 - **Night roosts** used by bats for short periods between phases of foraging activity, but rarely or not used during the day;
 - **Feeding roost or perch** where bats temporarily hang up to devour an item of prey once it has been caught;
 - **Transitional roost** used for short periods in the spring and autumn;

- **Hibernation sites** – where bats remain during the winter months.

2.5 The biggest threats to bats include direct loss of roost structures (such as woodland removal and building conversions), degradation of suitable foraging habitat as a result of modern forestry and farming practices, use of toxic agrochemicals and remedial timber treatment chemicals and disturbance to bat roosts themselves.

2.6 Bats have been in decline both nationally and internationally during the latter part of the 20th century. It is thought that their physical attributes, reproductive strategies and lifestyles render them particularly vulnerable to environmental change (Cowan, 2003). Bats require a variety of specific habitats in order to meet the basic needs of feeding, breeding and hibernating and are therefore extremely vulnerable to change such as the loss of flightlines through the removal of hedgerows as some species will not cross open areas. However, there is a lack of information on their population dynamics and the relative impact of the factors causing their decline nationally (Cowan, 2003).

Legislation

2.7 All European bat species and their roosts are listed in Annex IV of the EC Directive 92/94/EEC 'The Conservation of Natural Habitats and of Wild Fauna and Flora' as being in need of "strict protection". This is implemented in Britain under the Conservation (Natural Habitats &c.) Regulations (as amended by the Conservation (Natural Habitats &c.) (Amendment) (England and Wales) Regulations 2010. In summary, in the UK, it is an offence 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, hibernate or migrate or significantly 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.

2.8 British bat species and their roosts are included under Schedule 5 of the Wildlife & Countryside Act, 1981 (as amended) and the whole of Section 9 applies to bat species. In summary, the relevant sections of this legislation make it an offence to:

- Intentionally or recklessly disturb a bat at a roost;
- Intentionally or recklessly obstruct access to a roost.

2.9 Seven of the UK's eighteen breeding species of bat have been identified by the UK Government as needing special conservation help because of their rarity or because their numbers have declined severely in this century (BCT, 2009b).

2.10 In 2007, a new UK Priority List for species of the UK Biodiversity Action Plan (UK BAP) was created and new additions to this list for bats are noctule (*Nyctalus noctula*), brown long eared (*Plecotus auritus*) and soprano pipistrelle. Due to their recent inclusion on the UK Priority List, Species Action Plans for these species have not yet been prepared. Species Action Plans (SAPs) have been, or will be, prepared for the following seven species:

- Greater horseshoe (*Rhinolophus ferrumequinum*)
- Lesser horseshoe (*Rhinolophus hipposideros*).
- Bechstein (*Myotis bechsteini*)

- Barbastelle (*Barbastella barbastellus*).
- Soprano pipistrelle
- Brown long eared
- Noctule

Barn Owl

Ecology

- 2.11 The barn owl is a medium – large sized owl native to the UK and many parts of continental Europe. Barn owls are widely but thinly distributed across the British countryside, particularly in the lowlands, where they will forage in any type of habitat that supports small mammal populations on which they depend for food (with the exception of urban areas and dense woodland). They breed and roost typically in any dry elevated space in which they can achieve a reasonable level of concealment and shelter. Typically this includes old farm buildings (or other derelict buildings), rot holes and other cavities within trees and increasingly nest boxes erected within buildings, on the side of mature trees and tall poles, although other habitats and structures that offer elevated spaces and cavities large enough for a barn owl and chicks are sometimes used. This might include cliff and quarry faces and bale ricks.
- 2.12 Barn owls usually breed once per year, raising a brood of 3-5 young. Most eggs are laid in April or May and the young fledge in July or August. However there is considerable variation between years and locations with respect to the breeding period and some pairs will breed two or even three times in a good year. Nesting has therefore been recorded during every month of the year in the UK.
- 2.13 Barn owls do not create a nest in the sense that they do not build or create a structure within which to lay eggs and rear young. A barn owl nest consists of an accumulation of feeding remains (pellets), feathers and down that build up over time (assuming the nest site is used in consecutive years and is not removed). Depending on the particular conditions and how long the nest site has been in use, the nest “debris” could be substantial, or it could be very thin and hard to detect. Barn owls are not territorial, but they occupy large home ranges of up to several thousand hectares, meaning that their foraging range from a nest site may be up to approximately 5km.
- 2.14 Barn owl numbers fluctuate from year to year in response to environmental conditions and the effects these have on the small mammal populations on which they feed. The barn owl was once common in the British countryside but by the end of the 20th Century it is estimated that there were no more than 4,000 pairs left. Key causes of population decline include direct mortality arising from low prey availability related to inclement weather conditions; loss of foraging habitat (especially unmanaged “rough” grassland in which small mammals tend to be more abundant); loss of breeding and roosting sites; and mortality arising from collisions with road traffic, usually associated with major trunk roads and motorways. The increasing use and toxicity of rodenticides, especially at farms, may also be a factor contributing significantly to their decline.

Legislation

- 2.15 The Wildlife and Countryside Act 1981 (as amended) consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and the EU Birds Directive in Great Britain. Under Part 1, Section 1 of the WCA it is an offence to:
- kill, injure or take any wild bird intentionally;
 - take, damage or destroy the nest of any wild bird while that nest is in use or being built; and
 - take or destroy the egg(s) of any wild bird.

