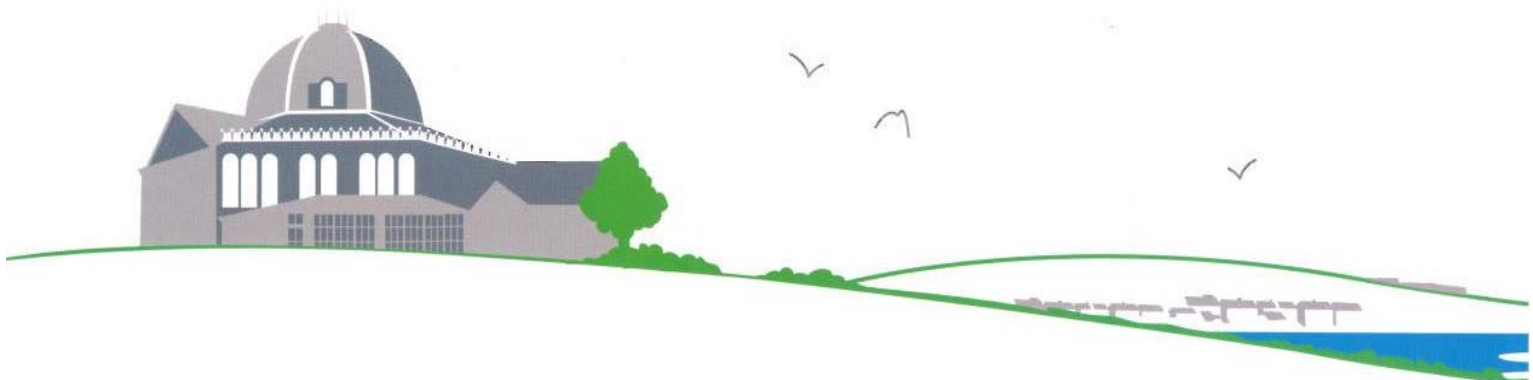




BUROHAPPOLD ENGINEERING

MAYFIELD, MANCHESTER

BAT INSPECTION AND EMERGENCE
SURVEY REPORT -
BUILDING B2 AND CULVERTS B24/B26



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BAT INSPECTION AND EMERGENCE SURVEY REPORT BUILDING B2 AND CULVERTS B24/B26

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This project has been undertaken in accordance with PAA policies and procedures on quality assurance.

Signed: _____



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SUMMARY

Additional bat surveys were undertaken at two locations within the former Mayfield Station. The surveys follow on from studies in 2017 (PAA 2017a), and previously, which indicated a day roost of three to four common pipistrelle bats (*Pipistrellus pipistrellus*) on the southern elevation of B2, and day roosts used by five bats each within culverts B24 and B26. The surveys aimed to inform demolition and development proposals at the site. They entailed emergence surveys of the building referred to as B2 on 23rd July and 17th August 2018, and an internal inspection of culvert B24, conducted on 19th July 2018.

Surveys followed current good practice guidelines published by The Bat Conservation Trust (Collins 2016). The survey programme was led by licensed bat ecologist Hazel Robson MCIEEM, with three competent surveyors. All members of the survey team were appropriately qualified for their assigned tasks, based on the CIEEM competency framework (CIEEM 2013).

Emergence surveys corroborated evidence for a bat roost on B2 near the ramp, but the exact location could not be determined as the roost site may be hidden by the depot ramp which occupies much of the southern wall. Together with previous data for this part of B2, the survey results confirm the presence of a regularly-used, non-breeding summer day roost of up to four common pipistrelle bats in this area.

Culvert B24 contained many crevices that bats could use singly or in pairs for shelter and several locations where cavities extended further into the structure, but no evidence of bats was found. The evidence from emergence surveys is that bats roost within the culvert, and potential for bats to roost here was certainly evident. Thus, the culvert contains a summer day roost for approximately five common pipistrelle bats.

The 2017 activity surveys (PAA 2017b) reported evidence for a day roost of five common pipistrelles within the culvert which needed to be investigated, but safe access to the river at culvert B26 was not possible on the day of the survey. However, video and river survey evidence indicate the internal structure of the culvert may not be suitable for a bat roost of this type. A full internal inspection will be required to ascertain the suitability and/or location of the bat roost within the structure, or whether the bats observed may have arrived from off-site. At present, no works are proposed inside B26.

In total, eight bat roosts have been identified in buildings B1, B2 (x3), B6, B23, B24 and B26 at Mayfield. All roosts identified would be classed as 'low status' following the guidance in Mitchell-Jones (2004) because they are of individual to low numbers of bats of common species used in summer and not maternity sites.

