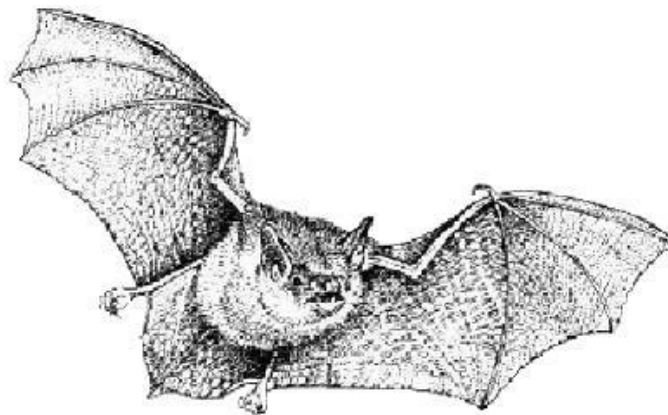


**78 Church Street West,
Radcliffe, Greater Manchester,
M26 2SY**

**Preliminary Survey & Assessment
in Respect of Bat Species, and Nesting Birds.**

**Surveyor- Mike Fisher
(Bat Survey Licence Level 2 Class Survey Licence WML CL18)
(Bat Roost Visitor Level 1 Class Survey Licence WML CL15)**



Echo Calls Bat Surveys

30th November 2023

1. Introduction.

1.1 Reason for Survey.

As part of the process to obtain planning permission to develop the site, a preliminary daytime evidence and opportunity bat survey and assessment, and a post-nesting bird survey, were requested on the targeted buildings, and any trees, shrubs, and hedgerows, both within and around the site boundaries. The purpose of these surveys was to provide up-to-date evidence on habitats and protected species, within the site boundaries, as part of the Local Development Framework (UDP Policy EN9).

11.2 Survey Aims.

The aims of this preliminary ecological assessment were to:

- To provide clear advice to the client and the Local Planning Authority, on the nature conservation value of the site, and its surrounding area,
- To assess the site for the presence or potential, for protected species within the proposed development site, by doing a detailed inspection of both the exterior and interior of any structures, to look for features that bats could use for entry/exit, and for roosting, and also to search for bats themselves.
- To enable the client to comply with legislation afforded to protected sites and species.
- To highlight the presence of any habitats or species of ecological importance, including Habitats and Species of Principal Importance (NERC Act, 2006).
- To identify any ecological constraints in relation to the proposed project, and any future development in the site..
- To establish the need for any further surveys and assessments.
- To make nature conservation recommendations, and identify opportunities for ecological enhancement and gain within the proposals.

1.3 The Site.

The three targeted buildings were part of a large former industrial plot, at the junction of Church Street West and Glenvale Close, in the Radcliffe area of Greater Manchester. The buildings and the surrounding area from now on are referred to as the "site", at OS grid reference: SD 78791 07207, (refer to **Fig 1 - The Site Location**).

1.4 The Targeted Buildings.

There were three targeted buildings, all situated within a interconnected large former industrial complex.

1.5 Surrounding Land.

The site itself was located close to the center of Radcliffe, whilst the targeted buildings themselves were positioned along the northern and western boundaries of the site, in the western half of the overall site, with a large area of concrete vehicle parking to both the south and south-east of the site, bordered by fencing.

To the north of the site across Church Street West were a large mixture of terraced dwellings and their gardens, together with some industrial buildings, also The Ark Independent Methodist Church with trees and shrubs growing around it, and also the building and grounds of Radcliffe Independent Methodist Church which lay approximately 0.16 km to the north-east of the site, and the Radcliffe Station car park about 0.18 km to the north. Also, the buildings and grounds of Radcliffe Leisure

Centre were about 0.32 km to the north, with areas of pasture beyond that, further north, through which flowed the Bolton and Bury Canal, in a rough east to west direction, approximately 0.53 km at its nearest point from the site.

To the north-west, west, and south-west of the site, were further lines of housing and shops, with the main Radcliffe shopping area around 0.36 km away to the west. Whilst Radcliffe Primary Care Centre was a large complex of buildings and car parks, with a large amount of trees and shrubs growing around its western end northern boundaries, standing about 0.09 km to the west of the site, with The Parish of St Thomas and St John Church, standing within its large church grounds with numerous trees and shrubs growing both within the grounds, and the near vicinity, approximately 0.29 km further west. There were further lines of terraced dwellings spreading westwards across the A665 ring road, approximately 0.40 km to the west.

The tree-lined River Irwell flowed from the east before bending in a south-westerly direction, lying about 0.03 km to the south of the site at its nearest point, with a mixture of dwellings and some industrial buildings beyond the river, with a few trees and shrubs growing amongst them, whilst Coronation Park with its amenity greenspace, paths, playing fields and tree-lined pathways stretched in both southern and eastern directions from around 0.32 km from the site. The park also contained a couple of small ephemeral ponds.

A short distance to the east of the site was Radcliffe Station and its large car park, which was part of the Bury to Manchester Metrolink, and which ran in a rough north-west to south-east orientation. This part of the tramway was raised upon gantries, with a large number of trees and shrubs growing adjacent to both sides of the tracks.

To the north-east across the tracks were the Festival Gardens, containing tree-lined pathways and bordered by shelterbelts of mature trees, together with lines of terraced dwellings to the east, with a large expanse of moorland scrub containing two large reservoirs, the nearest being at 0.54 km away, whilst the larger one lay approximately 0.69 km to the north-east of the site. Radcliffe Waste Recycling Center was about 0.39 km to the west, surrounded by further areas of moorland scrub, with a few small ponds within it, that stretched away in a south-easterly direction, however, other than the above-mentioned habitats, there were no areas of woodland, or other large bodies of water, in the nearby vicinity, (refer to **Fig 1 – The Site Location**, **Fig 2 – Google Plan**, **Fig 3 – Area Plan**, **Fig 4 – Plan of Photographs**, and **Fig 5 – Plan of Preliminary Evidence and Opportunity Survey and Assessment Results**).

2. Methods.

2.1 Risk Assessment, Possible Hazards.

The required access to the site was possible, and although the main building was internally very cluttered with debris, equipment and furniture, the interiors could be generally searched with care. The lean-to loading bay was in current use but again could be surveyed. Although being reasonably sound, both of these buildings were in a deteriorating state of repair, but that didn't prevent the survey being undertaken. The nearby showroom was in excellent condition, sound and well maintained, but there were no more hazards other than those normally associated with surveying these types of industrial buildings.

2.2 Methodology of Bat Surveys.

A number of factors are used for the survey methodology, which include:

- Knowledge of bat species relevant to the site location, and geographical range;
- Nature of the immediate, and surrounding habitat, in relation to foraging opportunity;
- Condition of trees, shrubs, and any water bodies:

- Condition of any buildings and structures:
- Presence/absence of roost potential:
- Value of roost potential – if present.

2.3 Preliminary Daylight Evidence and Opportunity Survey and Assessment.

A preliminary daylight evidence and opportunity survey and assessment took place on 21st October 2023, and was carried out in order to assess the site to search for evidence of bat occupation, (including recent and historic use). It comprised a search for bats themselves, bat droppings, urine stains, remains of any invertebrate prey, or any fur grease marks from repeated contact, or passage by bats through narrow roost accesses, or against surfaces, and any other signs of bat occupation, and at the same time looking for evidence of either current or historical nesting birds, active nests and feathers.

Areas within the targeted building searched were:

- Inside all parts of the buildings where bats could roost, also on the floors, roof trusses, or upon piles of equipment, furniture, or piles of debris, and in spiders' webs and other places where droppings or prey remains may collect. Likewise noting any noises such as scratching and squeaking which may be made by roosting bats.
- Outside all of the targeted buildings within the complex, the eaves, gables, soffits, open walls, windows, or doorways for signs of potential bat access holes, also, the ground, and any other surfaces such as low roofs, shrubbery and scrub, or any piles of equipment or vehicles, which may occur underneath the eaves, within the buildings themselves, and around the perimeter of the buildings, any of which may catch bat droppings.

The optimum time to investigate buildings for evidence of a bat roost, is between May and September, however, this can sometimes be earlier or later in the year, and is weather and temperature dependant.

However, preliminary evidence and opportunity surveys and assessments, may be conducted outside of this time, and can often provide conclusive results, which can save expense and time for Planning Applicants.

The habitats and any trees surrounding the site, were assessed for their suitability for use by foraging and commuting bats.

All evidence of current or previous nesting bird species observed during the survey, was recorded.

2.4 Equipment.

Equipment used consisted of ladders, an endoscope, cameras, close-focus binoculars, and powerful hand-held torches.