- 2.16 Schedule 1 of the WCA lists a number of species that, in addition to the provisions listed above, are protected by special penalties at all times, including against disturbance when breeding. The WCA requires the prosecuting authority to prove that an offence was intentional, however the CRoW Act strengthens the provisions of the WCA by introducing an additional offence of “reckless” disturbance, which means that ignorance of the presence of a protected species cannot be used as a reliable defence, should a breach of the WCA be committed. In practice the amendments arising from the CRoW Act make it much easier to prosecute for:
- Any activity that involves deliberately taking and unacceptable risk to a Schedule 1 bird
 - Failing to notice or not considering an obvious risk, which results in disturbance
- 2.17 Barn owl is included on Schedule 1 of the W&CA 1981. The penalties for an offence involving a Barn Owl (or its nest or egg) includes a fine up to £5,000 (per bird, nest or egg), up to six months in prison or both.

3. Methodology

Data Search

- 3.1 The Greater Manchester Ecology Unit were contacted to provide bat and barn owl records within a 1km radius of the property.

Bat Survey

Habitat Assessment

- 3.2 A site walkover was undertaken by Kerry Rhodes on the 25th July 2023 to assess the site for signs of bat use. This consisted of a methodical search of the walls, ceiling and roof using, where and if necessary, a torch, ladders, binoculars, an endoscope and a bat detector to pick up the social calls which bats often emit when roosting during the day. Signs or indications that bats are likely to be present include:
- Droppings on or near potential roost sites.
 - Scratch and grease marks, which are often left by bats entering and emerging from roosts.
 - Obvious cracks and crevices that can be used by bats for shelter.
 - The distinctive smell of bat urine which would indicate the presence of a roost.
 - The presence of dense spider webs at a potential roost entrance can often indicate the absence of bats.

- 3.3 Each building was assessed for their degree of potential to support roosting bats according to criteria outlined in BCT Bat Survey for Professional Ecologists, Good Practice Guidelines (2016). Please refer to Table 1 below for criteria.

Table 1: Guidelines for assessing the suitability of proposed development sites for bats. Adapted from BCT Bat Surveys for Professional Ecologists, Good Practice Guidelines 2016.

Bat Roost Potential	Likely Habitats	Commuting and Foraging Habitats	Level of Required Activity Survey Effort Required
Confirmed	Signs of roosting bats present (e.g. entry / exit points, accumulated bat droppings, visible bats).	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland,	Three surveys to establish species and use of the building and surrounding habitat

Bat Roost Potential	Likely Habitats	Commuting and Foraging Habitats	Level of Required Activity Survey Effort Required
		tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.	
High potential	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as a line of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.	At least three surveys required
Moderate potential	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only-the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as a line of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.	At least two surveys required
Low potential	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or	Habitat that could be used by small numbers of commuting bats such as gappy hedgerow or unvegetated stream, but isolated, i.e. Not very well connected to the surrounding landscape by other habitat.	At least one survey required.

Bat Roost Potential	Likely Habitats	Commuting and Foraging Habitats	Level of Required Activity Survey Effort Required
	suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. Unlikely to be suitable for maternity or hibernation). All potential bat roost habitat <i>comprehensively</i> inspected and found to be clear of past or present bat usage.	Suitable but isolated habitat that could only be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.	
Negligible potential	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.	No further survey required

Bat Activity Surveys

- 3.4 As the site was considered to provide low to negligible potential to support a bat roost, only one dusk emergence survey was undertaken on the 8th August 2023. Had significant activity or evidence of roosting behaviour been noted during this initial survey, further activity surveys would have been conducted.
- 3.5 The dusk survey commenced half an hour before sunset and continued until two hours after sunset. The survey was timed to ensure detection of both early and late returning bat species.
- 3.6 In order to ensure that bats were active during the assessments the survey was undertaken in suitable weather conditions with the temperature above 10°C with no heavy rain or high winds.
- 3.7 An additional close inspection was made of the exterior and interior of all of the buildings within the site immediately prior to the commencement of the survey. These inspections aimed to assess the presence of any additional evidence which may indicate recent use by bats since the buildings were last inspected. During this inspection, the surveyor used a torch and a bat detector to pick up the distinctive social calls made by bats either prior to emergence or upon their return to their roosting space.
- 3.8 All bat activity observed was recorded on standard survey forms. Information recorded included species, numbers of individuals identified, their location and direction of travel and type of activity including foraging, commuting, emerging from/entering a roost or social activities.
- 3.9 Identification of bats was aided by a combination of Elekon Batlogger M, Echometer Touch Pro 2 and Elekon Batloggers. Some species may be easily identifiable in the field

by audible characteristics, but for confirmation and identification of bat species, recordings were made throughout the survey. Recordings were analysed using sound analysis software (BatSound) in order to identify individual bat calls to species level.

- 3.10 One Panasonic HC VXF1 with an Infra Red light and a long range IR illuminator, mounted on a tripod and connected to an external battery pack and two Sony Handcam AX700 with infrared capability were used to aid the assessment of the buildings.