For the next phase of works, a European Protected Species mitigation licence (EPSL) will be required for the removal of the ramp structure on the south wall of B2, as this may destroy, damage or disturb the roost; for the removal of buildings above B24, as the works have the potential to disturb the roost; and for the removal of B6 as a roost will be destroyed. For these roosts, there is flexibility over timing of works and the provision of replacements. An outline mitigation strategy for the EPSL is proposed. Other buildings containing roosts are not affected at this stage.

1. INTRODUCTION

Background

- 1.1 Penny Anderson Associates Ltd (PAA) was commissioned by BuroHappold Engineering to carry out additional bat surveys at two locations within the former Mayfield Station complex (hereafter referred to as the 'site'). The surveys detailed in this report follow on from studies undertaken in 2017 (PAA 2017a), and previously, which indicated a day roost of 3-4 common pipistrelle bats (*Pipistrellus pipistrellus*) on the southern elevation of B2, and day roosts used by five bats each within culverts B24 and B26.
- 1.2 The site is proposed for re-development, including demolition of the majority of existing structures on the site, refurbishment of some of the older remedial works, and refurbishment and modification of the retaining walls along the River Medlock.
- 1.3 The follow-on surveys aimed to gain more information about both roosting areas to inform demolition and development proposals at the site. They entailed:
- Emergence surveys of the building referred to as B2; and
 - Internal inspection of culvert B24.
- 1.4 This report should be read in conjunction with the bat survey report (PAA 2017a). In that study, B2 was subject to two dusk and one dawn emergence survey, but the roost entrance location was not confirmed and further investigation was recommended. The 2017 report also recommended an internal visual inspection of the culverts to identify the roost locations, if possible.
- 1.5 This report presents the methods and results of two additional dusk surveys carried out on 23rd July and 17th August 2018, and of the visual inspection of culvert B24 carried out on 19th July 2018. The suite of bat surveys carried out in 2017 and 2018 is intended to provide sufficient information on bat roosts within the whole Mayfield complex to allow impacts of the demolition proposals upon bats to be fully considered.

Building Descriptions

- 1.6 B2, known as 'the Depot', is the most extensive building within the Mayfield site complex. It is 20m tall and consists of former station platforms and warehouses. It has a brick façade and there are two large internal warehouses with concrete floors and flat roof supported by concrete pillars.
- 1.7 There is a narrow enclosed ramp from ground level to the former platforms on the southern elevation, supported by metal stanchions and framework, and covered with corrugated sheets. There is an open ramp on the northern elevation and a series of large brick arches beneath the platforms at the eastern end, each enclosed with wooden boarding previously used for warehousing and industrial units.
- 1.8 The locations of culverts B24 and B26 are shown on Figure 1. Both are situated on the River Medlock within the site boundary.

Legislative Context

- 1.9 All wild species of bat are protected under the Wildlife and Countryside Act (WCA) 1981, which has also been amended by later legislation, including the Countryside and Rights of Way (CROW) Act 2000 and the Conservation of Habitats and Species Regulations 2017, and this legislation is applicable to England and Wales. Bats are listed on Schedule 5 of the WCA and are, therefore, subject to some of the provisions of Section 9 which, with the amendments, make it an offence to:
- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection (S9:4b); or
 - Intentionally or recklessly obstruct access to any structure or place used for shelter or protection by a bat (S9:4c).
- 1.10 There are additional offences in relation to buying and selling (S9:5) any live or dead animal of this species or anything derived from them.
- 1.11 Bat species are also listed under Annexes IIa and IVa of the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, also known as the 'Habitats Directive'. Inclusion on Annex IVa means they are consequently identified as European Protected Species (EPS) and protected under the Conservation of Habitats and Species Regulations 2017.
- 1.12 The Conservation of Habitats and Species Regulations 2017 state that a person commits an offence if they:
- a) deliberately capture, injure or kill any wild animal of a European protected species,
 - b) deliberately disturb wild animals of any such species, in such a way as –
 - i) to impair their ability to survive, to breed or reproduce, or to rear their young, or
 - ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate, or
 - iii) to affect significantly the local distribution or abundance of the species to which they belong;
 - c) deliberately take or destroy the eggs of such an animal, or
 - d) damage or destroy a breeding site or resting place of such an animal.
- 1.13 Under these Regulations it is an offence to damage or destroy a breeding site or resting place whether the animal is in occupation or not, and protection extends to all life stages of the animal in question. There are additional offences relating to possession, control and sale of a live or dead bat or part of such an animal.
- 1.14 In addition, seven native British bat species, including the soprano pipistrelle (*Pipistrellus pygmaeus*) and the brown long-eared bat (*Plecotus auritus*), that are frequently found in buildings, are listed as a 'Priority Species' under the 2011 biodiversity strategy for England, *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*, under the 2012 UK Post-2010 UK Biodiversity Framework. These Priority Species are also referred to as 'species of principal importance' for the conservation of biodiversity in England and Wales

within Section 74 of the CROW Act 2000, and Sections 41 (England) and 42 (Wales) of the Natural Environment and Rural Communities (NERC) Act 2006.

