

Nocturnal Bat Survey Report

Lever Street, Manchester
Reference: 81-633-R2
Date: October 24





E3P

Taylor Road
Trafford Park
Urmston
Manchester
M41 7JQ

+ 44 (0) 161 707 9612
<https://e3p.co.uk>

Registered in England
CRN: 08725262

QUALITY ASSURANCE

Report reference	81-633-R2-1
------------------	-------------

REV REF:	DESCRIPTION	AUTHOR	CHECKED	AUTHORISED	DATE
R2-1	First issue	HB	LT	CK	04/10/24

This report has been prepared for the sole benefit, use, and information of the client. The liability of Environmental Engineering Partnership Limited T/A E3P with respect to the information contained in the report will not extend to any third party. This report has been prepared by the qualified persons as listed below.

WRITTEN BY	QUALIFICATIONS	POSITION
Hannah Brodie	BSc (Hons), MSc	Graduate Ecologist

REVIEWED BY	QUALIFICATIONS	POSITION
Lowri Thomas	BSc (Hons), ACIEEM	Senior Ecologist

AUTHORISED BY	QUALIFICATIONS	POSITION
Celia Kenyon	BSc (Hons), MSc MEnvSc CEnv MCIEEM	Associate Director



EXECUTIVE SUMMARY

Site Address	Land bound by Lever Street, Great Ancoats Street, Little Lever Street and Houldsworth Street, Manchester
Co-ordinates	E 384725, N 398587
Site Area	Approximately 0.16 ha
Current Site Use	The site is located in Ancoats, north-east Manchester, and comprises a total of 7 buildings, 5 of which are in use as commercial dwellings, and 2 of which are currently unoccupied. Little Ancoats Street runs through the centre of the site. The wider area largely comprises commercial and residential buildings, hardstanding roads, some small areas of green space and occasional scattered trees.
Proposed Development	Development proposals include the full planning application for part-retention, conversion and extension of existing buildings; selective demolition; the erection of a ground floor + 17 storey building comprising new office space (Use Class E) with ground floor reception area and ancillary uses; supporting infrastructure and ancillary facilities, roof top plant, and landscaping.
Results	<p>A single common pipistrelle bat roost was identified within B1.</p> <p>The roost was confirmed to be a summer non-breeding roost of common pipistrelle and as such, was assessed as being of low conservation value (English Nature 2004). No other bat roosts were identified during the course of the surveys.</p>
Conclusions and Recommendations	<p>A Natural England European Protected Species Licence and associated Mitigation Strategy will be required prior to the demolition of B1. A licence can only be applied for once full planning permission has been received.</p> <p>The removal of the roost features under the supervision of a licenced ecologist or suitably qualified accredited agent may not be possible in all areas due to the dilapidated nature of B1 (health and safety concerns). In line with CIEEM timings, the optimum time for works relating to bat roosts of all types is likely to lie outside the maternity and hibernation seasons. Spring and autumn therefore represent the periods when bats are least vulnerable to disturbance. As such, the works should be undertaken between October to March (inclusive) under a licence to avoid the summer roosting period.</p>



Table of Contents

EXECUTIVE SUMMARY	3
1. INTRODUCTION	5
1.1. Background	5
1.2. Previous Surveys	5
1.3. Site Description	5
1.4. Objectives	6
2. METHODOLOGY	7
2.1. Nocturnal Surveys	7
2.2. Data Analysis	9
2.3. Limitations	9
3. SURVEY RESULTS	11
3.1. Roost Location Summary	14
3.2. Interpretation	14
4. MITIGATION AND RECOMMENDATIONS	16
4.1. Impact Assessment	16
4.2. Mitigation	16
4.3. Timescales	16
4.4. Working Methods	16
4.4.1. Roost Provision	17
4.4.2. Lighting Mitigation	17
5. REFERENCES	18
APPENDIX I SURVEY FORMS	19
APPENDIX II VANTAGE POINT FIELDS OF VIEW	31



1. INTRODUCTION

1.1. BACKGROUND

E3P has been instructed by Soller Nine to undertake Nocturnal Bat Surveys at the NXQ Building, Manchester, hereafter referred to as “the site”.

This report has been prepared by Hannah Brodie, BSc (Hons) MSc, Graduate Ecologist. Hannah has three years of experience undertaking Nocturnal Bat Surveys at a wide variety of sites across the UK.

1.2. PREVIOUS SURVEYS

E3P completed a Preliminary Ecological Appraisal (PEA) in February 2024 (report reference:81-633-R1). Seven buildings were located on site including a restaurant and two residential buildings, with the remaining four buildings being unoccupied. Hardstanding was also present on site, as Little Ancoats Street was present in the centre of the site, comprising tarmac and cobbled hardstanding. All onsite buildings were assessed for their suitability to support roosting bats, following guidance set out in Collins (2023). Table 1 details the findings of the Preliminary Roost Assessment undertaken during the PEA.