Barn Owl Survey

Habitat Assessment

- 3.11 When attempting to determine presence / absence of breeding barn owls (rather than a survey to determine productivity by counting young, for instance), a check of potential nesting spaces for an occupied nest should be carried out only if no other conclusive evidence of breeding can be found at ground level. This minimises the potential for unnecessary disturbance of breeding barn owls. Therefore all survey work was carried out quietly and with the minimum of disturbance, using a ground – up approach to ensure that any evidence of breeding, if present within the buildings, could be detected at ground level without the need to check for a nest. Such evidence would typically include the presence of egg fragments, moulted juvenile down, the presence of one or more juvenile barn owl carcasses and / or the snoring and hissing sound of young owls at a nest.
- 3.12 Each building was inspected firstly by visually checking its exterior beneath all access and egress points for signs of barn owl activity (the white splash of droppings, pellets, moulted feathers or down). An internal inspection of the buildings was then carried out by inspecting the ground for pellets, moulted feathers and down, egg fragments and owl carcasses, and the walls and floor for white splash.

4. Results

Data Search

- 4.1 The data search results are provided within Appendix A. The search revealed 14 records of Common pipistrelle maternity, tree and day roosts and 134 field records of at least three species of bat – Common pipistrelle, Soprano pipistrelle and Daubenton's bat. A number of the records were for unspecified species therefore the species diversity may be greater than suggested by the data search.
- 4.2 No records of a known bat roost within Paper House Cottage, its outbuildings or in close proximity to the property were received therefore the proposals are unlikely to impact on a known bat roost.

Habitat Assessment

- 4.3 The site is located in a rural site on the edge of a residential area and is surrounded by improved grassland with dry stone walls and hedgerow field boundaries. Naden Brook flows close to the east of the site and the associated riparian habitat is formed by a wide belt of broadleaf woodland which is connected to further broadleaf woodland along Old House Brook to the north of the site. Occasional farm buildings and residential housing present in the area immediately surrounding the property include traditional style stone built housing and traditional and contemporary agricultural buildings. Such buildings and habitat may provide suitable roosting, commuting and foraging habitat for a number of species of bats.
- 4.4 The site includes the following buildings as outlined in Table 2 – Building Habitat Assessment. Please refer to Figure 1 for the location of each building within the site.

Table 2 – Building Habitat Assessment

Building Number	Building Name	Description	Bat Habitat Potential	Photo Number
Building 1	Stable Block 1	Including a tack room and three loose boxes. Mono pitch roof covered in corrugated metal sheets. Plywood attached to the underside of the roof sheets with no cavity between apart from the cavity beneath corrugations. Wooden fascia board above eastern most stables has degraded and some potential roosting locations have developed. The walls are whitewashed blockwork with no cracks or crevices which may offer suitable crevice roosting habitat. Internally the buildings are no longer used as stables but they are used for storage and are regularly accessed. No evidence of bat activity in the form of droppings, urine marks or staining	Low	1 - 3

Building Number	Building Name	Description	Bat Habitat Potential	Photo Number
		were noted either internally or externally. Swallow nests identified within the interior of the stables. No evidence of barn owl.		
Building 2	Open high hay store	Timber framed double height barn with a mono pitch roof facing south east and open to the north. Walls and roof constructed of single skin corrugated metal sheets with no cavity between. No suitable roosting cavities within internal timbers. Wooden ledge forming mezzanine hay loft assessed for presence of barn owl and none found. No evidence of bat activity in the form of droppings, urine marks or staining were noted either internally or externally.	Negligible	4 & 5
Building 3	Hay barn	Single height, timber framed with mono pitch roof covered in corrugated metal sheets. Walls formed of timber boards. No suitable crevices in timbers for roosting. No evidence of bat activity in the form of droppings, urine marks or staining were noted either internally or externally. No evidence of barn owl.	Negligible	6
Building 4	Stables	Including four stables. Mono pitch roof covered in corrugated metal sheets. Plywood attached to the underside of the roof sheets with no cavity between apart from the cavity beneath corrugations. The walls are whitewashed blockwork with no cracks or crevices which may offer suitable crevice roosting habitat. Internally the buildings are no longer used as stables but they are used for storage and are regularly accessed. No evidence of bat activity in the form of droppings, urine marks or staining	Low	7 & 8

Building Number	Building Name	Description	Bat Habitat Potential	Photo Number
		were noted either internally or externally. Swallow nests identified within the interior of the stables. No evidence of barn owl.		

Bat Activity Surveys

- 4.5 The following is an outline of results of the activity surveys. Refer to Table 3 for survey times, Table 4 for survey conditions and Table 5 for survey results.

Table 3 Survey Times

Date	Sunset/Sunrise Time	Survey Start Time	Survey End Time
8 th August 2023	20:52	20:20	23:00

Table 4 Survey Conditions

Date	Temp at Start	Temp at End	Precipitation	Wind Speed	Cloud Cover
8 th August 2023	18°C	16°C	Dry	1 mph	20%

Table 5 Summary of Results of Activity Surveys

Date	Comments
8 th August 2023	Low level of common pipistrelle foraging activity (<5 passes). No emergence noted

Barn Owl Survey

- 4.6 The data search provided two records for barn owl – one was an unspecified record (unknown whether a roost, nest or a bird on the wing) located approximately 1.3km south west of the site and the second was a bird on the wing approximately 1km north east of the site. These records show that barn owls are active in the area and may use habitat within and surrounding the site for foraging. Additional habitat provision as recommended in Section 5, Table 6 is likely, therefore, to be used by barn owl.
- 4.7 The external and internal building inspections found no evidence of barn owl activity.
- 4.8 Despite a lack of evidence of barn owl noted during the survey, there is sufficient suitable habitat within the building to accommodate breeding barn owls and the surrounding habitat can support . It is therefore impossible to state that, if the building was to be left alone in its current state, breeding would not occur at some time in the future. Further recommendations relating to pre-works barn owl survey are outlined in Section 5.