3. Results.

3.1 Daylight Evidence and Opportunity Survey.

3.1.1 Weather.

The weather conditions on 21st October 2023, were good. It was sunny with some cloud cover and

a light breeze, (Beaufort Scale 2/3), and as the temperature taken at the start of the survey of 9°C, such conditions were suitable for a survey of this type.

3.2 Possible Roost Sites.

3.2.1 The Buildings.

There were three buildings within the overall site, targeted for this application, and all were surveyed for signs of bat activity, as mentioned above (refer to **paragraph 1.3**).

Main Building.

The main building was positioned at the north-western corner of the overall site, in a south-west to north-easterly orientation, and was attached to the other buildings within the complex. It was a former workshop and stores of kitchen and furniture manufacturer. In the past, the building had been an “L” shaped, hipped row of terraced dwellings, being two storied with an interconnecting cellar throughout, but at some time, although the building had been converted into its current configuration, the external features remain mostly the same.

The whole building was constructed from brick, with pitched roofs and dormers covered in slates, showing how the externally configuration of the original roof layout had been. Within the overall roof, there were two flat roof sections, and nine pitched dormers in total, eight along the northern elevation, and a ninth at the north-western corner, but none of the roof voids were insulated or heated.

Attached both internally and externally to the north-western corner of the main building, was a single storied entrance extension. This was square building with a brick base and a PVC upper frame and glass windows, both in the walls and the sloping roof.

At some point in time, an extension had been added to the complex, and was connected both internally and externally to the north-western corner, again constructed from brick, and was also two storied with two sloping separate slate covered roof sections, and uninsulated roof voids.

The building had not been used for some time, and although, the building was reasonably sound overall, it was neither heated nor insulated, and would be extremely damp, draughty and cold throughout most of the year, and therefore the main building and its' entrance extension were both deemed unsuitable for either daytime roosting bats, or breeding bats. Also, as frost and inclement bad weather was very likely to penetrate the interiors of the building in the colder months, it did not offer the optimum humidity, and constant low temperatures that are required for hibernating bats, and therefore it was judged to be of very low bat roost suitability, (refer to **figs 3, 4, and 5 and photos 1 to 20, 27 to 30, 33 to 39, and 41 to 54**).

There were potential bat access points however, and these were:

- Positioned along the southern pavement of Church Steet West, adjacent to the main building's northern elevation, at floor level, were two large holes where cellar ventilation had once been, these vents had now been closed off, and offered no bat suitability, (refer to **figs 3, 4 and 5 and photos 5, and 8 to 10**).
- There was an external fire escape connecting the cellar to Church Street West along the northern elevation of the main building, at some time this had been completely boarded up and now offered very low roosting suitability, (refer to **figs 3, 4 and 5 and photos 6 and 7**).
- There were several broken windows, the first of these were part way along the western elevation, another at ground floor level in the central southern elevation, and others in the eastern part of the southern elevation. All of these were internally boarded up however there were gaps between the boarding and the glass, and all of these were carefully surveyed, as

were the walls beneath them all, both internally and externally, but neither bat droppings, invertebrate prey remains, nor any urine or fur staining found, and therefore all of these were deemed to be of low bat roosting potential, (refer to **figs 3, 4 and 5** and **photos 18, 36, 37, 38 and 42**).

- High up on the western elevation, there was a hole in the wall where a drain pipe exited, however this hole was surveyed using close-focus binoculars, whilst the wall and floor beneath were surveyed by eye, but neither droppings, urine staining, or any other evidence of bat usage of the hole was found, (refer to **figs 3, 4 and 5** and **photo 19**).
- Positioned at first floor level in the southern elevation was a hole in a window frame, where a ventilation fan had once been placed, and had now been removed, but after inspection of the remaining hole and the wall around it using close focus binoculars, the hole was found to be internally meshed, and therefore offered no potential bat access and therefore was of low suitability as a bat roost, (refer to **figs 3, 4 and 5** and **photos 35 and 41**).
- A roof slate was missing at the upper south-eastern corner of the roof, again an inspection of this using close focus binoculars found neither bat droppings, any invertebrate prey remains or urine staining, nor was there any evidence in the form of fur grease staining found around the area left by the slate, or on the roof around the hole, or on the wall beneath, (refer to **figs 3, 4 and 5** and **photo 42**).
- A few of the slates had lifted at the eastern end of the central bay roof, and the resulting small hole passed through the roof into the roof void beneath, but a careful look internally within the roof void, around the hole both internally and externally, and around the slates externally, but neither bats themselves, nor any droppings or any other sign of bat usage were found, and therefore the hole was deemed to be of low bat roosting suitability, (refer to **figs 3, 4 and 5** and **photos 51 and 52**).

The Showroom

The showroom was positioned along the western site boundary, and was connected to the main building, both internally and externally along its south-eastern elevation. It was a newly constructed building being built entirely from brick, with a pitched roof covered in corrugated sheeting mounted upon steel trusses and purlins, with no roof void, but with a first floor mezzanine floor office at its northern end.

The building was in daily use as both a showroom and an office, and was fully heated and insulated, being well-maintained with sound brickwork, doors, roof and gables. As such it was judged to be of low bat roosting suitability, (refer to **figs 3, 4 and 5** and **photos 21 and 33**).

There was a potential bat access point however, and this was:

- Positioned centrally in the south-eastern roof was a circular metal ventilation pipe, topped by a triangular hood above with open sides. However, a close examination of the pipe and the open sides found the inside to be totally meshed, and offered no potential access for bats, and therefore it was judged to be of low bat suitability, (refer to **figs 3, 4 and 5** and **photos 21 and 23**).

The Loading Bay Shed.

Attached internally and externally to both the central southern elevation of the main building, and the western hipped building, was a single storied loading bay shed. This was rectangular in shape, constructed from brick with a large loading bay door in the southern elevation. Its slopping roof was covered in corrugated metal sheeting, but with neither roof void or insulation.

As the roof sloped in a southerly direction, the part of the wall above the brickwork was covered in

corrugated steel sheeting that went upwards to the underside of the roof sheeting.

The shed was in regular use, and in reasonable condition, and all parts were unheated, uninsulated, and would be draughty and cold, and affected by frost and inclement weather throughout most of the year, and therefore it was deemed unsuitable for either daytime roosting bats, breeding bats, or hibernating bats, thus making the loading bay to be of very low suitability, (refer to **figs 3, 4 and 5** and **photos 34 to 41**).

There were potential bat access points however, and these were:

- There were several gaps between the various parts of the metal sheeting where they had warped, and each gap was searched using an endoscope, and also the walls below the sheeting, both internally and externally, were visibly searched, but neither bat droppings, invertebrate prey remains, any urine or fur grease staining was discovered, and therefore all of these gaps were judged to be of low bat suitability, (refer to **figs 3, 4 and 5** and **photos 34, 39 and 41**).

Neither current or historical evidence of roosting bats was detected in, on, or around, any part of the three targeted buildings, either internally or externally. Nor was there any evidence of previous use by roosting bats detected anywhere else within the site.

Although there was some bird activity during the survey, none were seen exhibiting any type of current nesting behaviour, nor was any evidence found, to suggest that any part the buildings, or anywhere else within the overall site, had been used historically by either nesting or roosting birds. It was also thought that due to time of year, most birds would have already ceased breeding, and their young would have fledged and dispersed, (*Refer to **Appendix 1***).

3.2.2 Trees and Shrubs.

Bar for a few spindly trees growing out of the gutters on the main building, there were no other trees or shrubs growing within the actual site boundaries, however there were some trees and shrubs growing within the neighbouring plot of land beyond the western boundary of the site, and the nearest of these were searched, and none were found to have any lifted bark, canker damage, any cracks, or holes suitable for roosting bats, and as such, all were judged to be Category 3 (of negligible value for roosting bats) in accordance with **Appendix 4**.

It was thought likely that some of these trees and shrubbery along this boundary, could be used by nesting birds during the nesting season, and although there was some bird activity in and around the area, no active nests were found, and it was also surmised that due to the time of year, most birds will have ceased to breed, and their young will have fledged and dispersed.

3.2.3 Foraging Potential and Alternative Bat Roost Potential.

The site was in a suburban area located close to the center of Radcliffe, and the nearby habitat consisted mainly of housing with their own gardens, together with some industrial buildings, retail buildings, also with some with trees and shrubs growing around them.

To the north of the site across Church Street West were a large mixture of terraced dwellings, retail outlets, and the Ark Independent Methodist Church, together with the buildings and grounds of Radcliffe Leisure Centre, with areas of pasture beyond that further north, and through which flowed Bolton and Bury Canal, in a rough east to west direction.