Table 1 Building Details

BAT ROOST POTENTIAL	BUILDING REFERENCES
Low	B2, B4, B7
High	B1, B3, B5, B6

1.3. SITE DESCRIPTION

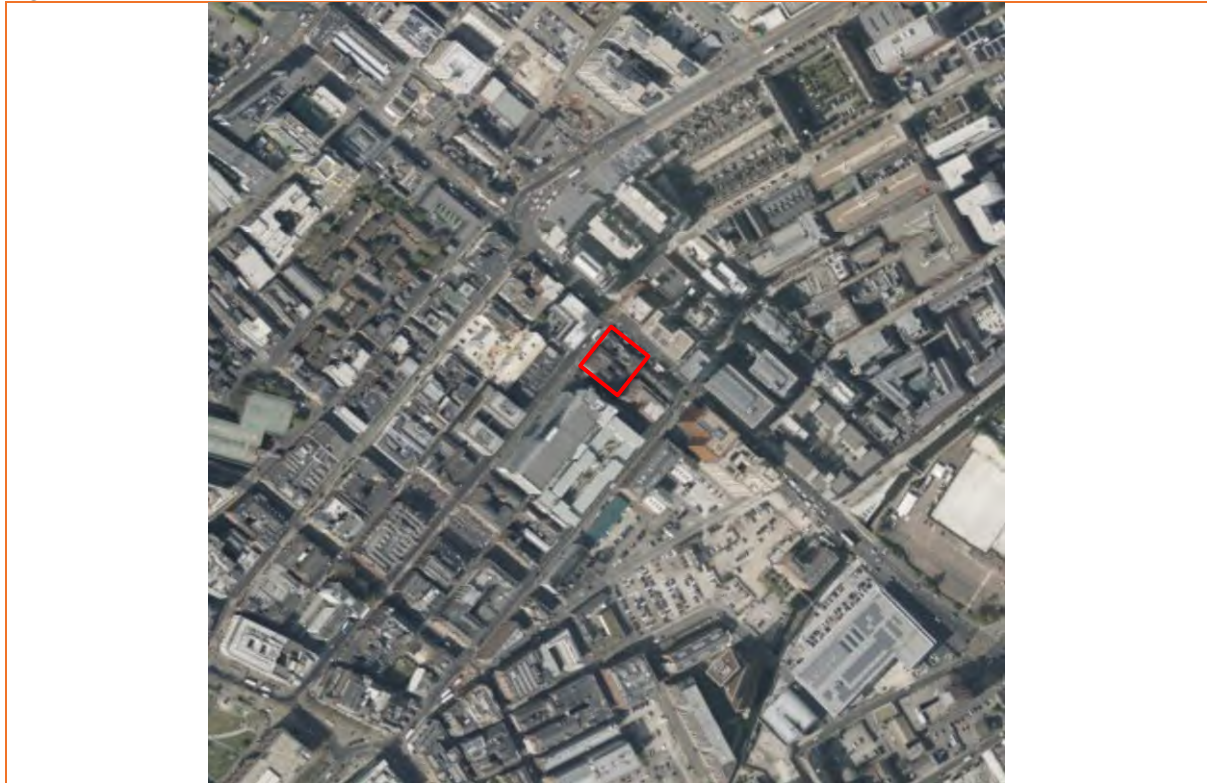
The site is located in Ancoats, north-east Manchester. The site comprises seven buildings with associated hardstanding, with the wider area comprising hardstanding, buildings, some areas of green space and occasional scattered trees, associated with Manchester City Centre. Three of the buildings are occupied, comprising a restaurant, commercial tenants, and residential tenants, with the remaining four buildings being unoccupied.

The site is bordered by Great Ancoats Street to the north-east, Little Lever Street to the south-east, Houldsworth Street to the south-west and Lever Street to the north-west. Little Ancoats Street runs through the centre of the site. Rochdale Canal is located approximately 240 m east of the site boundary, Cotton Field Park is located approximately 450 m south-east of the site boundary, and New Islington Marina is located approximately 450 m south-east of the site boundary. An active railway is located approximately 740 m north of the site boundary, associated with Manchester Victoria Train Station, which is situated approximately 760 m north-west of the site boundary. The River Irwell is located approximately 890 m north-west of the site boundary.

Please refer to Figure 1 for the approximate location of the site.



Figure 1 **Site Location**



1.4. OBJECTIVES

The objective of the nocturnal bat surveys were to identify:

- ✳ Any existing roosts within the site.
- ✳ Potential impacts of the proposed development on bats.
- ✳ The need for mitigation.

The survey findings are detailed in this report, along with recommendations.



2. METHODOLOGY

2.1. NOCTURNAL SURVEYS

Seven bat emergence surveys were undertaken, following the guidance set out in Collins (2023). The surveys were conducted using Canon XA60 4K Camcorders, appropriate handheld bat detectors suitable for commercial use, Echo Meter Touch 2's and Titley Scientific Chorus Recorders (set to continuous mode). The surveys were undertaken by competent and suitably trained bat surveyors Conor Evans, Carlin Jones, Phoebe Parry, Eloise Adams, Jacob Ng, Rowan Whittaker, Lucy Hayward, Chris Atwell-Hughes, Anna Cocker, Rebecca Owens and Zach Whitehead.

Conor Evans acted as lead on all seven surveys, and licenced ecologists present during the surveys included Carlin Jones (2023-11074-CL17-BAT) and Anna Cocker (2016-20030-CLS-CLS).