- 1.15 Section 15 of the National Planning Policy Framework (NPPF), revised in 2018, states that the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible. The NPPF also includes the requirement to contribute to the Government's commitment to halt the overall decline in biodiversity and to promote the reservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets. Reference is made to Circular 06/2005 *Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System* in respect of statutory obligations for biodiversity and geodiversity conservation.
- 1.16 Local authorities in England are required to ensure that where significant harm resulting from development cannot be avoided (through locating on alternative sites with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, planning permission is refused. The commitment to preserving, restoring or enhancing biodiversity is further emphasised for England and Wales in Section 40 of the NERC Act 2006.
- 1.17 Please note: the above text provides a brief summary of the legislation in relation to bats in England and Wales and the original Acts, Regulations and any amendments should be referred to for the precise wording.

2. METHODS

- 2.1 The surveys followed current good practice guidelines published by The Bat Conservation Trust (Collins 2016). The survey programme was led by licensed bat ecologist Hazel Robson¹ MCIEEM², with three competent surveyors. All members of the survey team were appropriately qualified for their assigned tasks, based on the CIEEM competency framework (CIEEM 2013).

Emergence Surveys

- 2.2 For the emergence surveys, the weather conditions were recorded at the start and end of each survey. Temperature and humidity were measured using a hygro-thermometer (810-190 www.etilttd.com). Wind was estimated using the Beaufort Wind Force Scale, ranging from 0 calm to 5 moderate breeze (NB. while the scale extends to force 12 hurricane, 6 or higher would represent unsuitable conditions for survey). Cloud cover was estimated using percentage cover where 0% is a completely clear sky and 100% is completely overcast. Surveys were undertaken within the recommended survey season and on days with weather conditions forecast to be suitable. Three surveyors were situated outside the southern elevation of B2 and one surveyor within the building. Their locations are illustrated in Figure 1.
- 2.3 Each survey lasted for at least 1.5 hours, with emergence surveys commencing at least 15 minutes prior to sunset in the most likely period bats would be observed emerging from a roost site. Surveyors were positioned at vantage points close to the target feature to observe any bats exiting potential roost features. Each was equipped with a Batbox Duet bat detector to aid detection in the field and an Anabat SD1 to record all calls and enable sonogram analysis for confirmation of species identification.
- 2.4 Echolocation bat calls from each of the surveys were analysed using specialist sound analysis software AnalookW published by Titley Scientific. Based on parameters such as peak frequency and call duration, each call could be assigned to a particular bat species. Sonogram analysis can also be used to investigate the type of bat calls, including echolocation, social calls and feeding buzzes as well as providing an indication of whether more than one individual is present at a time.
- 2.5 The dates and weather conditions of each survey visit are provided in Table 1.

Culvert Inspections

- 2.6 Culvert inspections were undertaken from within the river, where it was safely accessible. The surveyors used Clu-lite torches and endoscopes to inspect cracks and crevices that could potentially provide roost sites for bats. Bats and evidence of bats, such as droppings were also sought.
- 2.7 The survey was carried out on 19th July 2018 during daylight hours in fine dry weather conditions. Water levels in the River Medlock were low.

¹ Natural England class licence registration number 2015-10504-CLS-CLS, survey level 2 (WML-CL18)

² Full Member of Chartered Institute of Ecology and Environmental Management (CIEEM)

Table 1 Dates and Weather Conditions for Emergence Surveys

Date	Sunset	Start	End Time	Weather Conditions
23/07/18	21:20	21:00	22:30	Dry and calm, Temperature 24.8°C, decreasing to 19.9°C. Relative humidity 54%, increasing to 75% by end. Cloud cover 100% throughout.
17/08/17	20:53	20:30	22:00	Dry and calm. Temperature 19.4°C decreasing to 19.2°C. Relative humidity remained at 62% throughout survey. Cloud cover 20% throughout.

Limitations

Emergence Surveys

- 2.8 The visits were undertaken during the main period of the bat active season (May to August inclusive) and weather conditions were favourable and unlikely to restrict bat activity levels. However, the effectiveness of the surveys was compromised by a number of factors.
- 2.9 There was a narrow corridor of accessible land between the base of the building and a wire fence. Beyond the fence the area was well-vegetated and fell sharply towards the River Medlock. It was not possible, therefore, to step away and view the building more fully and surveyors were confined to making observations from close to the building walls. Visibility was further inhibited by the former pedestrian ramp walkway, which partially blocks the view of the building (see Plates 1 and 2).
- 2.10 Security lighting c.3m from the ground was turned on at sunset. This would not necessarily discourage bat activity, which was largely observed above the ramp but the glare of the lamps affected surveyors' visibility.
- 2.11 Given the constraints outlined above, the survey techniques and equipment used were consistent with the currently accepted standards for bat survey (Collins 2016) and the results are considered to provide a reasonable characterisation of bat activity during the survey period.