The building and grounds of Radcliffe Independent Methodist Church lay to the north-east of the site, close to the Radcliffe Station and its car park, with the Bury to Manchester Metrolink, running in a rough north-west to south-east orientation, with a large number of trees and shrubs growing adjacent to both sides of the raised tracks.

To the north-west, west, and south-west of the site, were further lines of housing and shops, with the main Radcliffe shopping area to the west, with Radcliffe Primary Care Centre and its car parks, with a large amount of trees and shrubs growing around its western end northern boundaries, to the north-west of the site. Further to the north-west was The Parish of St Thomas and St John Church, with numerous trees and shrubs growing both within the church grounds, and also in the nearby vicinity.

The tree-lined River Irwell flowed from the east before bending in a south-westerly direction to the south of the site, and with a mixture of dwellings and some industrial buildings further south, with a few trees and shrubs growing amongst them. Coronation Park with its amenity greenspace, paths, playing fields and tree-lined pathways stretched in both a southern and eastern direction, and which also also contained a couple of small ephemeral ponds.

To the north-east across the Metrolink tracks were the Festival Gardens, containing tree-lined pathways and bordered by shelterbelts of mature trees, with lines of terraced dwellings to the east, with a large expanse of moorland scrub containing two large reservoirs to the north-east. Whilst Radcliffe Waste Recycling building was positioned to the east, surrounded by further areas of moorland scrub, and with a few small ponds within it.

In accordance with the “Bat Survey, Good Practice Guidelines” (Bat Conservation Trust 2016), it says, “A structure with one or more potential roost sites that could be used opportunistically by individual bats, could be classed as roosting habitat. However, if these potential roost sites do not provide enough space, shelter, protection, appropriate conditions, and/or suitable surrounding habitat to be used on a regular basis, or by large numbers of bats (i.e., unlikely to be suitable for maternity or hibernation), then they are of low bat roost suitability”, (Refer to **Appendix 2**).

The three targeted buildings all fitted these criteria, and as there were no really large areas of woodland, or large bodies of open water in the nearby vicinity, the local area overall, was assessed to offer only low to moderate suitability for foraging bats, primarily pipistrelle species, but it was thought that small numbers of other species could be present.

It was considered that other buildings, especially dwellings, in the surrounding area could offer greater potential as bat roosts, as bats favour tall heated buildings whilst breeding.

During the survey, although a few birds were observed around the site, none were seen showing any current roosting or nesting behaviour, and it was also thought that most birds will have ceased breeding for the 2023 nesting season, and their young will have fledged and dispersed.

4. Conclusions.

4.1 In summary, during the current surveys undertaken on 21st October 2023, neither current or historic evidence of roosting bats was found in any part of three buildings, or elsewhere within the overall site.

4.2 The main building and its entrance block were in a poor condition, and they were no longer in use, nor had they been used for some time, however, the loading bay building was still being used. However, all of these buildings were unheated, uninsulated and damp and draughty, and thus all were deemed to be unsuitable for breeding bats. Also, as frost and bad weather was likely to penetrate the interior of the buildings in the colder months, it was felt that none of the buildings offered the optimum humidity, and stable low temperatures that are required for hibernating bats. Therefore, it was concluded that these buildings were deemed to be of low bat roosting suitability, (refer to **Appendix 2**).

4.3 The showroom building was in continuous use and in excellent condition, being well maintained, heated and fully insulated. However, the building was deemed to have very low bat roosting potential, (refer to **Appendix 2**).

4.4 None of the trees and shrubs growing out of the gutters of the main building, nor those close to the western site boundary offered any cracks, canker damage, lifted bark, or holes, that could be used by roosting bats of any species, and therefore, they were all concluded to offer low bat roost suitability, (refer to **Appendix 2** and **4**).

4.5 The adjacent habitats had the potential to support only low to moderate numbers of foraging common pipistrelles, but large numbers of other species of bats was unlikely. It was concluded that since there is currently *no evidence* of the presence of bat roosts within any part of the site, that the proposed development of buildings within the site, and the subsequent development of the whole site, will not have significant implications on the population status of local bat species. There will not be requirement for an EPS mitigation licence (as issued by Natural England) but as a measure of best-practice, precautionary measures should be applied as described in section 5 below.

4.6 It was also concluded that since no current evidence of roosting bats, had been found during the preliminary survey and assessment carried out on 21st October 2023, then a preliminary daylight evidence and opportunity bat survey and assessment, was considered sufficient to assess the site at this time of year, (refer to the 'Bat Worker's Manual' (JNCC 2004) and 'Bat Surveys – Good Practice Guidelines' (BCT 2016), paragraph 8.3.4).

4.7 Since bats, particularly pipistrelles, are opportunistic, an absence of roost evidence at present does not preclude the low possibility of small numbers of bats, using any of the targeted buildings occasionally in the future, and/or at other times of year. It was considered that the likelihood of a significant roost (such as a maternity roost) being established as very unlikely, with lone and/or transient roosting likelihood being negligible.

4.8 It was understood that there may be some site clearance work carried out during the planned development, but that this will be kept to a minimum, and that the trees and shrubs beyond the western site boundary, would probably be mostly unaffected by the work. Also, as the planned development does not drastically alter the footprint of the site, and, as bats use linear features such as lines of trees or walls, as foraging, navigating, and commuting routes, it was concluded that any small loss of the habitats, and any future development works on the site, would not affect the overall foraging or commuting potential for bats in the area.

4.9 All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended) while they are breeding. There was potential for the shrubbery and hedgerows around the sites' perimeter, to be used by birds for both roosting and nesting purposes, but no evidence of nesting activities were found, and it was also thought that due to time of year, most birds would have already ceased breeding and their young would have fledged and dispersed, (Refer to **Appendix 1**).

5. Recommendations.

5.1 The proposed changes to the site as laid out in the planning application can commence if the following mitigation measures are adhered to.

5.2 The aim of mitigation is to ensure that any work is carried out in a manner that avoids harm, or significant disturbance to bats, also, to create new enhanced roosting opportunities for bats, both during and after the development. However, a key issue in successful mitigation measures, is the scheduled timing of the works. Ideally, all parts of the targeted buildings, (not considered suitable for hibernation), especially the roofs, should be worked on in winter to avoid the possibility of bats moving in, and using the buildings as spring, summer and/or autumn roosts after the survey. The safest period will be from the first hard frosts, normally mid-December, until mid-March, although this could be earlier in a really warm spring, or later in a cold spring.

5.3 As it is likely that parts of the individual buildings, may be worked on at different times, it will be very unlikely though, that roosting bats will be disturbed. It is recommended that work starts as soon as possible after this survey, and that any remaining ridge tiles, slates or sheeting over walls,

be carefully removed by hand, the ridge and edge tiles, and copingstones are the features most likely to harbour potential for the support of roosting bats.

5.4 Although the whole complex has low bat roosting suitability, it is recommended that if the building and development work is delayed until the middle part of 2024, or beyond, then further surveys may be required, including a suitable number of evening bat emergence surveys and a possible dawn re-entry survey. Also, if more than 12 months' elapses between this survey, and any commencement of building work, then the surveys must be repeated, and these need to be carried out under weather conditions suitable for normal bat activity, and when bats are fully active (May to September but is weather dependent).

5.5 As a measure of best practice and in accord with a key principle of National Planning Policy Framework (2012), it is recommended that the re-development scheme for this site, incorporates biodiversity enhancement measures, and an appropriate measure will be the installation of some Schwegler 1FD bat boxes. These can be attached to any new buildings within the proposed complex, or to any surrounding suitable trees. In connection with the future development proposals, it is recommended that these measures are implemented as soon as possible after the survey, to maximise the opportunities for wildlife at the site and obtain net gains in biodiversity, (refer to **Appendix 7** for details).

5.6 There was potential for both roosting and nesting birds around the site perimeter, and although there was some bird activity noticed, there were no current signs of nesting behaviour observed during the surveys. It is therefore recommended that where possible, the perimeter trees and shrubs growing to the west of the site, be left untouched to encourage future nesting, and to maintain navigation, foraging and commuting routes for bats, and this would also increase net biodiversity in the overall site.

5.7 It must be remembered however that it is an offence to disturb active birds' nests. It is recommended therefore, that before any commencement of building or demolition work, that a careful survey looking for any evidence of nesting birds, is carried out. If evidence of an active bird's nest is detected, then the nest must be left undisturbed, until it is appropriately confirmed that the young birds have fledged. It is recommended therefore, to reduce any nest disturbance, that no activity involving people, or their equipment, is to be carried out within a 3m radius of active nests. If there is any doubt, please refer to the consultant. This guidance is applicable during the bird breeding season which typically extends from March to August inclusive.