5. Conclusion

- 5.1 The data search revealed that there are no records of bat roosts within, or within close proximity to the property. The habitat assessment found no bat droppings or other evidence of bat activity within any of the other buildings on site. Due to the low to negligible level of bat habitat potential associated with Building 1 and 4, it was considered that one activity survey would be undertaken to establish presence or likely absence. Had significant levels of bat activity been noted during this initial survey, further surveys would have been completed. However, as the first survey noted a very low level of bat activity (<5 common pipistrelle foraging passes), it was considered unlikely that the buildings supported a bat roost at the time of the surveys and no further assessment was undertaken (which is in line with guidance relating to survey effort outlined in Bat Surveys – Good Practice Guidelines, Bat Conservation Trust, 3rd Edition (2016).
- 5.2 No evidence of barn owl was noted during the surveys but suitable habitat exists. Table 6 below outlines recommendations relating to barn owl.
- 5.3 Current proposals include the conversion of the buildings into living accommodation. The following recommendations outlined within Table 6 below will aim to provide alternative habitat, reduce the potential impacts to an acceptable level and allow the works to go ahead within the confines of the law.

Table 6 Recommendations

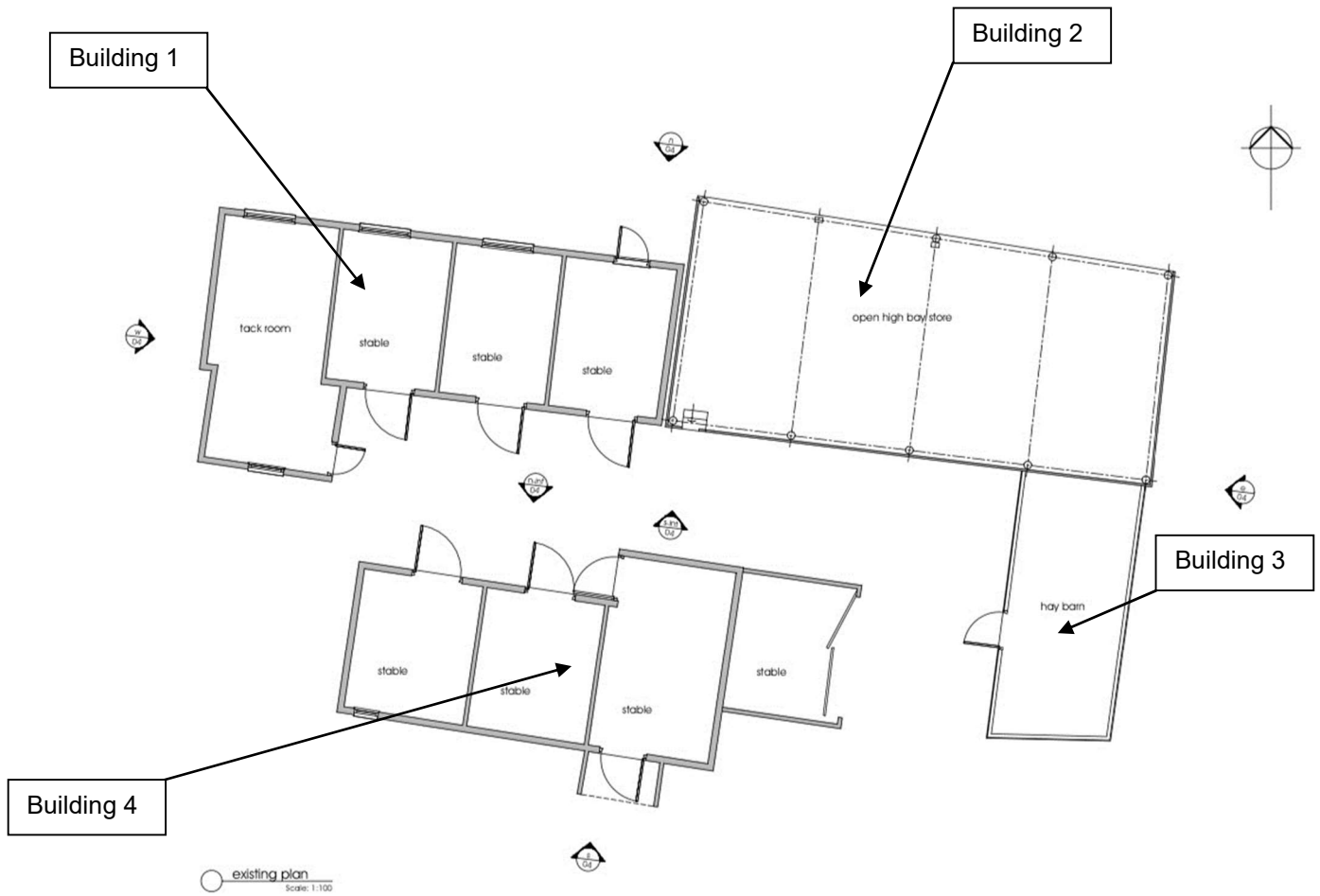
Action	Method
1. Legal protection of bat habitat	All development should be undertaken with an awareness of the legislation which protects bats and their places of shelter. All bat species and their roosts are listed in Annex IV of the EC Directive 92/94/EEC 'The Conservation of Natural Habitats and of Wild Fauna and Flora' as being in need of "strict protection". This is implemented in Britain under the Conservation (Natural Habitats &c.) Regulations (as amended by the Conservation (Natural Habitats &c.) (Amendment) (England and Wales) Regulations 2010. In summary, in the UK, it is an offence 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, hibernate or migrate or significantly 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. British bat species and their roosts are included under Schedule 5 of the Wildlife & Countryside Act, 1981 (as amended). In summary, the relevant sections of this legislation make it an offence to:

Action	Method
	- Intentionally or recklessly disturb a bat at a roost; - Intentionally or recklessly obstruct access to a roost.
2. Provision of alternative bat roosting habitat	Alternative roosting habitat will be provided at the apex of the western facing gable of Building 1. This will take the form of an integrated bat box suitable for a timber framed structure with render finish such as a Schwegler 1FR Bat Tube available from NHBS and pictured below. 
3. Timing of the works	In order to reduce any potential disturbance and harm to bats which may arise as a result of the works, the conversion works shall commence at a time when bats and breeding birds are unlikely to be present and all works to the roof shall be completed prior to the start of the following summer activity season. Therefore works associated with the roof of the property are recommended to take place between 1st October and the 1st March. Bats are particularly vulnerable during their hibernation season which extends from November until the end of February. However, it is considered unlikely that this property provides habitat suitable for hibernation. Therefore, works during the hibernation period may take place provided all works are undertaken with due caution and in the awareness that all works should stop in the unlikely event that bats are found to be present. Refer to 'Unexpected Discovery of Bats' below for further advice.
4. Unexpected discovery of bats	In the event that a bat or bats are discovered during the course of the works, all work in the vicinity should stop and the ecologist should be contacted for advice on how to proceed. Under no circumstances should a bat be handled by site personnel. All site personnel should be made aware that a bat in torpor may appear cold and lifeless. In the event of a chance discovery of a bat, the ecologist will remove it with gloved hands and either place it in the temporary bat box or take it into care in the event of an injury. The

Action	Method
	ecologist will then provide advice on how to proceed with the works. NB. In very cool weather or after cold nights, resting bats may be in a torpid state and therefore unable to move / or escape quickly. Contractors should be made aware that bats in torpor can often appear cold and lifeless.
5. Evidence of bats	The evidence of bats which is most likely to be discovered during the course of any building works is that of droppings. The droppings are small, approximately 5 – 10mm long (refer to Plate 1 below) and crumble into a fine powder when crushed unlike mouse droppings which cannot be crumbled. Plate 1 Bat droppings  If bats are discovered during the course of the works, it is likely that they will appear to be huddled behind or within a crevice rather than hanging from the rafters as many people believe. The most likely species to be identified at this property is the Pipistrelle spp. bat as pictured in Plate 2 below. They are tiny bats which are no bigger than an adult's thumb and may appear cold and lifeless if they are in torpor and may take up to half an hour to wake if disturbed. Plate 2 Pipistrelle bats 
6. Legal protection of breeding birds	All wild birds, their nests and eggs are protected by the Wildlife and Countryside Act, 1981 (as amended) against damage or disturbance. Therefore, all development should be undertaken with an awareness of the legislation which protects birds during the breeding season. Therefore, no works shall start within the bird nesting season which for most species is from March to August inclusive.

Action	Method
7. Pre-commencement check	As barn owls are known to breed throughout the year, a further inspection should be carried out at least 10 days prior to the start of works to determine the presence / absence of barn owl and the status of the buildings as barn owl habitat.
8. Timing of the works	Any demolition work involving roof alterations, knocking down of internal walls, or any other structural building work should begin outside of the period when barn owls are most likely to be breeding. While barn owls can breed at any time of year, the majority of pairs engage in breeding activity between and including March and October, with most breeding completed by the end of August. Part 1 of the Wildlife and Countryside Act 1981 (as amended) affords barn owls enhanced levels of protection over and above those of most wild birds, such that they are protected not only against killing of individuals and damage/destruction of nests and eggs, but they are protected against disturbance of breeding adults and dependent young.
9. Provision of alternative bird nesting habitat	Two swallow cups (available from NHBS) shall be attached to the interior of Building 2. One barn owl box (available from NHBS) shall be attached to the eastern internal gable of Building 2.
10. Site contractors	All site contractors must be made aware of the potential risk of encountering bats and breeding birds and the procedure to be followed should bats or breeding birds be identified during the works.