Culvert Inspections

- 2.12 Culvert B26 was not accessible on the date of survey because the access point used previously was within a construction compound, which was locked on the date of survey. The other potential access point from Temperance Street was too high above the river for the ladders to be used safely. However, a River Survey report was prepared in 2017 (PAA 2017b), which presented results of a River Habitat Survey that consisted of a fluvial audit (GeoData Institute 2005) examining the physical character of the channel and riparian corridor in combination with a Phase 1 Habitat survey (JNCC 2010). This study has been used, coupled with other information, to help characterise the potential value of the culvert for bat roosting.

- 2.13 Culvert B24 was easily accessed from the River Medlock and was surveyed in full. It should be noted that evidence of bat roosts, such as droppings, would not accumulate in a culvert as it might in a normal structure.

3. RESULTS AND EVALUATION

Emergence Surveys

- 3.1 In keeping with all bat surveys completed at the site, common pipistrelle was the only species detected during the emergence surveys.
- 3.2 During the first survey (23rd July 2018) sunset was at 21:20 and the first record was at 21:39, which is 19 minutes after sunset. The first bat recorded during the second survey (8th August 2018) was 18 minutes after sunset inside the depot. Peak emergence time for common pipistrelle is generally around 20 - 25 minutes after sunset (Andrews and Pearson 2017; Bat Conservation Trust 2018).
- 3.3 On the second emergence survey date, two surveyors positioned to the south of B2 (Figure 1) independently reported the sudden appearance of a bat at the same time. However, neither surveyor directly witnessed emergence from a particular feature, suggesting that the roost site may be hidden by the depot ramp which occupies much of the southern wall of B2. Figure 1 indicates a broad 'roost entrance area', and the roost is assumed to be at ramp level. Together with previous data for this part of B2, the survey results confirm the presence of a regularly-used, non-breeding summer day roost of up to four common pipistrelle bats in this area.
- 3.4 Around B2, general activity levels were similar during both surveys with discontinuous activity by a small number of bats. Activity was largely recorded just below the platform level and above the former pedestrian ramp. Most records are of bats feeding with a smaller number commuting. A maximum of two bats were recorded at any given time.
- 3.5 The surveys corresponded with the results of earlier surveys that encompassed the wider site (PAA 2017a), which indicated that activity levels varied across the site, with surveyors consistently detecting frequent activity along the river corridor and on the south side and upper level of the depot buildings (B2) but very little activity elsewhere.

Culvert Inspections

- 3.6 Culvert B24 was surveyed from the upstream end, entering the river via the B4 warehouse off Baring Street and walking downstream through the tunnel. The stream channel was accessible throughout but a lot of debris, including tyres, fabric and construction materials, was present within the channel. The culvert itself was box-section (Plate 3), with metal girders supporting brick arches perpendicular to the stream (Plate 4). The culvert walls were mainly brick with sections of stone and concrete (Plate 5). The walls appeared to have been modified considerably since construction. No maintenance has been undertaken recently and there were many cracks and crevices that bats could access, particularly in the junction between the walls and the roof (Plate 6), although relatively few were more than superficial. Occasional resting moths were noted and spiders (including old cobwebs) were abundant in more sheltered cavities in the roof, indicating that waters rarely reach these levels.
- 3.7 Culvert B24 contained many crevices that bats could use singly or in pairs for shelter and several locations where cavities extended further into the structure. All larger cavities were searched using a torch and endoscope and no evidence of bats was found. It has to be noted that roosts over a river will not be marked by droppings, a feature which often provides a clue to bats' whereabouts. The presence of moths and spiders (including old cobwebs) indicate that the culvert rarely fills, making it more suited to bat roosting. The evidence from emergence surveys is that bats roost within the culvert, and potential for bats to roost here was certainly

evident. Thus, the culvert contains a confirmed summer day roost for approximately five common pipistrelle bats.