Table 2 Emergence Survey Details

SURVEYS	BUILDINGS	VANTAGE POINTS	DATE	SUNSET	SURVEY TIMINGS	WEATHER CONDITIONS
DUSK SURVEY 1	B5, B6	V7, V9, V13, V14, V15	29/07/2024	21:09	20:54-22:39	Dry, small breeze, 22°C, 20% cloud cover
DUSK SURVEY 2	B1, B3	V1, V2, V3, V6, V8	05/08/2024	20:56	20:41-22:26	Dry, light breeze, 22°C, 100% cloud cover
DUSK SURVEY 3	B2, B4, B7	V4, V5, V10, V11, V12	14/08/2024	20:38	20:23-22:08	Dry, slight breeze, 19°C, 10% cloud cover
DUSK SURVEY 4	B5, B6	V7, V9, V13, V14, V15	20/08/2024	20:25	20:10-21:55	Dry, moderate breeze, 14°C, 10% cloud cover
DUSK SURVEY 5	B1, B3	V1, V2, V3, V6, V8	28/08/2024	20:09	19:54-21:39	Dry, light breeze, 19°C, 10 % cloud cover
DUSK SURVEY 6	B5, B6	V7, V9, V13, V14, V15	11/09/2024	19:33	19:18-21:03	Mostly dry, light rain at 20:± for two minutes, slight breeze, 12°C, 50% cloud cover
DUSK SURVEY 7	B1, B3	V1, V2, V3, V6, V8	16/09/2024	19:21	19:06-20:51	Dry, slight breeze, 18°C, 10 % cloud cover

For each emergence survey, five camcorders were deployed around the site, one at each vantage point on the building to be surveyed, to consistently monitor the areas of highest bat roosting potential throughout the survey. In addition, all vantage points were accompanied by a bat surveyor to observe the areas of the highest bat roosting potential during the survey. During the Nocturnal Bat Survey on the 28th August, V8 was unattended by a surveyor. However, the vantage point was covered by a camera and a chorus. Furthermore, V8 was visible by the surveyor at V6.

Please refer to Figure 2 for the approximate location of the vantage points and on-site buildings, and Table 3 for the details of each vantage point during the surveys.