5.8 It is highly recommended that some wooden nest boxes are erected around the site, amongst the shrubbery or upon buildings, and these will be a mixture of open fronted and hole fronted boxes, erected to mitigate for potential loss of any nesting opportunities, during, and after the development. Also, to encourage and enhance future colonisation and nesting by bird species to achieve a net gain in biodiversity, (refer to **Appendix 8** for details).

5.9 Any future vegetation clearance should only be carried out between September and February inclusive, (i.e., outside the bird nesting season), unless it is confirmed by a suitably experienced ecologist that no active nests are present. If, however, should the removal of any of the hedgerows and trees around the boundaries take place during the early part of the nesting season, then the shrubbery should be removed from the site immediately following the felling. Failure to do so could provide potential nest sites, if left in place throughout the rest of the bird breeding season.

5.10 It is recommended that before any vegetation, or excess building materials are pruned, disturbed, or removed from site, during building works, then this should be undertaken outside the hedgehog hibernating months, November to mid-March. If this is not possible, then a suitably experienced ecologist must be present to oversee all vegetation removal, to ensure that no hedgehogs (*Erinaceus europaeus*) are disturbed whilst hibernating (Hedgehogs are a UK BAP Priority species).

5.11 It is also recommended that at least one Eco-plate Hedgehog Box should be positioned in the site, in an appropriate location, to maximise the opportunities for hedgehog within the site, (refer to **Appendix 9** for details).

5.12 No outside hole or pit should be left uncovered over-night, to ensure that wildlife such as amphibians or hedgehogs are not trapped, and unable to escape. Alternatively, a broad wooden plank or similar can be placed in the excavation to allow animals to escape. A scaffolding board pitched at a maximum 45° angle would be ideal. Additionally, any pipework left on site that is greater than 150 mm in diameter should to be planked off at the ends.

5.13 During the development, all excavations, and piles of pipework and similar, should be checked first thing each morning, prior to the start of works that day. Any animals found during these inspections, should be allowed to escape, and move off, or be carefully removed, and placed within suitable habitat cover before site works commence for the day.

5.14 Close boarded fences with concrete bases, or brick walls, are barriers to animal movement, and It is recommended, that any new perimeter fences installed along the boundaries are not to be sealed at their bases. Where possible, hedgerows are to be used instead, with timber post and wire fencing also serving to enforce boundary lines, without prohibiting wildlife movements. If any boarded fences are required, it is recommended that there is a 3 – 5cm gap between the wood and the ground (greater in some locations and less in others is not a problem) so that wildlife such as hedgehog and amphibians can pass into and out of the garden.

5.15 Outdoor lighting is typically a deterrent to wildlife, especially bats and nesting birds, it is therefore recommended, that any future outdoor lighting, installed during the proposed development, be screened, hooded, or positioned low at bollard level, so that it does not illuminate the roof or eaves, or nearby trees and shrubs.

5.16 To enhance the site's value for wildlife and general biodiversity, it is recommended that tree planting is planned as part of the development, and the trees used are British native trees as far as is possible. These trees are more likely to attract insects and are therefore beneficial to foraging bats and other wildlife. Suitable species include: Hawthorn, Rowan, Wild Cherry, Guelder Rose and Crab Apple. These have been chosen for their attractive blossom and fruits. Oak, Ash and Willow species are recommended away from buildings and drains.

5.17 It should be remembered that bats are occasionally found in the most unexpected places. If any bats are found during unsupervised work, work must be stopped immediately, and either the

consultant (07745 268815), or the Bat Conservation Trust (0345 1300 228), or Natural England (01270 754 00, should be notified, (refer to **Appendix 5** for details). **Failure to do so would be a criminal offence.**

6. References.

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7. Surveyors Qualification.

The surveyor Mike Fisher is a holder of:

- Natural England Class Licence Registration Number: 2015-10595-CLS-CLS, this is the Bat Survey Level 2 Class Survey Licence WML CL18.
- Natural England Class Licence Registration Number: 2015-10592-CLS-CLS which is the Volunteer Bat Roost Visitor Level 1 Class Survey Licence WML CL15.
- The surveyor also has a licence to disturb and take bats for scientific, educational, or conservational purposes by Countryside Council for Wales (Licence Number S085859/1)

He was assisted on the survey by Dylan Platt who is experienced in the use of heterodyne bat detectors and bat surveys

8. Plans & Photographs.

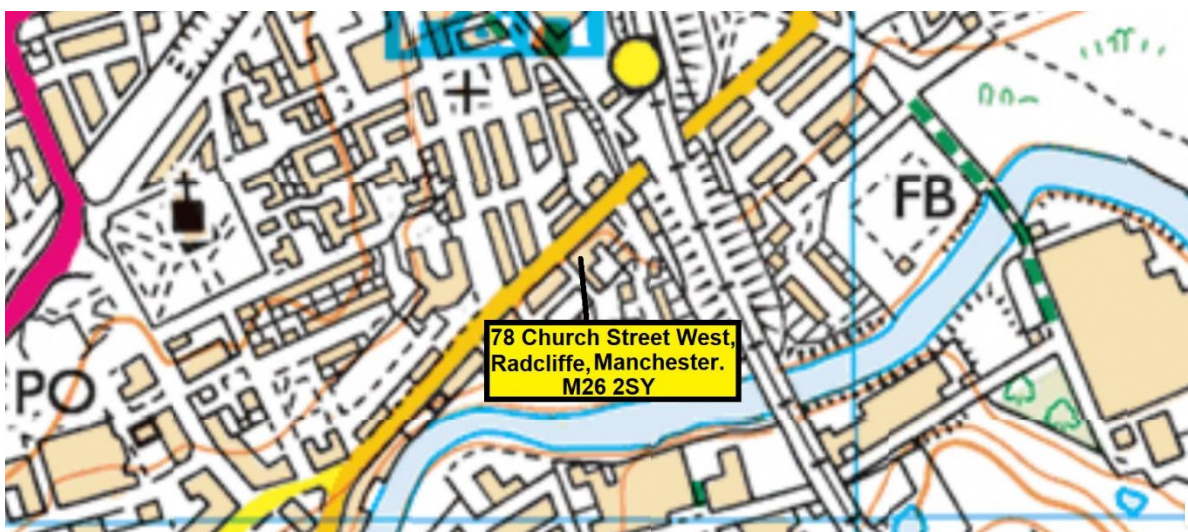


Fig 1 - The Site Location.



Fig 2 – Google Plan.