- 3.8 Safe access to the river at culvert B26 was not possible on the day of the survey. The River Medlock Survey (PAA 2017b) commenced at the downstream end of the B26 culvert, but photographs taken at the time show an arched structure with dressed stone lintel and brick interior and headwall. Sidewalls are also of brick. Some opportunities for bat roosts are apparent in gaps in the headwall at the downstream end (Plate 7).
- 3.9 Video information available online³ shows some views of the inside of the culvert, which is connected to a longer section under the railway lines into Piccadilly Station, north of Temperance Street. Here the culvert is arched (Plate 8) and constructed entirely of brick. Brickwork appears intact throughout and in good condition. Roost sites would be hard to identify as evidence would be likely to fall into the river and wash away. Photographs appear to indicate that the interior of culvert B26 would not be very suitable for bat roosts as the condition of the brick is good and crevices are few. It is considered more likely that bat roosts would be located in headwalls or at the junctions between culvert and external walls.
- 3.10 These findings for B26 contradict the conclusions from the 2017 activity surveys (PAA 2017b) in which a day roost of five common pipistrelles was identified within the culvert. The video and river survey evidence appear to show that the internal structure of the culvert would not be suitable for a bat roost of this type, so an internal inspection will be required to ascertain the suitability and/or location of the bat roost within the structure. Overall, it is considered more likely that bats roost in the headwalls, or junctions between culvert and external walls, or elsewhere altogether - given the dark conditions by the river, it is possible that the bats seen were flying through the culvert rather than roosting within it. At present, no works are proposed inside B26, but should that change then the results would need to be reviewed in the light of the proposals.

Roost Summary

- 3.11 Table 2 summarises roosting activity at Mayfield across survey dates from 2013 (Wardell Armstrong 2013, 2014), 2017 (PAA 2017a) and the 2018 results reported here. Table 3 presents a description of the roost locations within each structure. Figure 1 shows the locations and classifications of all roosts identified since 2013.

³ Martin Zero, 2018. Manchester Underground Tunnels Rivers and Railway Arches (River Medlock VI) https://www.youtube.com/watch?v=gehfnJyBXYM&t=0s&list=PLFSnjW15v_hnbkczhbYc8fQIkO67oAE4n&index=7

Table 2 Summary of Bat Roosting Activity from Surveys Dating from 2013 to 2018

Structure	Results	Roost classification	Results	Roost Classification	Results	Roost Classification	Results	Roost Classification
<i>Source and Date (survey type):</i>	<i>Wardell Armstrong 2013 (building inspection)</i>		<i>Wardell Armstrong 2014 (emergence/re-entry surveys)</i>		<i>PAA 2017a (emergence/re-entry surveys)</i>		<i>2018 (emergence/re-entry and inspection surveys)</i>	
B1					Activity survey reported single common pipistrelle emerging from gap in stonework on 1 st of 3 surveys.	Summer day roost used by 1 common pipistrelle, non-breeding, occasional use.		
B2	Building inspection found scattered droppings and separate 5 bat droppings found under potential roost area.	Internal day roost used by low numbers of non-breeding females or males intermittently throughout the summer. Hibernation potential considered present.	Activity survey recorded 3-4 common pipistrelles emerging on 2 nd survey and 2 on 3 rd survey.	(Internal) non-breeding summer roost for up to 4 common pipistrelles. Hibernation potential for common pipistrelles.	3-4 common pipistrelles likely to have emerged on 1 of 3 activity surveys.	Summer day roost used by 3-4 common pipistrelles, non-breeding.	Emergence survey - likely emergence by 1 common pipistrelle on 2 nd of 3 surveys.	(External) non-breeding summer day roost for up to 4 common pipistrelles, regular use. (Internal) non-breeding summer roost for up to 4 common pipistrelles. Hibernation potential for common pipistrelles.
B6					Single bat seen to emerge near fire escape over river on 1 of 3 surveys.	Summer day roost used by 1 common pipistrelle, non-breeding, occasional use.		
B23					2 bats seen to enter building on 1 of 3 activity surveys, 2 bat droppings below roost.	Summer day roost for 2 common pipistrelles, non-breeding, occasional use.		
B24					3 bats entered culvert on 2 nd of 3 surveys, and 3 emerged on 3 rd survey.	Summer day roost used by up to 5 common pipistrelles, non-breeding, regular use.	Inspection revealed potential roost features but no direct evidence for specific locations.	Summer day roost used by up to 5 common pipistrelles, non-breeding, regular use.
B26					A single common pipistrelle entered roost feature on wall on 2 nd of 3 activity surveys; 4 bats emerged from culvert on 3 rd activity survey.	Summer day roost used by up to 5 common pipistrelles, non-breeding, regular use. Needs internal inspection to confirm potential and location.		

Table 3 Description of Bat Roost Location

Structure	Roost Classification	Bat Roost Location
B1	Day roost used by 1 common pipistrelle, non-breeding, occasional use.	Crevice in brickwork on NE facing external wall.
B2	Internal non-breeding summer day roost for up to 4 common pipistrelles.	At locations where droppings recorded in 2013.
	External non-breeding summer day roost for up to 4 common pipistrelles.	S side of building, precise roost entrance not confirmed.
	Hibernation roost potential for common pipistrelles.	Suitable crevices within building fabric.
B6	Summer day roost used by 1 common pipistrelle, non-breeding, occasional use.	Crevice in brickwork on external wall below metal fire escape on NE side above river.
B23	Day roost for 2 common pipistrelles, non-breeding, occasional use.	Gap between brick wall and wooden soffit on S side.
B24	Day roost used by up to 5 common pipistrelle bats, non-breeding, regular use.	Inside culvert, precise roost entrance not confirmed.
B26	Summer day roost used by up to 5 common pipistrelles, non-breeding, regular use. Needs internal inspection to confirm potential and location.	Not known.