Figure 1 – Building Numbers



Appendix A – Data Search

SCHEDULE 1 BIRDS					
Barn Owl	SD846131	Ashworth Valley	14/02/2013	1	
Barn Owl	SD861149	Garden Site Rochdale	01/08/2021	1 Flying	
Kingfisher	SD855149	Doctor Dam & Holt Wood SBI	28/09/2009	1	
Kingfisher	SD855149	Doctor Dam & Holt Wood SBI	23/07/1986	Present	
Kingfisher	SD855149	Doctor Dam & Holt Wood SBI	01/01/1980	Present	Target Note Ref SD8514/26
Kingfisher	SD855150	Doctor Dam & Holt Wood SBI	28/09/2009	Present	
Kingfisher	SD855150	Doctor Dam & Holt Wood SBI	28/09/2009	1	
Kingfisher	SD856149	Doctor Dam Pool Norden	07/09/2016	1	
Kingfisher	SD856149	Doctor Dam & Holt Wood SBI	23/08/2016	1	Flying from perch to perch
Kingfisher	SD856149	Doctor Dam Pool	28/09/2009	1	
Kingfisher	SD856149	Doctor Dam Pool	11/03/2006	1	
Kingfisher	SD856149	Doctor Dam Pool	10/12/2005	1	
Kingfisher	SD856149	Doctor Dam Pool	06/11/2005	1	
Kingfisher	SD856149	Doctor Dam Pool	18/09/2005	1	
Kingfisher	SD856149	Doctor Dam Pool	23/08/2005	2	
Peregrine	SD855145	Norden	20/02/2005	1	FO
Peregrine	SD863140	Garden Site Rochdale	01/07/2013	1 Flying	
>					
BAT ROOSTS					
Common Pipistrelle	SD85201470	Rochdale	01/05/2019	1 Adult Male (Day Roost)	roost ref CandL_OL127UD_010519. during roof repair, under lead flashing
Common Pipistrelle	SD853134	Ashworth, Rochdale	24/05/2011	Adult (Roost)	
Common Pipistrelle	SD853146	Norden Way, Rochdale	01/10/2014	Roost	windows replaced, released

Common Pipistrelle	SD855134	Waterloo Farm, Naden Brook	28/08/2019	41 Tree Roost	emerged from sycamore in survey PA 19/00460/FUL
Common Pipistrelle	SD855145	Norden, Rochdale	18/07/2005	56 Roost	Higher Lodge Norden Rochdale, retained
Common Pipistrelle	SD859145	St Paul's Church	17/06/2019	1	Day roost in church tower.
Common Pipistrelle	SD860136	Norden, Rochdale	10/06/2003	70 Roost	maternity roost Greenvale, Bamford. 46 counted on 6/6 & 79 on 10/6 - retained
Common Pipistrelle	SD8637713797	Rochdale	07/07/2021	1 Baby Male (Roost maternity)	Minorca Close Fallen down chimney
Common Pipistrelle	SD86381379	Minorca Close Norden (OL11 5RP)	30/06/2013	78 Roost	Maternity Roost, counted emerging from roost. Detector used
Common Pipistrelle	SD86391378	Minorca Close, Rochdale OL11 5RP	11/07/2016	153 Mixed Sex (Maternity Roost)	Access point under flashing SW side
Common Pipistrelle	SD8641313810	Rochdale	07/07/2021	1 Baby (Roost maternity)	Roost in gable end Minorca Close OL11 5RP
Pipistrelle sp	SD86381379	Rochdale	30/06/2013	178 Mixed Sex (Maternity Roost)	Maternity Roost, counted emerging from roost. Detector used
Pipistrelle sp	SD864138	Norden, Rochdale	17/09/1998	Roost	roost Mercer Lane under roof tiles
Pipistrelle sp	SD864140	Norden, Rochdale	17/08/1998	Roost	roost Highfield Rd, exclusion by building work.
>					
BAT OTHER SIGNS					
Bat sp	SD861137	Galbraith Way, Norden	28/06/2007	1 (Casualty)	
Common Pipistrelle	SD846141	Rochdale	18/10/2006	Present (Aural Bat Detector)	Along road
Common Pipistrelle	SD846141	Rochdale	19/09/2006	Present (Aural Bat Detector)	Along road
Common Pipistrelle	SD8470814097	Road Survey	10/05/2007	Present (Aural Bat Detector)	Road Survey bat contact. 22: 41hrs Temp 15C. Wind 2, cloud 2
Common Pipistrelle	SD8476013920	Road Survey	08/09/2006	Present (Aural Bat Detector)	20: 22 & 21: 53. cloud 1, Wind 1 (BF) Temp 13C
Common Pipistrelle	SD848138	Rochdale	18/10/2006	3 (Aural Bat Detector)	Along road