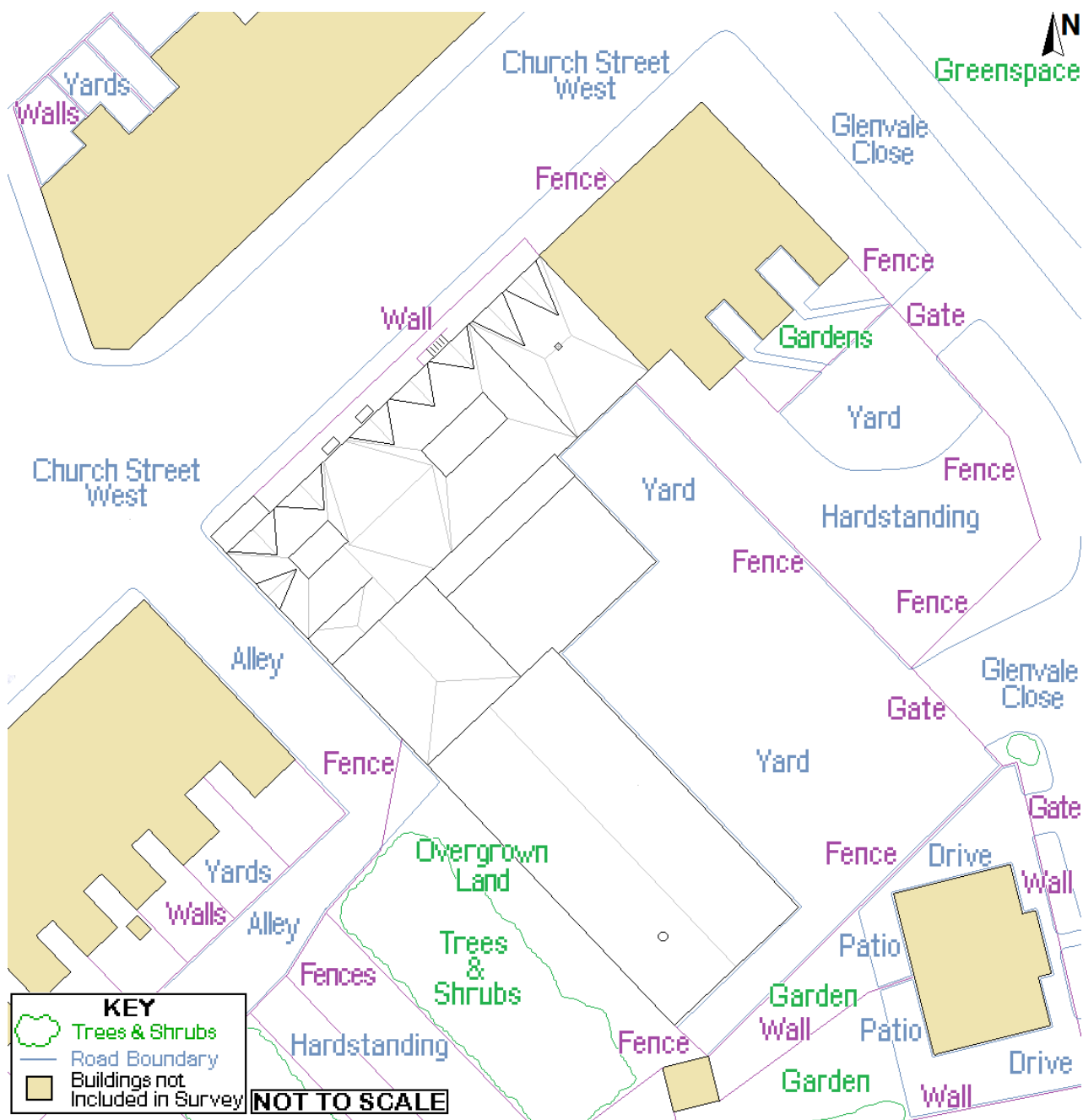


Fig 3 – Main Area Plan.

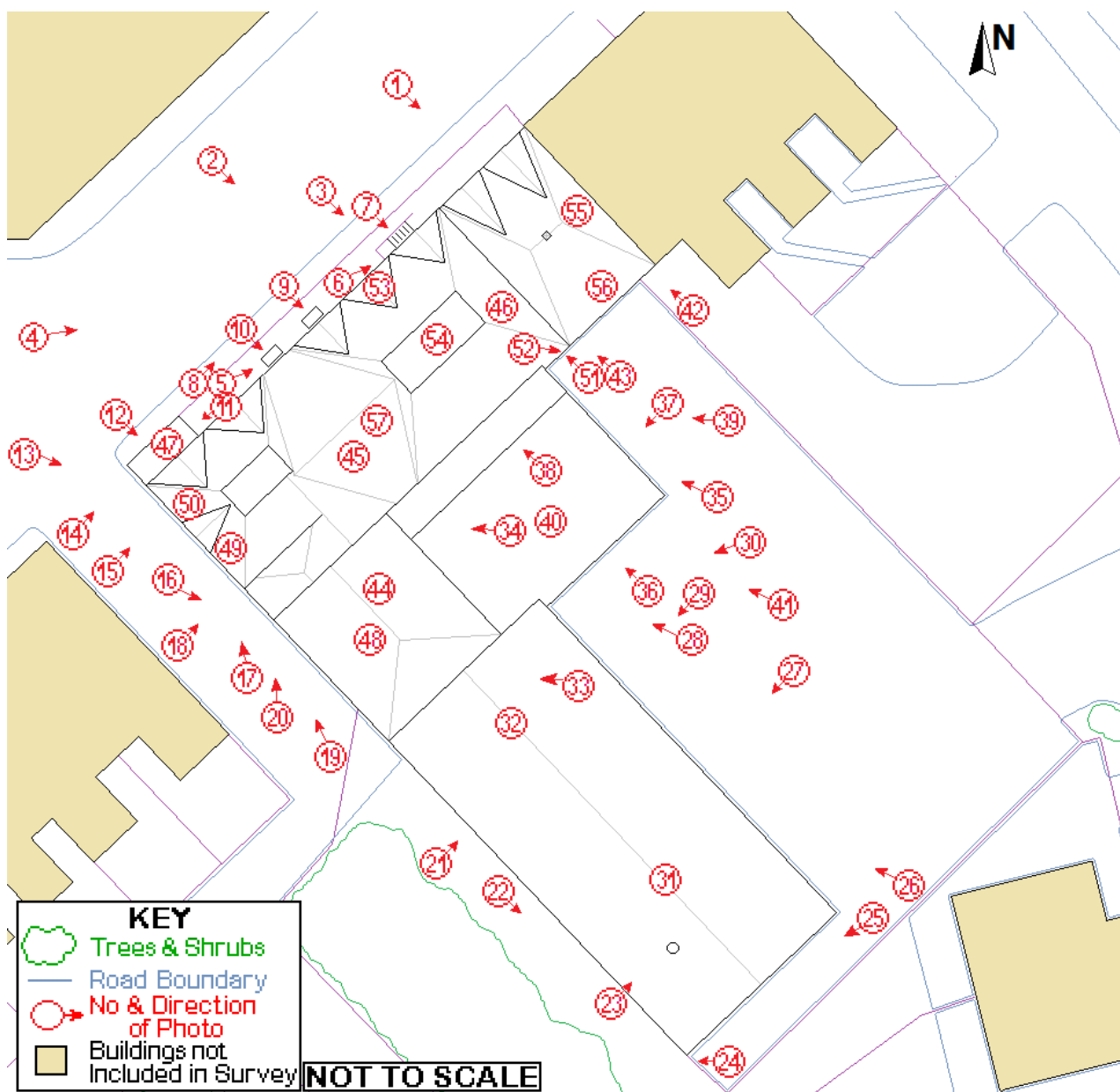


Fig 4 – Plan of Photographs.

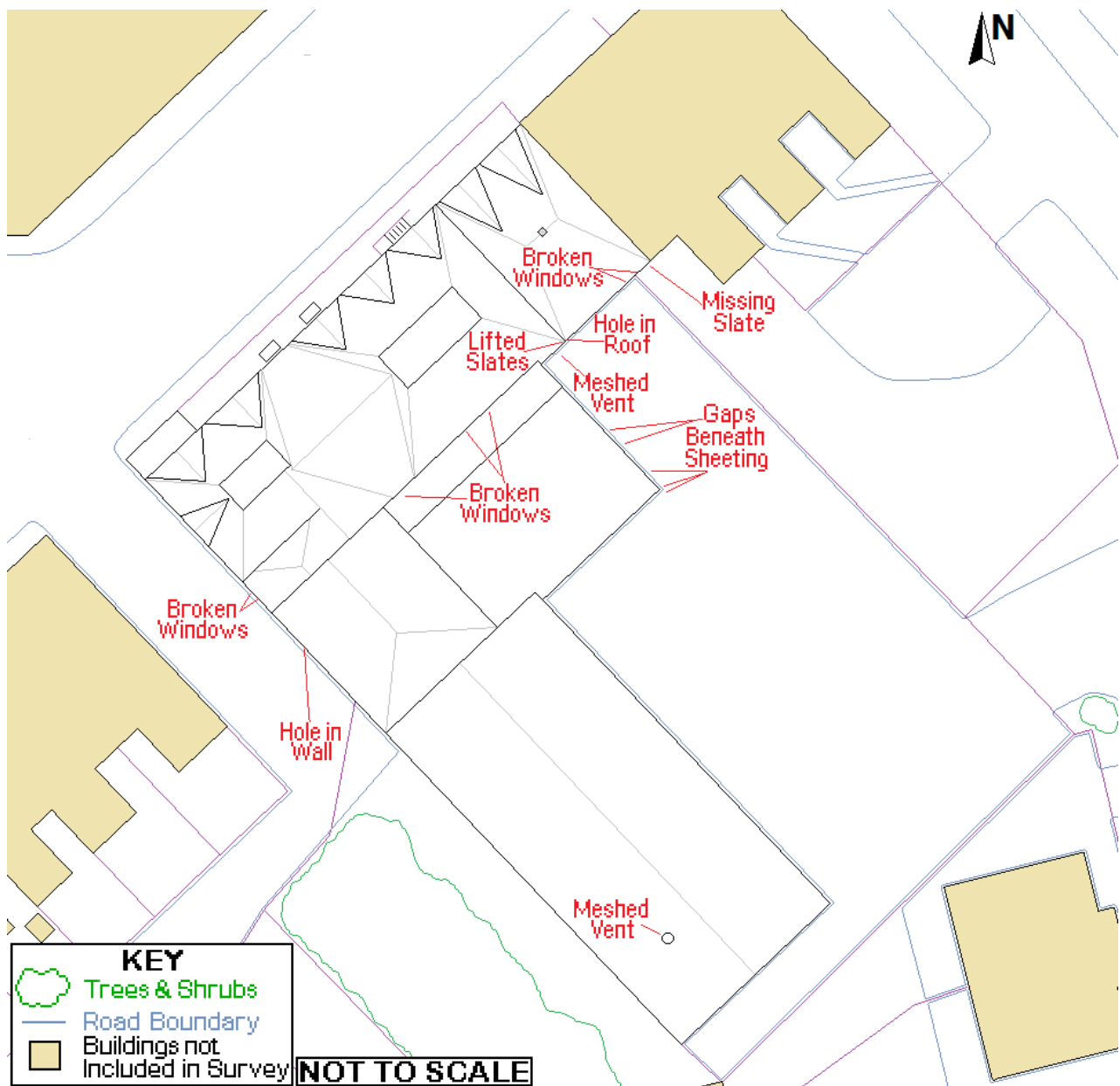


Fig 5 – Plan of Preliminary Evidence and Opportunity Survey and Assessment Results.