3.12 All the roosts were assessed as being non-breeding, due to the small numbers of bats and the occasional patterns of usage. More details of roost locations are illustrated in Figure 1.

3.13 In addition, some potential for common pipistrelle to hibernate within B2 was identified (Wardell Armstrong 2013). In keeping with the survey results across all studies, common pipistrelle is the only bat species likely to use the site and numbers are likely to be limited to up to five individual bats.

Evaluation

3.14 Table 4 summarises the evaluation of bat roost status at Mayfield site.

3.15 Common pipistrelle was the only bat species recorded throughout all surveys completed at Mayfield. The common pipistrelle is common across the UK (Battersby 2005).

Table 4 Summary of Bat Roost Status

Structure	Roost Classification	Roost Status
B1	Day roost used by 1 common pipistrelle, non-breeding, occasional use.	Low
B2	Internal non-breeding summer day roost for up to 4 common pipistrelles.	Low
	External non-breeding summer day roost for up to 4 common pipistrelles.	Low
	Hibernation roost potential for common pipistrelles.	Moderate
B6	Summer day roost used by 1 common pipistrelle, non-breeding, occasional use.	Low
B23	Day roost for 2 common pipistrelles, non-breeding, occasional use	Low
B24	Day roost used by up to 5 common pipistrelles, non-breeding, regular use.	Low
B26	Summer day roost used by up to 5 common pipistrelles, non-breeding, regular use. Needs internal inspection to confirm potential and location.	Low (or none if no roost potential found from inspection)

- 3.16 All summer roosts identified at the Mayfield site would be classed as 'low status' following the guidance in Mitchell-Jones (2004) because they are of individual to low numbers of bats of common species and not maternity sites. For roosts of this type, there is flexibility over timing of works and the provision of replacement roosts.
- 3.17 Hibernation sites for small numbers of common to rarer species have higher conservation significance, but this activity can be hard to confirm by survey in large structures of the type covered in this report. Hibernation evidence was not found during inspections and dedicated hibernation surveys were not carried out at Mayfield B2. This is because the approach from the outset has been to address impacts through timing of works and provision of compensation roost features (Wardell Armstrong 2013, 2014). Hibernation potential for common pipistrelle bats can be addressed through timing constraints on works, as the species is not breeding on site.

4. IMPACTS

- 4.1 Roosts in Buildings B2 (external), B6 and culvert B24 will be directly impacted by demolition proposals and will require an EPS mitigation licence and accompanying mitigation and compensation strategy.
- 4.2 Later phases of the project may impact upon roosts in B1, B2 (internal and hibernation), B23 and B26.
- 4.3 The location of all roosts is shown on Figure 1.

Confirmed Roosts Affected by Demolition Proposals

- 4.4 The three confirmed roosts in B2 (external), B6 and B24, which are affected by current demolition proposals, have been evaluated (after Mitchell-Jones 2004) as roosts of 'low status', for which there is flexibility over the provision of bat boxes and no conditions about timing or monitoring.
- 4.5 Impacts have been identified as follows, based upon the following factors:
- B2 – removal of the depot ramp is likely to result in temporary disturbance of the external roost located upon the south face of the building, and may result in permanent destruction of the roost itself;
 - B6 – removal of B6 will result in permanent destruction of the roost; and
 - B24 – removal of the buildings over the culvert may result in temporary disturbance of the roost within the culvert.

Confirmed Roosts with Potential Impacts from Future Proposals

- 4.6 The following buildings are potentially affected by future proposals for the Mayfield site:
- B1;
 - B2 (interior and hibernation);
 - B23;
 - B24 (removal of culvert); and
 - B26.

5. RECOMMENDATIONS

- 5.1 For culverts and buildings with confirmed bat roosts, demolition, refurbishment or structural works could result in the modification or destruction of a bat roost, an offence under current wildlife legislation. All British bats hibernate during the winter and, therefore, have very different habitat requirements depending on the season. This means that although bats do typically use the same roost sites annually, the majority of roosts are used for only part of each year. For this reason it should be noted that a bat roost remains fully protected by law regardless of whether or not bats are present at that time.
- 5.2 In line with current good practice, if development has not begun within two years of this report then the bat surveys should be repeated to re-assess how bats are using B2 and the culverts B24 and B26. These would update (and hopefully confirm) the location and nature of any roosting activity at that time.