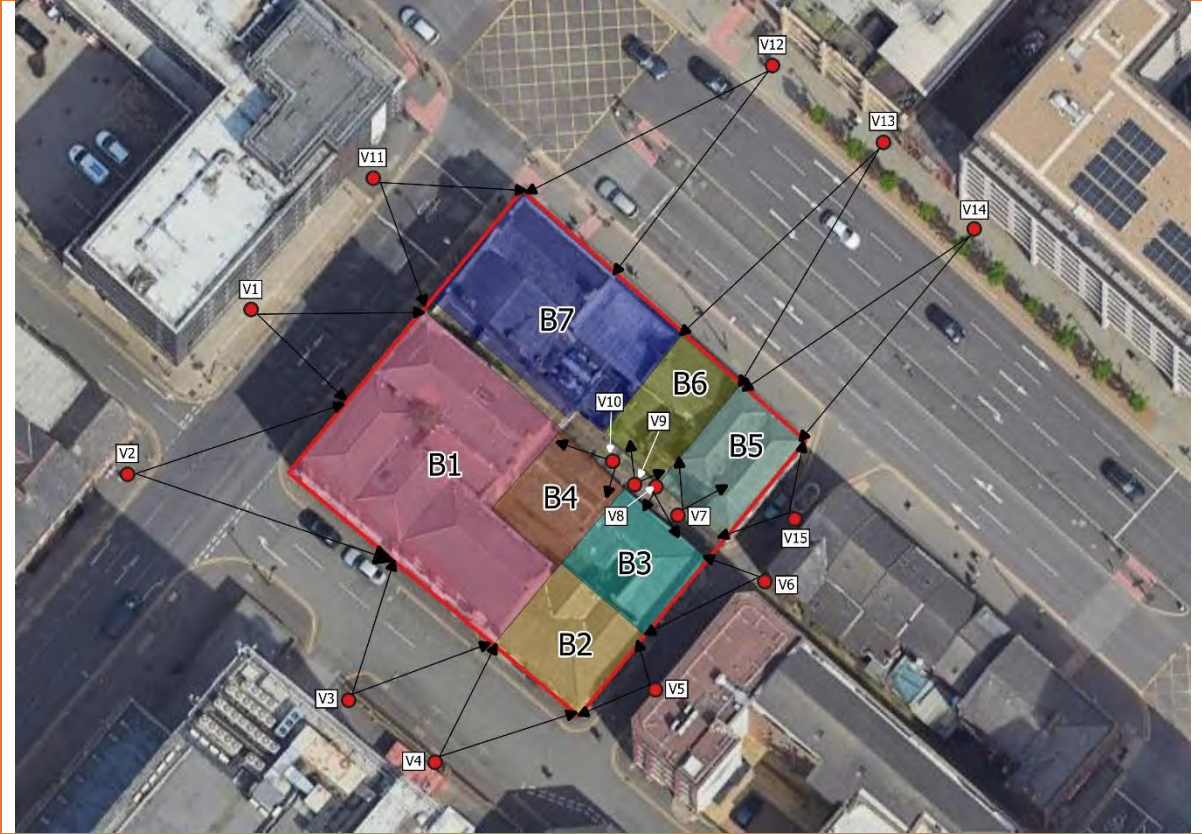
Table 3 **Vantage Point Details**

BUILDING	VANTAGE POINT	DATE	DETECTOR	SURVEYOR
B1	V1	05/08/2024	Magenta	Eloise Adams
		28/08/2024	Magenta	Jacob Ng
		16/09/2024	Magenta	Jacob Ng
	V2	05/08/2024	Chorus	Conor Evans
		28/08/2024	Chorus	Rowan Whittaker
		16/09/2024	Chorus	Rowan Whittaker
	V3	05/08/2024	Magenta	Lucy Hayward
		28/08/2024	Magenta	Lucy Hayward
		16/09/2024	Magenta	Rebecca Owens
B2	V4	14/08/2024	Magenta	Phoebe Parry
	V5	14/08/2024	Chorus	Carlin Jones
B3	V6	05/08/2024	Magenta	Rowan Whittaker
		28/08/2024	Echo Meter	Conor Evans
		16/09/2024	Echo Meter	Conor Evans
	V8	05/08/2024	Magenta	Chris Atwell-Hughes
		28/08/2024	Chorus	Unattended
		16/09/2024	Magenta	Eloise Adams
B4	V10	14/08/2024	Magenta	Chris Atwell-Hughes
B5	V7	29/07/2024	Magenta	Rowan Whittaker
		20/08/2024	Magenta	Rowan Whittaker
		11/09/2024	Magenta	Anna Cocker
	V14	29/07/2024	Chorus	Eloise Adams
		20/08/2024	Chorus	Zach Whitehead
		11/09/2024	Chorus	Rowan Whittaker
	V15	29/07/2024	Magenta	Lucy Hayward
		20/08/2024	Magenta	Lucy Hayward
		11/09/2024	Magenta	Lucy Hayward
B6	V9	29/07/2024	Chorus	Chris Atwell-Hughes
		20/08/2024	Magenta	Eloise Adams
		11/09/2024	Chorus	Chris Atwell-Hughes



BUILDING	VANTAGE POINT	DATE	DETECTOR	SURVEYOR
B7	V13	29/07/2024	Echo Meter	Conor Evans
		20/08/2024	Echo Meter	Conor Evans
		11/09/2024	Echo Meter	Conor Evans
	V11	14/08/2024	Magenta	Jacob Ng
	V12	14/08/2024	Magenta	Conor Evans

Figure 2 Approximate Location of Vantage Points



2.2. DATA ANALYSIS

Data from recording devices was converted from WAV to ZCA using Wildlife Acoustics Kaleidoscope Software and was analysed using AnalookW. The recordings from the camcorders were analysed by Hannah Brodie in September 2024, and this involved reviewing the footage for any emergencies.

2.3. LIMITATIONS

Nocturnal Bat Surveys are completed following guidance set out in Collins (2023) and are carried out by competent and trained surveyors. However, due to the surveys being conducted by observation during low light conditions, this may cause constraints of visual assessments. This was resolved by using cameras as aids. All potential roosting features were observed throughout the survey time period. All surveys were conducted in optimum weather conditions, following guidance set out in Collins (2023).



Due to the urban location of the site, artificial street lighting was present on all aspects of the surveyed buildings. As such, the infrared lamps utilised were not able to fully illuminate the on-site buildings. This was mitigated against by ensuring that surveyors could see all potential roost features from their respective vantage points.

The vantage point for V8 was moved after the first nocturnal survey due to the general public passing in front of the camera, potentially obscuring any potential bat activity. This is not deemed to be a major constraint, as all potential roost features were in view across all three surveys.

A camcorder was to be put in place to survey the north-east aspect of B1; however, due to the dilapidated nature of the building, heras fencing was put in place on Little Ancoats Street, preventing the placement of a camera to survey the building. Furthermore, a streetlamp was located directly above where the heras fencing had been placed, further decreasing the suitability of a camera/infrared lamp to survey the building. Furthermore, no potential roost features were identified on the north-east aspect of B1 during the PEA by E3P (2023). As such, it was determined that the surveyors at V7 and V9 were sufficient to identify any bats present along the north-east aspect of B1/along Little Ancoats Street.

These limitations have been taken into consideration throughout the assessment of the Nocturnal Bat Surveys.



3. SURVEY RESULTS

The following subsections provide a summary of bat activity noted on the dusk emergence surveys. Please refer to Appendix I for the full survey forms, and Appendix II for the stills of the camcorders during the darkest part of the surveys.

SURVEY	DATE	BUILDINGS AND VANTAGE POINTS	OBSERVATIONS
1	29/07/2024	B5 (V7, V14, V15) B6 (V9, V13)	<p>During the dusk emergence survey, there was a moderate amount of commuting and foraging activity observed on site, consisting of common pipistrelle (<i>Pipistrellus pipistrellus</i>). The first pass of the survey was observed at V15 commuting past B5 at 21:24, 15 minutes after sunset.</p> <p>Activity throughout the remainder of the survey continued steadily, with foraging and commuting activity concentrated around Little Ancoats Street, at V7 and V9, and to the north of Little Lever Street at V15. The final pass of the survey was heard but not seen at V7 at 21:55. Recordings from the chorus recorders present at V7 and V9 also indicate passes of common pipistrelle at 21:55, which align with observations made by the bat surveyors during the survey.</p> <p>No bats were observed emerging from the surveyed buildings.</p>
2	05/08/2024	B1 (V1, V2, V3) B3 (V6, V8)	<p>During the second dusk emergence survey, there was a moderate amount of foraging and commuting activity observed, on-site. The first pass of the survey was a common pipistrelle observed commuting northwest to southeast along Houldsworth Street at both V2 and V3 at 21:08, 12 minutes after sunset. At 21:39 a common pipistrelle was observed flying southeast over the roof of B3, away from B1, before flying behind the surveyor located at V5 and flying back towards B1.</p> <p>Activity throughout the remainder of the survey continued steadily, with foraging and commuting activity largely concentrated up and down Houldsworth Street and Little Lever Street. The final pass of the survey was heard but not seen at V6 at 22:12. Recordings from the chorus recorders present at V2 also indicate passes of common pipistrelle at 21:08, which aligns with observations made by the bat surveyors during the survey.</p> <p>No bats were observed emerging from the surveyed buildings.</p>