PHOTO 1
North-western Elevation



PHOTO 2
North-western View



PHOTO 3
Upper Northern View of Dormers



PHOTO 4
South-western Elevation



PHOTO 5
View Along Lower Northern Elevation



PHOTO 6
View of Closed Basement Entrance



PHOTO 7
Entrance to Cellar



PHOTO 8
Northern Elevation



PHOTO 9
North-western Basement Vent



PHOTO 10
South-western Basement Vent



PHOTO 11
Eastern Elevation of Entrance



PHOTO 12
Northern Elevation of Entrance



PHOTO 13
South-western Corner



PHOTO 14
South-western Elevation



PHOTO 15
Upper South-western Elevation



PHOTO 16
View Along Western Elevation



PHOTO 17
View of Upper Western Elevation



PHOTO 18
Central Western Elevation



PHOTO 19
South-western Corner



PHOTO 20
Upper South-western Elevation



PHOTO 21
View Along Western Elevation of Showroom



PHOTO 22
Lower Showroom Western Elevation



PHOTO 23
View of Vent in Showroom Roof



PHOTO 24
Southern Corner of Showroom



PHOTO 25
Southern Elevation of Showroom



PHOTO 26
South-eastern Corner of Showroom



PHOTO 27
Eastern Elevation of Showroom



PHOTO 28
View of North-eastern Corner of Showroom



PHOTO 29
North-eastern Elevation of Showroom



PHOTO 30
Eastern View of Showroom Entrance



PHOTO 31
Underside of Main Showroom Roof



PHOTO 32
Underside of Showroom Office Roof



PHOTO 33
South-western Elevation of Main Building



PHOTO 34
South-eastern View of Hipped Joint



PHOTO 35
Southern Elevation of Main Building



PHOTO 36
Southern Elevation of Shed



PHOTO 37
Upper Eastern Elevation of Shed



PHOTO 38
Part Southern Elevation of Main Building



PHOTO 39
Eastern Elevation of Shed



PHOTO 40
Underside of Shed Roof



PHOTO 41
Central Southern Elevation of Main Building



PHOTO 42
Upper South-eastern Corner



PHOTO 43
Part Upper Central Southern Roof



PHOTO 44
Entrance to Basement



PHOTO 45
Western Basement Roof



PHOTO 46
Eastern Basement Roof



PHOTO 47
Underside of Entrance Roof



PHOTO 48
Underside of South-western Stores Roof

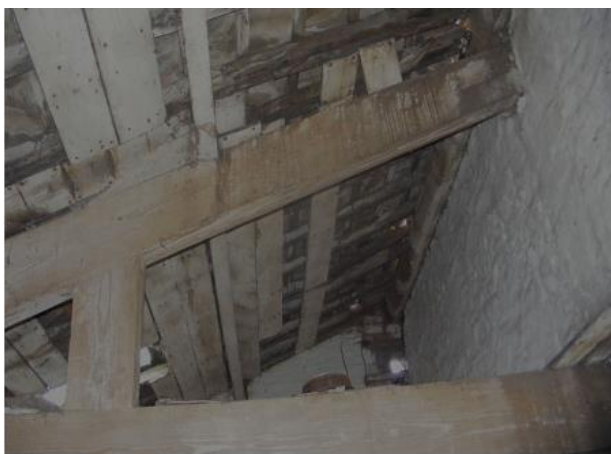


PHOTO 49
Underside of Stairwell Void Roof



PHOTO 50
Underside of Office Void Roof



PHOTO 51
Eastern End of Central Bay Roof



PHOTO 52
Underside of Eastern End of Central Bay Roof



PHOTO 53
Underside of Typical Dormer Roof



PHOTO 54
Underside of Central Bay Void Roof



PHOTO 55
Underside of North-eastern Corner Roof



PHOTO 56
Underside of Eastern Roof Void



PHOTO 57
Underside of South-eastern Corner Roof

30th November 2023
Mike Fisher, Bat Worker
Holder of Natural England Bat Roost Licence

Disclaimer.

All reasonable effort has been taken to ensure an accurate assessment of the birds and bats at this site. The absence of recorded presence or sign should not be taken as an absolute guarantee that a site is not being used by a particular species. There is also no guarantee that any particular species will not use the site at any time in the future. Survey results for both bird and bat activity may be weather or seasonally dependent. Any interpretation of legislation is based on our understanding and experience of the law. The relevant statutory authority can provide a more definitive interpretation.

This report has been prepared by Echo Calls Bat Surveys with all reasonable skill, care and diligence, within the terms of the Contract with the Client.

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APPENDIX 1: Synopsis of Relevant Legislation.

Bats and the Law

In Britain, all bat species and their roosts are legally protected, by both domestic and international legislation.

This means you will be committing a criminal offence if you:

Deliberately capture, injure, or kill a bat.

Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats.

Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time).

Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat.

Intentionally or recklessly obstruct access to a bat roost.

Licensing

Licenses to permit illegal activities relating to bats and their roost sites can be issued for specific purposes and by specific licensing authorities in each country. These are sometimes called 'derogation licenses' or 'European Protected Species' licenses, and are issued under the Habitats Regulations. It is an offence not to comply with the terms and conditions of a derogation Licence. If you carry out work affecting bats or roosts without a Licence, you will be breaking the law.

Who needs to take particular note of the legislation?

Property owners/householders who have a bat roost in their property.

Woodland owners, arboriculturalists and foresters.

Pest controllers.

Planning officers & building surveyors.

Architects, property developers, demolition companies, builders, and roofers.

Which legislation is relevant for bats and roosts?

In England and Wales, the relevant legislation is the Wildlife and Countryside Act (1981) (as amended); the Countryside and Rights of Way Act, 2000; the Natural Environment and Rural Communities Act (NERC, 2006); and by the Conservation of Habitats and Species Regulations (2010).

In Scotland, the key legislation that applies is the Conservation (Natural Habitats &c.) Regulations 1994 (as amended).

In Northern Ireland bats are listed under Schedule 2 of the Conservation (Natural Habitats etc.) Regulations (Northern Ireland) 1995 and in the Republic of Ireland, under Schedule 5 of the Wildlife Act 1976 and Schedule 1 of the European Communities (Natural Habitats) Regulations 1997.

Defences include:

Tending/caring for a bat solely for the purpose of restoring it to health and subsequent release

Mercy killing where there is no reasonable hope of recovery, (provided that person did not cause the injury in the first place - in which case the illegal act has already taken place).

Penalties on conviction –

People committing bat crimes can face six months' imprisonment and/or unlimited fines. Additionally, any profits made as a consequence of not following lawful process can be confiscated and items used to commit the offences such as vehicles, plant or machinery can be forfeited.

Under the National Planning Policy Framework (2012), it is recommended that the re-development scheme for any site, protected species, such as bats should be a material consideration in planning applications. This has implications for bat foraging areas as well as their roosts.

The National Planning Policy Framework (NPPF) places a clear responsibility on Local Planning Authorities to conserve and enhance biodiversity and to encourage on the consideration that should be given to Protected Species where development may affect them.

The Office of the Deputy Prime Minister (ODPM) Circular 06/2005 provides administrative guidance on the application of the law in relation to planning and nature conservation. This is supported by a guide to good practice entitled 'Planning for Biodiversity and Geological Conservation: Building in Biodiversity' in which paragraphs 5.34 and 5.35 identify that species such as bats are highly dependent upon built structures for survival and that roosts can be easily incorporated into existing and new developments/conversions to benefit these species.

Breeding Birds

All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended), whilst they are actively nesting or roosting. Section 1 of this Act, makes it an offence to kill, injure or take any wild bird, and to intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built. It is also an offence to take or destroy any wild bird eggs.

Hedgehogs.