Licence Application

- 5.3 Upon receipt of planning or demolition consent, a licence application to Natural England will be required for any works affecting roosts. A standard licence application typically takes at least 30 days for Natural England to process and requires the completion of several documents:
- Application Form (providing details of the site, applicant and named ecologist);
 - Method Statement (providing a detailed description of predicted impacts and mitigation strategy);
 - Reasoned Statement (setting out the planning context); and
 - Work Schedule (setting out the timescale for the proposed work).

Outline Mitigation Strategy for Demolition Proposals

- 5.4 The three confirmed roosts in B2 (external), B6 and B24, which are affected by current demolition proposals, have been evaluated (Mitchell-Jones 2004) as roosts of 'low status', for which there is flexibility over the provision of bat boxes and no conditions about timing or monitoring.
- 5.5 It should be noted that the exact location is not known for the B2 (external) roost.
- 5.6 The following principles apply to the mitigation strategy and should form part of the European Protected Species Licence (EPSL) Method Statement:
- A toolbox talk for contractors to brief them on the presence of bats and provisions of the mitigation strategy;
 - Scheduling works for periods of least potential for disturbance of bats, e.g. autumn/winter/spring (for demolition);
 - Survey for bat presence (by inspection or emergence/re-entry) prior to works, including up-close inspection by licensed bat ecologist of individual potential roost features (PRF) on B2 and B6, where possible;

- Plan and agree approach to PRF and roost removal, possibly involving destructive hand-search. A licensed bat ecologist may be required to oversee works;
- Agree methods for removal of buildings over culvert B24 to minimise disturbance potential for bats roosting in culvert – timing constraints on works may suffice;
- Temporary roost feature for re-homing bats discovered during works;
- Agree approach to handling bats injured during works;
- Agree approach to dealing with bats uncovered when bat ecologist not present;
- The compensation strategy to include replacement roost features (e.g. bat boxes) – types and potential locations to be agreed in advance of works.

5.7 The following compensation is recommended for each roost:

- B2 (external) – 1 x woodcrete bat roost box;
- B6 – 1 x woodcrete bat roost box high up on retaining wall near river, or similar; and
- B24 (culvert) – none at this stage.

5.8 It should be noted that all bat boxes erected at this stage may likely need to be moved for later phases of the development. Any replacement roost provision is expected under the terms of the EPSL licence to be maintained *in situ* for five years. Therefore, the locations should be discussed to encompass sufficient flexibility. If boxes become occupied by bats they may need inclusion within an EPSL to be moved or disturbed.

Ecological Enhancements

5.9 Alternative roost habitat and features provided for common pipistrelle bats, e.g. bat boxes, should be planned and designed with the habitat needs of nocturnal animals in mind. In addition to bat boxes attached to building exteriors, there is potential for incorporating suitable roost features into new or existing structures.

5.10 Culvert B24 is to be removed. The process of ‘daylighting’ and uncovering buried urban rivers, restoring them to more natural conditions, creates new habitat for plants and animals and extends green corridors. The ecological benefits are significant and of overall benefit to bats, but the designs should consider the specific requirements of nocturnal animals as outlined above.

5.11 In any bat roost provision including enhancement, the lighting design should completely avoid all illumination along the river corridor and roost locations to minimise light spill into this important habitat. The strategy should be informed by published guidance on how artificial lighting can effect bat (and other animal) behaviour, e.g. guidelines for mitigation (Institution of Lighting Professionals and Bat Conservation Trust 2018, Bat Conservation Trust 2014, RPEP 2009).