Common Pipistrelle	SD848138	Rochdale	19/09/2006	3 (Aural Bat Detector)	Along road
Common Pipistrelle	SD8482913838	Road Survey	10/05/2007	Present (Aural Bat Detector)	Road Survey bat contact. 22: 42hrs Temp 15C. Wind 2, cloud 2
Common Pipistrelle	SD8485113657	Road Survey	06/05/2008	Present (Aural Bat Detector)	Road Survey Bat Contact. Temp 16-12C. Clear, breezy & dry
Common Pipistrelle	SD8485213655	Road Survey	06/05/2008	Present (Aural Bat Detector)	Road Survey Bat Contact. Temp 16-12C. Clear, breezy & dry
Common Pipistrelle	SD8486313643	Road Survey	06/05/2008	Present (Aural Bat Detector)	Road Survey Bat Contact. Temp 16-12C. Clear, breezy & dry
Common Pipistrelle	SD8489413589	Road Survey	06/05/2008	Present (Aural Bat Detector)	Road Survey Bat Contact. Temp 16-12C. Clear, breezy & dry
Common Pipistrelle	SD8489613335	Road Survey	06/05/2008	Present (Aural Bat Detector)	Road Survey Bat Contact. Temp 16-12C. Clear, breezy & dry
Common Pipistrelle	SD8489613580	Road Survey	06/05/2008	Present (Aural Bat Detector)	Road Survey Bat Contact. Temp 16-12C. Clear, breezy & dry
Common Pipistrelle	SD8490613704	Road Survey	08/09/2006	Present (Aural Bat Detector)	20: 22 & 21: 53. cloud 1, Wind 1 (BF) Temp 13C
Common Pipistrelle	SD849132	Rochdale	18/10/2006	3 (Aural Bat Detector)	Along road
Common Pipistrelle	SD849132	Rochdale	19/09/2006	3 (Aural Bat Detector)	Along road
Common Pipistrelle	SD849135	Rochdale	18/10/2006	Present (Aural Bat Detector)	Along road
Common Pipistrelle	SD849135	Rochdale	19/09/2006	Present (Aural Bat Detector)	Along road
Common Pipistrelle	SD8493013678	Road Survey	10/05/2007	Present (Aural Bat Detector)	Road Survey bat contact. 22: 42hrs Temp 15C. Wind 2, cloud 2
Common Pipistrelle	SD8493913646	Road Survey	08/09/2006	Present (Aural Bat Detector)	20: 22 & 21: 53. cloud 1, Wind 1 (BF) Temp 13C
Common Pipistrelle	SD8497313595	Road Survey	10/05/2007	2 (Aural Bat Detector)	Road Survey bat contact. 22: 42hrs Temp 15C. Wind 2, cloud 2
Common Pipistrelle	SD8500913450	Road Survey	10/05/2007	3 (Aural Bat Detector)	Road Survey bat contact. 22: 43hrs Temp 15C. Wind 2, cloud 2

Common Pipistrelle	SD850138	Rochdale	18/10/2006	3 (Aural Bat Detector)	Along road
Common Pipistrelle	SD850138	Rochdale	19/09/2006	3 (Aural Bat Detector)	Along Ashworth Rd. along side lane to pub & Chapel
Common Pipistrelle	SD850148	Rochdale	29/08/2006	Present (Aural Bat Detector)	Along road
Common Pipistrelle	SD852147	Rochdale	29/08/2006	Present (Aural Bat Detector)	Along road
Common Pipistrelle	SD852148	Norden, Rochdale	03/10/2005	1 (Casualty)	Brick ground, released
Common Pipistrelle	SD853134	Ashworth, Rochdale	01/06/2010	3 Adult (Foraging)	
Common Pipistrelle	SD854145	Norden, Rochdale	03/05/2001	1 (Casualty - Released)	injured by cat Norden Way - to be released
Common Pipistrelle	SD855143	Rochdale	20/11/2005	1 (Casualty)	Three Owls, released
Common Pipistrelle	SD855146	Rochdale	29/08/2006	Present (Aural Bat Detector)	Along road
Common Pipistrelle	SD855149	Rochdale	11/09/2007	1	Ref DD1 1st contact 19.50, 15min count 87
Common Pipistrelle	SD85571343	Waterloo Farm, Heywood	20/08/2019	40 MixedSex	Bat roost in sycamore
Common Pipistrelle	SD856149	Norden	21/09/2009	Present (Aural Bat Detector)	DD1 Doctor Dam Millpond Survey, 1st contact 19.38, 15min count 90
Common Pipistrelle	SD856149	Norden	09/09/2009	Present (Aural Bat Detector)	DD1 Doctor Dam Millpond Survey, 1st contact 20.00, 15min count 84
Common Pipistrelle	SD856149	Rochdale	25/09/2006	Present (Aural Bat Detector)	Survey 7pm-8.15 pm. Wind 0, temp 17C. Count 84. Pond DD1, Doctor Dam
Common Pipistrelle	SD85871458	Rochdale	28/07/2019	Adult (Aural Bat Detector)	Heterodyne detector used. In flight
Common Pipistrelle	SD859146	Norden, Rochdale	11/06/2005	1 (Casualty)	Heap Road, LTC
Common Pipistrelle	SD860145	Rochdale	07/07/2018	2 Juv (Casualty)	Injured bat ref SP18/39 & SP 18/40 Grounded OL12 7SJ
Common Pipistrelle	SD861141	Elmsfield Avenue, Norden	16/05/2017	1 Adult Male (Casualty - Euthanased)	Injured/grounded. Ref FP17/05 Broken L FA
Common Pipistrelle	SD862137	Rochdale	09/08/2008	1 Juv Female (Casualty - Released)	Newhouse Cottages.