Hedgehogs are protected by British law under Schedule 6 of the Wildlife and Countryside Act 1981, making it illegal to kill or capture them using certain methods. Similar protection exists in Northern Ireland under Schedule 6 & 7 of the Wildlife Order 1985. They are also protected in Britain under the Wild Mammals Protection Act (1996), prohibiting cruelty and mistreatment.

They're listed as a Species of Principle Importance in England under the Natural Environment and Rural Communities (NERC) Act 2006 Section 41, in Wales under the Environment Act 2016, and in Scotland under the Nature Conservation Act 2004. Similarly, hedgehogs are on the Priority Species List for Northern Ireland.

APPENDIX 2: Bat Roost Suitability

Table 4.1 Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.

Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	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.
Low	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 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). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.^c	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	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 lines 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.
High	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 ^a and surrounding habitat.	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, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

**In accordance with Table 4.1 of
Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition) (Collins. J. (ed) 2016)**

APPENDIX 3: Bat Survey Timings and Frequency.

Table 7.1 Recommended timings for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability	Moderate roost suitability	High roost suitability
May to August (structures) No further surveys required (trees)	May to September ^a with at least one of surveys between May and August ^b	May to September ^a with at least two of surveys between May and August ^b

^a September surveys are both weather- and location-dependent. Conditions may become more unsuitable in these months, particularly in more northerly latitudes, which may reduce the length of the survey season.

^b Multiple survey visits should be spread out to sample as much of the recommended survey period as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more, unless there are specific ecological reasons for the surveys to be closer together (for example, a more accurate count of a maternity colony is required but it is likely that the colony will soon disperse). If there is potential for a maternity colony then consideration should be given to detectability. A survey on 31 August followed by a mid-September survey is unlikely to pick up a maternity colony. An ecologist should use their professional judgement to design the most appropriate survey regime.

Table 7.2 Recommended timings for presence/absence surveys.

Survey type	Start time	End time
Dusk emergence	15 minutes before sunset ^a	1.5–2 hours after sunset ^b
Dawn re-entry	1.5–2 hours before sunrise ^b	15 minutes after sunrise ^c

^a Survey start time should be adjusted on subsequent surveys if bats are recorded already in flight at 15 minutes before sunset on the first survey (or, if only one survey had been planned, this survey may then need to be repeated).

^b The possibility of late-emerging and early-returning species should be considered in setting times for surveys (see Section 3.5).

^c If bats are still in flight 15 minutes after sunrise then ecologists should remain in position until all the bats have entered their roosts.

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey ^a (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. ^b	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn. ^b

^a Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (see Section 5.2.9). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.

^b Multiple survey visits should be spread out to sample as much of the recommended survey period (see Table 7.1) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.

**In accordance with Tables 7.1, 7.2 and 7.3 of
Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition) (Collins. J. (ed) 2016)**

APPENDIX 4: Bat Tree Assessment Criteria

Criteria for Assessment of Trees in accordance with Category 1 to 3 as defined in Table 8.4 of *Bat Surveys: Good Practice Guidelines 2nd Edition* (Hundt, L. 2012).

CATEGORY	DESCRIPTION	CRITERIA
Known or Confirmed	Confirmed roost	Confirmed roost Evidence found that indicates tree/tree features are being used by bats. Droppings found at the base of the tree, below a cavity. Bats heard 'chattering' inside a feature on a warm day or at dusk Bat(s) observed flying from or to a feature.
1*	Very high value	Trees with multiple, highly suitable features capable of supporting larger roosts. Features of particular significance, suitable for high priority roosts such as maternity roosts, used by large numbers of bats, offering conditions that are uncommon or rare in the local area. Features such as large cavities, extensive branch or trunk splits, also including multiple features in the same tree that offer a diversity of opportunities. Features may also include dense ivy.
1	High value	Trees with definite bat potential supporting fewer suitable features than category 1* trees or with potential for use by single bats. Features which provide a more secure form of roost for small groups of bats and individuals, but may still be quite common types of feature, such as small cavities, minor splits or sparse ivy cover.
2	Moderate value	Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats. A tree which on close inspection the potential roost positions are in some way not ideal. They could be upward facing or holes very low down or cluttered by adjacent branches.
3	Low/Negligible value	Trees that have no features which could be used by bats for roosting (Usually young trees).

APPENDIX 5: Planning Considerations

When considering each planning application, the presence of protected species, such as those listed above, is a material consideration which must be fully considered by the Local Authority when granting planning permission. If a licence from Natural England is required, then prior to issuing any planning consent, the local planning authority will need to be satisfied that there is no reason why such a licence would not be issued. Therefore, in reaching the planning decision the local planning authority will need to have regard to the requirements of the Conservation of habitats and Species Regulations 2010.

The three licensing tests given in the Regulations must be considered. In summary, these are that:

1. The development is required for the purpose of:
 - preserving public health or public safety,
 - for other imperative reasons of over-riding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment.
 - to preventing serious damage to property.
2. There is no satisfactory alternative.
3. The proposal will not be detrimental to the maintenance of the population of the species at a favourable conservation status.

All necessary information would need to be provided to the planning authority as part of the planning application in order to address the above tests.

The Natural Environment and Communities Act (NERC Act) 2006 extended the biodiversity duty set out in the Countryside and Rights of Way (CROW) Act to public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity. The Duty is set out in Section 40 of the Act, and states that:

"Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity".

The Duty applies to all local authorities, community, parish and town councils, police, fire and health authorities and utility companies. Section 41 (S41) of this Act (the 'England Biodiversity List') also requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England. This list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40(1) of the Act.

Also, Local Authorities must follow the National Planning Policy Framework (NPPF) which provides guidance on the interpretation of the law in relation to wildlife issues and development. For each development proposal considered by the Local Planning Authority the NPPF states that the authority must aim to conserve and enhance biodiversity. If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.

APPENDIX 6: Bats: What to do should bats be found during building work.

All of the UK's bats and their roosts, are protected by law, (see Appendix 1), so it is important to understand these laws, if you are planning any building or remedial work that may affect or disturb a bat roost. The relevant statutory authority should be initially contacted for advice.

Having bats roosting within a building does not necessarily mean that work cannot be carried out. What it does mean is that the work will need careful consideration, especially in terms of time and materials, so that the area can continue to be used by both bats and people. Therefore, the earlier in the process the bats are taken into account, the less disruption to building plans there will be.

If at any point during either new building work, renovation work, or demolition, one or more bats are found, then all work being undertaken by contractors should stop immediately. All working machinery and contractors should be removed from the area where the bats have been found, and advice sought immediately from one of the following, on how to proceed while causing minimal disturbance to bats.

Advice can either be provided by a professional licensed ecological consultant - Echo Calls Bat Surveys on 07745 268815, the Bat Conservation Trust on 0345 1300 228, or from your Statutory Nature Conservation Organisation (SNCO) , or from Natural England on 01270 754 000.

Depending on the advice given, a licensed bat worker, or suitably qualified Natural England approved representative, will then be sent to site to liaise with the site manager, and Natural England itself. Depending on the advice given, actions will be recommended that may include the safe removal of the bat by the nominated person, only where written or verbal permission has been gained by Natural England.

Works will recommence when Natural England are satisfied that the risk to bats has been removed. If, however, it is determined that the proposed work on site contains more risk to bats than was originally thought, then it is probable that further work will only proceed under a Natural England Development Licence.

If a bat is found under a tile, slate, flashing or any other covering material, work must stop immediately. If the bat does not fly out immediately, then the area around the roost must be carefully covered over, to protect the bat from the elements and further disturbance, leaving a small gap for bats to escape voluntarily. At this point, advice must be sought as mentioned above. The materials used to cover the occupied bat roost must be free from liquid, oil, grease, and other contaminants.

It is recommended that the handling of bats be avoided wherever possible, but if it absolutely necessary, then to avoid a bat being harmed, gloves must be worn whilst handling the bat. It should be carefully caught, placed in a cardboard box with air holes in the lid, and a small container containing water. The box should then be kept in a very quiet, dark area, away from further disturbance, whilst awaiting the arrival of the licensed bat worker, or Natural England approved representative.

Failure to do any part of this could result in a criminal offence.

APPENDIX 7: Bats: Types of Bat Box.

The aim of any mitigation is to ensure that any work is carried out in a manner that avoids harm or significant disturbance to bats, and also to create new roosting opportunities for bats both during and after the development.

Schwegler 1FD boxes are to be erected to larger trees located along the edges of the site. This type of bat box is a “general all-rounder” and is suitable for all types of bats.