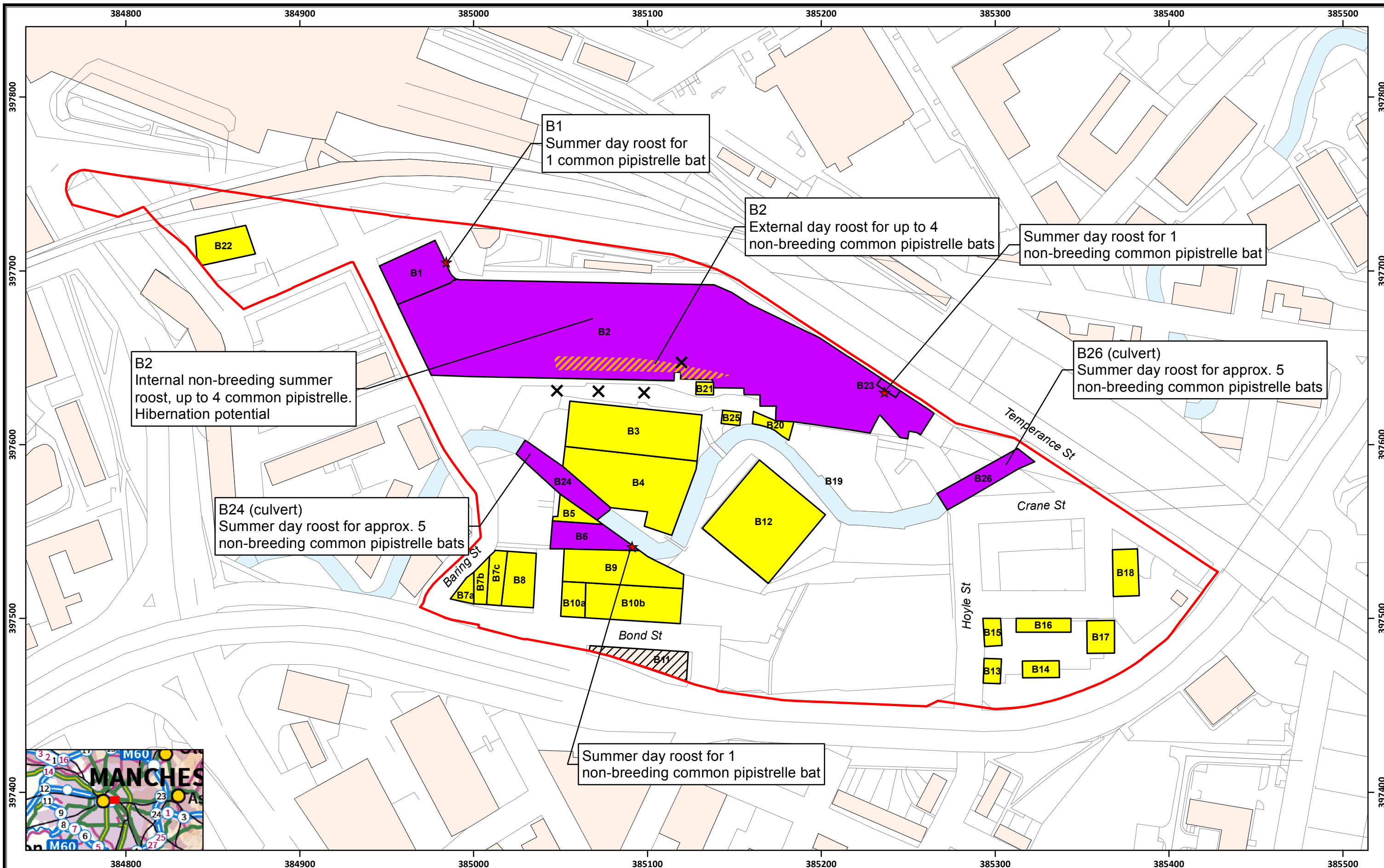
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7. ABBREVIATIONS

CIEEM	Chartered Institute of Ecology and Environmental Management
CRoW	Countryside and Rights of Way
EPS	European Protected Species
EPSL	European Protected Species Licence
NERC	Natural Environment and Rural Communities
NPPF	National Planning Policy Framework
PAA	Penny Anderson Associates Ltd
PRF	Potential Roost Feature(s)
RPEP	Royal Commission of Environmental Pollution
WCA	Wildlife and Countryside Act

FIGURE



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Associates Ltd
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N

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999611
Latitude Of Origin: 49.000000

01020406080

Metres

ISO A3

Legend

Site boundary

Confirmed roost

No evidence of roosting

Building no longer present

Roost entrance

Roost entrance area

Surveyor

Title:

Bat Roost Summary
2013 to 2018

Project Name Mayfield, Manchester			
Discipline Ecology			
Scale 1:2,000	Drawing No. Figure 1		
Drawn By CC	Originator GJH	Date 30/10/2018	
PAA Ref. G:\BUHAD01_1_Mayfield_Picadilly Maps\Figures	Revision A		

PLATES



Plate 1 Southern side of B2 – roost entrance identified towards end of ramp during earlier survey work undertaken by other consultants during 2014



Plate 2 Three to four bats seen close to building at sunset during dusk surveys, considered likely to be roosting but exact roost feature not identified



Plate 3 Culvert B24 box section culvert over River Medlock



Plate 4 Culvert B24 showing gaps at junction between wall and roof



Plate 5 Culvert B24 wall of mixed materials



Plate 6 Culvert B24 example crevice at join between wall and roof with bat roost potential but no evidence



Plate 7 Culvert B26 downstream end, left bank looking upstream showing stone lintel and brick head and sidewalls



Plate 8 Culvert B26 interior looking downstream, showing brick-built arched structure (Martin Zero 2018)



Plate 9 Culvert B26 looking upstream. Brickwork largely intact with few crevices (July 2017)

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