SURVEY	DATE	BUILDINGS AND VANTAGE POINTS	OBSERVATIONS
3	14/08/2024	B2 (V4, V5) B4 (V10) B7(V11, V12)	<p>During the dusk emergence survey, a considerable amount of foraging and commuting activity was observed on site, consisting entirely of common pipistrelle. The first pass of the survey was observed commuting past V4 along Houldsworth Street at 20:51, 13 minutes after sunset.</p> <p>Activity throughout the survey remained consistent, primarily over the roofs of B1, B2 and B4, as well as along Houldsworth Street, Little Lever Street, and Little Ancoats Street. The final pass of the survey was at 21:59 and was heard but not seen. Recordings from the chorus recorder present at V5 during the survey also indicate passes of common pipistrelle at 20:51, which aligns with the observations made by bat surveyors during the survey.</p> <p>No bats were observed emerging from the surveyed buildings.</p>
4	20/08/2024	B5 (V7, V14, V15) B6 (V9, V13)	<p>During the dusk emergence survey, the amount of foraging and commuting activity varied between vantage points, all from common pipistrelle. The first pass of the survey was observed continuously foraging over the roof of B4 at 20:44, 19 minutes after sunset.</p> <p>Activity throughout the survey remained consistent, mainly concentrated around the east of Little Ancoats Street and to the north of Little Lever Street. The final pass of the survey was heard but not seen at 21:53 at V7. Recordings from the chorus recorder present at V7 during the survey also indicate passes of common pipistrelle at 20:44, which aligns with the observations made by bat surveyors during the survey.</p> <p>No bats were observed emerging from the surveyed buildings.</p>
5	28/08/2024	B1 (V1, V2, V3) B3 (V6, V8)	<p>During the dusk emergence survey, a considerable amount of foraging and commuting activity by common pipistrelle was widely observed on site, in addition to an emergence from the southeastern aspect of B1. The first pass of the survey was observed commuting to the right of V3 at 20:06, 3 minutes before sunset. At 20:07, 2 minutes before sunset, a single common pipistrelle was observed from V6 emerging from the southeastern aspect of B1.</p> <p>Activity throughout the remainder of the survey remained consistent throughout the site, with the final pass of common pipistrelle heard but not seen at 21:40 at V8.</p> <p>Recordings from the chorus recorders present during the survey also indicate passes of common pipistrelle, which align with observations made by the bat surveyors throughout the survey.</p>



SURVEY	DATE	BUILDINGS AND VANTAGE POINTS	OBSERVATIONS
			A single common pipistrelle was observed emerging from the southeastern aspect of B1.
6	11/09/2024	B5 (V7, V14, V15) B6 (V9, V13)	<p>During the dusk emergence survey, there was a limited amount of common pipistrelle activity recorded on site, which were the only species noted during the survey. The first pass of the survey was heard but not seen at 20:04, 31 minutes after sunset, to the north of Little Lever Street. At 20:08, a common pipistrelle was observed commuting at V14 over the roof of B5 and Little Ancoats Street, before heading towards the buildings to the southeast of the site.</p> <p>Activity throughout the remainder of the survey was limited, with the final pass, a common pipistrelle, heard but not seen continuously foraging from 20:15 to 20:28 at V7.</p> <p>Recordings from the chorus recorder present during the survey at V9 indicate passes of common pipistrelle at 20:08, 20:15 and 20:26, which align with the observations made by bat surveyors throughout the survey.</p> <p>No bats were observed emerging from the surveyed buildings.</p>
7	16/09/2024	B1 (V1, V2, V3) B3 (V6, V8)	<p>During the dusk emergence survey, a moderate amount of commuting and foraging activity was observed on site, consisting of common pipistrelle. The first pass of the survey was a single common pipistrelle observed foraging over B3 and along Little Ancoats Street at V6 at 19:43, 22 minutes after sunset. In addition, 2 common pipistrelles were also observed commuting at V3 at 19:43.</p> <p>Activity throughout the survey remained relatively low at V1/V2, however activity was consistent at the remaining vantage points, with the final pass heard but not seen at 20:49 at V6. Recordings from the chorus recorders present on site during the survey indicate passes of common pipistrelle at 19:43 and 20:41, which align with observations made by the bat surveyors during the survey.</p> <p>No bats were observed emerging from the surveyed buildings.</p>



3.1. ROOST LOCATION SUMMARY

Table 4 Roost Location Summary

BUILDING NUMBER	MAXIMUM NUMBER OF BATS	PHOTOGRAPH
B1	One common pipistrelle emerged from the southeastern aspect of B1.	 

3.2. INTERPRETATION

During the dusk emergence surveys foraging and commuting activity from common pipistrelles was recorded throughout the site, mainly in association with Little Lever Street, Little Ancoats Street, Houldsworth Street, and above the roofs of B1, B2, B3, and B4. Common pipistrelles were recorded at 12, 13, 15, 19 and 22 minutes after sunset, and 2 and 3 minutes before sunset, which is the typical emergence time for the species, therefore indicating that this species is roosting in a nearby location.