These boxes are to be erected as recommended by the Bat Conservation Trust guidelines which state that

- Ideally, erect the boxes facing so they face in different directions, to provide a range of temperature conditions. For example, boxes facing from south-east to south-west allow the sun to fall on each box for part of the day. During very hot days a south-facing box may overheat, but the other boxes should have some shade during the day.
- Bat boxes should be located close to a linear vegetation feature such as a tree line or hedgerow or to lines of buildings. Some bat species use these features for navigation between their roosting site and feeding ground and to avoid flying in open and exposed areas.
- Ensure that tree branches or other items will not impede the bats’ approach to the box – clear away underneath the box so the bats can land easily before crawling into the box.
- Boxes should be erected at a height of approximately 4m above ground level.



Schwegler 1FD Bat Box

This Schwegler 1FD bat box has been developed specifically for smaller bats. The interior and the type and size of the entrance hole match the requirements of smaller species. It features a special layout inside the domed roof, an increased interior height, and two grooved internal wooden front panels with precise spacing between them.

This model has proved highly effective as a nursing area.

Occupants: Small bats such as the Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), Daubenton’s Bat (*Myotis daubentonii*) and Common Long-eared bat (*Plecotus auritus*).

APPENDIX 8: Nesting Birds: Mitigation and Compensation Measures.

Birds are declining throughout the country due to loss of roost and nesting places, and as the development may disturb nesting potential on the site, artificial nests are to be erected to compensate for this possible loss. The erection of artificial nests around the complex, will provide alternative sites for all three species of bird, and make a positive contribution to their conservation.

Making a nestbox suitable for robins and other box builders

What you need

Natural nest holes do not come in standard sizes, so use these dimensions only as a guide. Any plank or sheet of about 15 mm thick weatherproof timber is suitable. However, do not use CCA pressure-treated timber, since the leachates may harm birds. Cut each section as per our plan, which you can download by clicking on the link to the right.

Dimensions

The plan gives measurements for a small and a large box. Use only the first or the second figure throughout. For starlings and great spotted woodpeckers, use the dimensions for the large box; all the others need the small one.

The bottom of the entrance hole must be at least 125 mm from the floor of the nestbox. If it's less, young birds might fall out or be scooped out by a cat. The inside wall below the entrance hole should be rough to help the young birds to clamber up when it's time for them to leave.

Putting it together

Drill drainage holes to the base of the box, and use galvanised nails or screws to assemble. It's always best to leave the box untreated. As it weathers, it will blend into its surroundings. Softwood boxes can be treated with selected water-based preservatives, which are known to be safe for animals, such as Sadolin. Apply it only to the outside of the box, and not around the entrance hole. Make sure the box dries and airs thoroughly before you put it up.

A woodpecker box should be filled with a block of balsa wood, rotting log or wood chips – woodpeckers like to excavate their own nesting cavities.

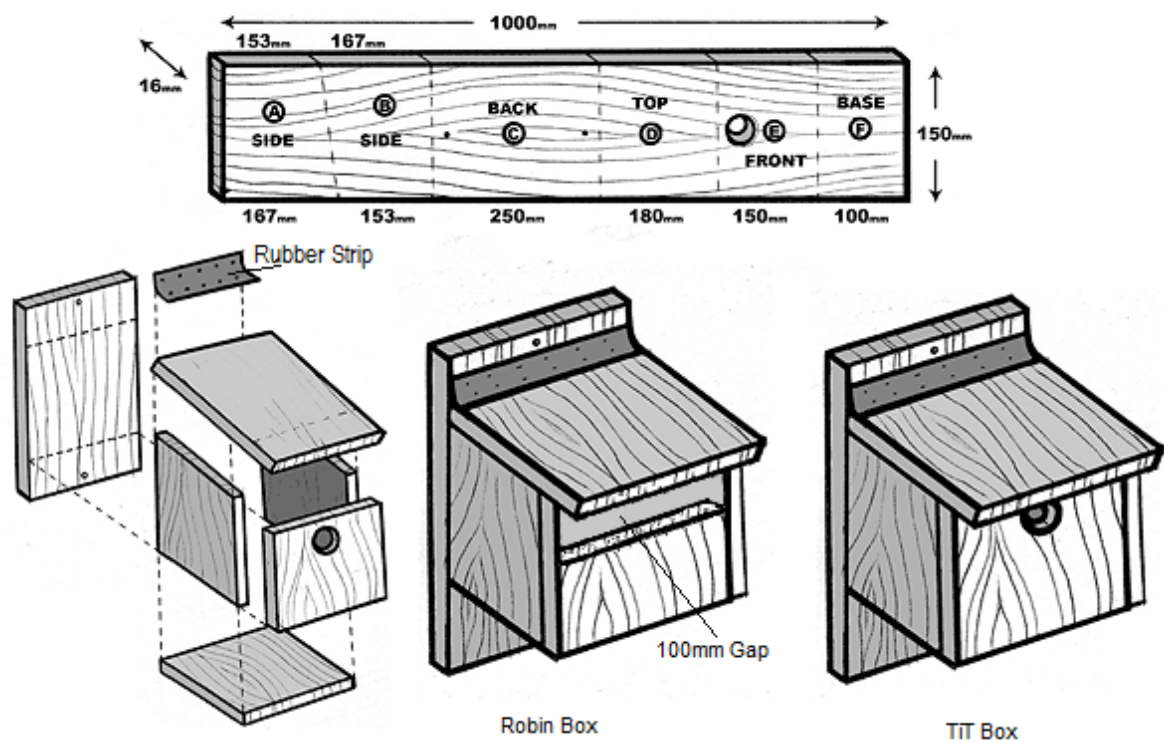
Do not nail down the lid since you will need to clean out the box in the autumn. Attach the lid with a brass or a plastic hinge that will not rust, or hinge it with a strip of leather or rubber (an old piece of bicycle inner tube will do). Fasten it down with a good catch.

How big does the hole need to be?

The entrance hole size depends on the species you hope to attract:

25 mm for blue, coal and marsh tits
28 mm for great tits, tree sparrows and pied flycatchers
32 mm for house sparrows and nuthatches
45 mm for starlings

The small box with a 100 mm high open front may attract robins, or pied wagtails. A wren would need a 140 mm high front panel, while spotted flycatchers and blackbirds prefer a low 60 mm front to the box.



Eco-plate Hedgehog House



Eco-plate Hedgehog House



Specifications			
Width (cm)	Height (cm)	Length (cm)	Tunnel Length (cm)
60	35	46	36

Hedgehogs were once commonly seen in most UK gardens; now however a loss of hedgerows and agricultural intensification has resulted in a 30% reduction in populations in the last ten years. Hedgehogs are an important indicator species, and a decline in their numbers is often symptomatic of a far bigger problem with ecosystem health.

There are many ways that you can help support this species including providing them a home which is predator proof, secure home.

This hedgehog box was designed in collaboration with the Egelstichting (the Dutch Hedgehog protection society). This box is made of Eco-plate, a material similar in density to plywood, but produced from recycled car seats sourced from reputable suppliers, and grown from native stock.

This environmentally friendly material is weather resistant and very durable. The entrance tunnel is hidden inside the house to make it more difficult for predators to reach hedgehogs inside the house.

To make it habitable, part-fill the nest chamber with dried leaves. Place the box in a secluded corner and cover with soil or leaves to boost the chances of the box being used.

It would give a hedgehog daytime shelter between April and October, and will also allow them the space to hibernate during harsh winter months between November and mid-March.

The lid can be easily removed for cleaning, however, do not disturb the box while it is occupied.

APPENDIX 10: Bats and Lighting.

The detailed lighting plan on-Site should be functional and directional and in line with current guidance (BCT and ILP, 2018). Habitat retained, enhanced or planted for roosting, foraging and/or commuting bats will need to be considered within a suitable lighting plan in order to be used by bats. Where designing with bats in mind:

- Light emitting diodes (LED) should be used, as these typically feature no UV component and as a result are less attractive to invertebrates and less disturbing to bats;
- Only luminaires with 0 % upward light ratio should be used and fitted on the horizontal to avoid excessive up-lighting, back lighting and light spill onto boundary hedgerows and trees;
- A warm white spectrum (ideally under 2700 Kelvin) should be used in order to reduce blue light component, therefore reducing the number of invertebrates attracted to the lights;
- Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill;
- The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered, although this has certain drawbacks and should only be used as directed by a lighting professional;
- Column heights should be carefully considered to minimise light spill;
- Any external security lighting should be set on motion-sensors and short (e.g., 1 minute) timers;
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats;
- As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed;
- Where habitat needs to be unlit (e.g., important foraging and commuting corridors/roost sites), illuminance should be below 0.2 lux on the horizontal plane and below 0.4 lux on the vertical plane.