					Grounded,. Bat ref SP08/76
Common Pipistrelle	SD862137	Rochdale	08/08/2008	1 Juv Male (Casualty - Released)	Newhouse Cottages. Grounded,. Bat ref SP08/75
Common Pipistrelle	SD862142	Rochdale	03/09/2006	1 Juv Male (Casualty)	Highwood Centre, Norden, Juv Male DOA Injured bat ref JL06/47
Daubenton' s Bat	SD855149	Rochdale	11/09/2007	1	Ref DD1 1st contact 19.58, 15min count 83
Daubenton' s Bat	SD856149	Norden	09/09/2009	Present (Aural Bat Detector)	DD1 Doctor Dam Millpond Survey, 1st contact 20.05, 15min count 1
Pipistrelle sp	SD8514	Norden, Rochdale	14/06/1994	1 (Casualty)	in lounge Wolstenholme Fold - released
Pipistrelle sp	SD852137	Chapel & School Lane fields, Ashworth	30/10/2020	6	SD850134
Pipistrelle sp	SD852137	Chapel Lane & School Lane fields, Ashworth	11/10/2020	3	Quantity estimated. Min.
Pipistrelle sp	SD852137	Chapel Lane & School Lane fields, Ashworth	28/09/2020	5	
Pipistrelle sp	SD854135	Naden Brook SBI - Culvert & Weir	24/11/2019	1	
Pipistrelle sp	SD854135	Naden Brook SBI - Culvert & Weir	25/03/2016	1	
Pipistrelle sp	SD854135	Naden Brook SBI - School Lane hedge	01/11/2015	3	
Pipistrelle sp	SD855134	Naden Brook SBI - School Lane hedge	30/03/2014	1	
Pipistrelle sp	SD855149	Doctor Dam & Holt Wood SBI	22/03/2021	1	
Pipistrelle sp	SD856135	Jowkin Lane Area, Bamford	05/03/2013	5	at dusk but not rest of month - too cold!
Pipistrelle sp	SD856135	Jowkin Lane Area, Bamford	04/03/2013	1	at dusk
Pipistrelle sp	SD856142	Naden Brook SBI - Coal Bank Lower Bridge	15/02/2021	1	Actual grid ref SD857142

Pipistrelle sp	SD856142	Naden Brook SBI - Coal Bank Lower Bridge	19/04/2020	7	Actual grid ref SD855141
Pipistrelle sp	SD856144	Norden, Rochdale	01/06/1998	1	in garden Hutchinson Lane (Road?)
Pipistrelle sp	SD857144	Norden, Rochdale	16/07/1999	1 (Casualty)	on doorstep Harewood Ave. - long-term captive
Pipistrelle sp	SD860140	Norden	24/11/2019	1	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/09/2021	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/08/2021	1	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/07/2021	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/06/2021	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/05/2021	3	
Pipistrelle sp	SD863140	Garden Site Rochdale	11/04/2021	1	First date in garden 2021
Pipistrelle sp	SD863140	Garden Site Rochdale	01/11/2020	1	Last date 20/11/2020
Pipistrelle sp	SD863140	Garden Site Rochdale	01/10/2020	1	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/09/2020	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/08/2020	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/07/2020	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/06/2020	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/05/2020	3	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/04/2020	3	
Pipistrelle sp	SD863140	Garden Site Rochdale	23/03/2020	2	first sighting
Pipistrelle sp	SD863140	Garden Site Rochdale	24/11/2019	1	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/10/2019	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/08/2019	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/07/2019	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/06/2019	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/05/2019	3	
Pipistrelle sp	SD863140	Garden Site Rochdale	29/04/2019	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/04/2019	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	23/12/2018	1	dusk

Pipistrelle sp	SD863140	Garden Site Rochdale	01/10/2018	1	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/09/2018	1	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/08/2018	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/07/2018	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/06/2018	3	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/05/2018	3	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/04/2018	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/03/2018	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/10/2017	1	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/09/2017	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/08/2017	2	detector & visual
Pipistrelle sp	SD863140	Garden Site Rochdale	01/07/2017	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/06/2017	3	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/05/2017	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/04/2017	3	
Pipistrelle sp	SD863140	Garden Site Rochdale	25/03/2017	3	First on this date
Pipistrelle sp	SD863140	Garden Site Rochdale	01/09/2016	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/08/2016	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/07/2016	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/06/2016	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/05/2016	3	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/04/2016	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/10/2015	3	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/09/2015	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/08/2015	1	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/07/2015	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/06/2015	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/05/2015	3	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/04/2015	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	18/03/2015	1	

Pipistrelle sp	SD863140	Garden Site Rochdale	01/10/2014	1	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/09/2014	4	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/08/2014	1	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/07/2014	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/06/2014	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/05/2014	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/04/2014	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	31/03/2014	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/10/2013	1	Last seen 09-10-13
Pipistrelle sp	SD863140	Garden Site Rochdale	01/08/2013	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/07/2013	2	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/06/2013	3	
Pipistrelle sp	SD863140	Garden Site Rochdale	01/05/2013	3	
Soprano Pipistrelle	SD8514	Rochdale	02/08/2016	Present	
Soprano Pipistrelle	SD855149	Rochdale	11/09/2007	1	Ref DD1 1st contact 19.55, 15
Soprano Pipistrelle	SD856149	Norden	09/09/2009	Present (Aural Bat Detector)	DD1 Doctor Dam Millpond Survey, 1st contact 20.15, 15min count 4
Soprano Pipistrelle	SD86171411	Rochdale OL11 5FB	22/07/2013	1 Juv Male (Casualty)	Bruising to both wings, very thin SLBG Injured bat ref FP13/36

Appendix B – Photos

Plate 1



Plate 2



Plate 3



Plate 4



Plate 5



Plate 6



Plate 7



Plate 8