During the fifth dusk emergence survey, a single common pipistrelle was observed **emerging from the southeastern aspect of B1**. Due to the low number of common pipistrelle emerging on one survey visit, it is likely that B1 acts as a non-breeding summer roost for a low number of common pipistrelle. The bats were not recorded on the subsequent dusk emergence surveys or the previous dusk emergence survey, indicating that the roost is used on an occasional basis only.



Seven survey visits were undertaken from July to September 2024, with the correct number of survey visits on each building in relation to their initial assessment. Furthermore, the surveys were carried out in bat maternity season. As multiple of the buildings could not be surveyed internally during the PEA by E3P (2023), it was assumed that the on-site buildings had the potential to support a maternity colony. No evidence of maternity roosts were identified, and as such it is apparent no maternity roosts are present within the site. It is therefore considered that a sufficient amount of data has been gathered.



4. MITIGATION AND RECOMMENDATIONS

4.1. IMPACT ASSESSMENT

The surveys completed have identified a single common pipistrelle roost within B1.

The roost identified was assessed as a non-breeding summer roost of a low number of common pipistrelle, which is a common and widespread species (maximum emergence of common pipistrelle count of one). The roost is therefore of low conservation value (Mitchell-Jones, 2004).

The proposed works require the demolition of all buildings and structures on site. The works would result in a high probability of injuring and/or killing bats and destruction of a known bat roost, without mitigation. As such, a Natural England European Protected Species License (EPSL) is required and is to be obtained prior to any demolition works on B1. A licence can be applied for once full planning permission has been obtained and all relevant wildlife conditions discharged.

4.2. MITIGATION

Common pipistrelle is a common and widespread species of bat throughout the United Kingdom, with non-breeding summer roosts known to be of low conservation value (Mitchell-Jones, 2004).

An EPSL will be required for demolition to proceed. The application form must be prepared by a suitably qualified and licensed bat ecologist. A Bat Mitigation Licence or Bat Low Impact Class Licence (LICL) could be obtained.

The licence will only be required for B1. The remaining buildings which do not support bat roosts can be demolished without any further precaution.

4.3. TIMESCALES

In line with CIEEM timings, the optimum time for works relating to bat roosts of all types is likely to lie outside the maternity and hibernation seasons. Spring and autumn therefore represent the periods when bats are least vulnerable to disturbance. As such, the works should be undertaken between October to March (inclusive) under a licence to avoid the summer roosting period.

No hibernation potential was identified on site, therefore, if works are undertaken within this time frame potential disturbance on the species will be minimised.

4.4. WORKING METHODS

The following pre-commencement works (upon successful application for a European Protected Species Licence) are as follows:

- ✿ All contractors working on the site will be briefed with a Toolbox Talk by a qualified ecologist, on the legal protection afforded to bats and their roosts, and on how to proceed if a bat is discovered during the course of the work.
- ✿ One week before the works are due to start, the licensee will undertake a daytime inspection and/or an evening emergence survey to assess the status of the site for bats. The project ecologist will check for fresh droppings and accurately assess the levels of bat activity. It may be necessary to employ excluder devices if the ecologist deems this necessary.



- ✳ The project ecologist will attend site on the day of the scheduled demolition works to undertake a search for bats prior to the works commencing. Any bats found will be relocated into the roost provisions, already installed on site.
- ✳ The initial stages of the works will occur under the supervision of the project ecologist. Sensitive areas of the buildings are to be demolished by hand under the direct supervision of the ecologist. This will include areas such as fascia boards, roof tiles, lead flashing and the identified roost within B1.

4.4.1. ROOST PROVISION

Bat boxes, such as Schwegler 1FF multipurpose Bat Boxes, will require installation prior to the proposed works and these will act as a receptor should any live bats be found during the supervised destruction of the roost. It is recommended that two Schwegler 1FF multipurpose Bat Boxes are installed onto any retained walls that will not be lost to any potential future development or affected by artificial lighting. They are to be installed at a minimum of 4 m from ground level. This will ensure that they will not be vandalised and that domestic cats are not able to access them.

Natural England require like for like roost replacement, as such a minimum of two integrated bat tubes/ bricks will require installation within the proposed units. Schwegler 2FR Integrated Bat Tubes, or a similar specification could be used. These locations provide immediate access to commuting and foraging resources.

Details of the number of bat boxes and specifications will be outlined within the EPSL Method Statement and will be agreed with Natural England prior to installation. Additional bat boxes beyond the requirement of the licence could be installed within the site.

4.4.2. LIGHTING MITIGATION

All bats have some degree of sensitivity to artificial, night-time lighting. Introducing artificial lighting to areas that are not currently illuminated may sever important bat flight lines and discourage bats from using roost provisions.

During demolition works, no artificial lighting shall be directed towards roost provisions. Boundary features and roost provisions should be safeguarded from artificial lighting from any future potential development. Artificial lighting guidance should be consulted (Bat Conservation Trust, 2014).



5. REFERENCES

- ✿ Bat Conservation Trust (2014). Artificial Lighting and Wildlife; Interim Guidance Recommendations to Help Minimize the Impact of Artificial Lighting.
- ✿ Collins, J. (2023). Bat Surveys for Professional Ecologists, 4th Edition. Bat Conservation Trust.
- ✿ E3P (2024). Preliminary Ecological Appraisal. 81-633-R1-2.
- ✿ JNCC (2004). The Bat Workers Manual. 3rd Edition.
- ✿ Mitchell-Jones (2004) Bat Mitigation Guidelines. English Nature

END OF REPORT

APPENDIX I

SURVEY FORMS





SURVEY 1

29TH JULY 2024

Date: 29/07/2024
Sunset: 21:09
Start time: 20:54
End time: 22:39

Weather conditions: Dry, small breeze, 22°C, 20% cloud cover.

Surveyor: Rowan Whittaker (V7)

TIME	SPECIES	ACTIVITY
21:44	Common pipistrelle	Heard not seen
21:46	Common pipistrelle	Foraging
21:49	Common pipistrelle	Continuously foraging
21:51	Common pipistrelle	Foraging
21:52	Common pipistrelle	Heard not seen
21:55	Common pipistrelle	Heard not seen

Surveyor: Chris Atwell-Hughes (V9)

TIME	SPECIES	ACTIVITY
21:43	Common pipistrelle	Heard not seen
21:46	Common pipistrelle	Heard not seen
21:48	Common pipistrelle	Heard not seen
21:51	Common pipistrelle	Heard not seen
21:54	Common pipistrelle	Heard not seen

Surveyor: Conor Evans (V13)

TIME	SPECIES	ACTIVITY
-	-	No bats observed

Surveyor: Eloise Adams (V14)

TIME	SPECIES	ACTIVITY
-	-	No bats observed

Surveyor: Lucy Hayward (V15)

TIME	SPECIES	ACTIVITY
21:24	Common pipistrelle	Commuting past building
21:31	Common pipistrelle	Heard not seen
21:47	Common pipistrelle	Heard not seen
21:49	Common pipistrelle	Heard not seen
21:51	Common pipistrelle	Commuting to the left of vantage point



SURVEY 2

5TH AUGUST 2024

Date: 05/08/2024
Sunset: 20:56
Start time: 20:41
End time: 22:26

Weather conditions: Dry, light breeze, 22°C, 100% cloud cover

Surveyor: Eloise Adams (V1)

TIME	SPECIES	ACTIVITY
-	-	No bats recorded

Surveyor: Conor Evans (V2)

TIME	SPECIES	ACTIVITY
21:08	Common pipistrelle	Commuting northwest to southeast along Houldsworth Street
21:29	Common pipistrelle	Commuting west to east over building
21:51	Common pipistrelle	Heard not seen

Surveyor: Lucy Hayward (V3)

TIME	SPECIES	ACTIVITY
21:08	Common pipistrelle	Commuting west to east
21:13	Common pipistrelle	Commuting east over the top of building
21:39	Common pipistrelle	Heard not seen
21:47	Common pipistrelle	Heard not seen
21:51	Common pipistrelle	Heard not seen

Surveyor: Rowan Whittaker (V6)

TIME	SPECIES	ACTIVITY
21:33	Common pipistrelle	Foraging
21:36	Common pipistrelle	Heard not seen
21:39	Common pipistrelle	Heard not seen
21:40	Common pipistrelle	Foraging
21:47	Common pipistrelle	Heard not seen
21:54	Common pipistrelle	Heard not seen
22:12	Common pipistrelle	Heard not seen

Surveyor: Chris Atwell-Hughes (V8)

TIME	SPECIES	ACTIVITY
21:13	Common pipistrelle	Heard not seen
21:39	Common pipistrelle	Commuting, flying over top of building
21:47	Common pipistrelle	Commuting, flying over surveyed building
21:54	Common pipistrelle	Heard not seen



SURVEY 3

14TH AUGUST 2024

Date: 14/08/2024
Sunset: 20:38
Start time: 20:23
End time: 22:08

Weather conditions: Dry, slight breeze, 19°C, 10% cloud cover

Surveyor: Phoebe Parry (V4)

TIME	SPECIES	ACTIVITY
20:51	Common pipistrelle	Commuting along Houldsworth Street
20:51	Common pipistrelle	Commuting back – flew over roof of building
20:57	Common pipistrelle	Flew over roof
21:02	Common pipistrelle	Continuously foraging over roof
21:25	Common pipistrelle	Heard not seen

Surveyor: Carlin Jones (V5)

TIME	SPECIES	ACTIVITY
20:51	Common pipistrelle	Commuting north to south along the road
20:58	Common pipistrelle	Seen not heard continuously foraging above building
21:00	Common pipistrelle	Commuting west to east over building
21:01	Common pipistrelle	Commuting south from building and back
21:04	Common pipistrelle	Commuting over building then south along to road, then west back toward the building
21:09	Common pipistrelle	Continuously foraging over roof of the building in intervals
21:17	Common pipistrelle	Continuously foraging over roof of the building in intervals

Surveyor: Chris Atwell-Hughes (V10)

TIME	SPECIES	ACTIVITY
20:54	Common pipistrelle	Heard not seen
21:00	Common pipistrelle	Heard not seen
21:02	Common pipistrelle	Foraging and commuting above building and back repeatedly
21:05	Common pipistrelle x2	Commuting
21:04	Common pipistrelle	Foraging
21:06	Common pipistrelle	Foraging
21:08	Common pipistrelle	Commuting
21:10	Common pipistrelle	Heard not seen
21:10	Common pipistrelle	Commuting from the right of building to the left
21:12	Common pipistrelle	Foraging
21:14	Common pipistrelle	Foraging
21:13	Common pipistrelle	Heard not seen
21:17	Common pipistrelle	Heard not seen



TIME	SPECIES	ACTIVITY
21:25	Common pipistrelle	Heard not seen

Surveyor: Jacob Ng (V11)

TIME	SPECIES	ACTIVITY
21:19	Common pipistrelle	Heard not seen
21:59	Common pipistrelle	Heard not seen

Surveyor: Conor Evans (V12)

TIME	SPECIES	ACTIVITY
20:53	Common pipistrelle	Commuting above B1
21:00	Common pipistrelle	Commuting south to north over building
21:01	Common pipistrelle	Commuting north to north
21:02	Common pipistrelle	Heard not seen
21:59	Common pipistrelle	Heard not seen, foraging



SURVEY 4

20TH AUGUST 2024

Date: 20/08/2024
Sunset: 20:25
Start time: 20:10
End time: 21:55

Weather conditions: Dry, moderate breeze, 14°C, 10% cloud cover

Surveyor: Rowan Whittaker (V7)

TIME	SPECIES	ACTIVITY
20:46	Common pipistrelle	Foraging
20:48	Common pipistrelle	Continuously foraging
20:50	Common pipistrelle	Continuously foraging
21:03	Common pipistrelle	Foraging
21:08	Common pipistrelle	Heard not seen
21:10	Common pipistrelle	Heard not seen
21:12	Common pipistrelle	Foraging
21:14	Common pipistrelle	Heard not seen
21:16	Common pipistrelle	Heard not seen
21:19	Common pipistrelle	Heard not seen
21:31	Common pipistrelle	Heard not seen
21:33	Common pipistrelle	Heard not seen
21:35	Common pipistrelle	Heard not seen
21:37	Common pipistrelle	Heard not seen
21:40	Common pipistrelle	Heard not seen
21:43	Common pipistrelle	Heard not seen
21:49	Common pipistrelle	Heard not seen
21:53	Common pipistrelle	Heard not seen

Surveyor: Eloise Adams (V9)

TIME	SPECIES	ACTIVITY
20:44-20:54	Common pipistrelle	Continuously foraging, circling around the roof of B4 behind for approximately 10 minutes
21:03	Common pipistrelle	Heard not seen, foraging
21:08	Common pipistrelle	Heard not seen, continuously foraging
21:13	Common pipistrelle	Continuously foraging, flew from roof of B4 opposite
21:31	Common pipistrelle	Heard not seen, foraging
21:42	Common pipistrelle	Heard not seen, foraging

Surveyor: Conor Evans (V13)

TIME	SPECIES	ACTIVITY
20:46	Common pipistrelle	Commuting above B1 then flew northeast
20:54	Common pipistrelle	Commuting north to south over the buildings



Surveyor: Zack Whitehead (V14)

TIME	SPECIES	ACTIVITY
20:48	Common pipistrelle	HNS
20:54	Common pipistrelle	HNS

Surveyor: Lucy Hayward (V15)

TIME	SPECIES	ACTIVITY
20:46	Common pipistrelle	Commuting across roof of B5
20:52	Common pipistrelle	Heard not seen
21:06	Common pipistrelle	Heard not seen
21:08	Common pipistrelle	Heard not seen
21:09	Common pipistrelle	Commuting south to northwest
21:10	Common pipistrelle	Commuting south to northwest
21:11	Common pipistrelle	Commuting back and forth between south and northwest
21:12	Common pipistrelle	Commuting
21:13	Common pipistrelle	Commuting
21:16	Common pipistrelle	Commuting and foraging
21:31	Common pipistrelle	Heard not seen
21:32	Common pipistrelle	Heard not seen
21:35	Common pipistrelle	Heard not seen
21:37	Common pipistrelle	Heard not seen
21:38	Common pipistrelle	Commuting
21:43	Common pipistrelle	Commuting back and forth from west to east
21:48	Common pipistrelle	Commuting back and forth from west to east



SURVEY 5

28TH AUGUST 2024

Date: 28/08/2024
Sunset: 20:09
Start time: 19:54
End time: 21:39

Weather conditions: Dry, light breeze, 19°C, 10 % cloud cover

Surveyor: Jacob Ng (V1)

TIME	SPECIES	ACTIVITY
20:26	Common pipistrelle	Commuting to the north
20:27	Common pipistrelle	Commuting to the north
20:30	Common pipistrelle	Flew very close from the building and then flew north
20:32	Common pipistrelle	Commuting to the north
20:38	Common pipistrelle	Heard not seen
21:04	Common pipistrelle	Heard not seen

Surveyor: Rowan Whittaker (V2)

TIME	SPECIES	ACTIVITY
20:26	Common pipistrelle	Foraging
20:28	Common pipistrelle	Continuous foraging
20:29	Common pipistrelle	Heard not seen
20:31	Common pipistrelle	Heard not seen
20:32	Common pipistrelle	Foraging
20:47	Common pipistrelle	Heard not seen

Surveyor: Lucy Hayward (V3)

TIME	SPECIES	ACTIVITY
20:06	Common pipistrelle	Commuting to the right of vantage point
20:08	Common pipistrelle	Commuting to the right of vantage point
20:11	Common pipistrelle	Commuting to the right of vantage point
20:28	Common pipistrelle	Commuting east to west across vantage point
20:33	Common pipistrelle	Commuting close to B1
20:40	Common pipistrelle	Commuting to the right of vantage point
20:47	Common pipistrelle	Heard not seen
20:48	Common pipistrelle	Heard not seen
20:50	Common pipistrelle	Heard not seen
20:52	Common pipistrelle	Heard not seen
20:54	Common pipistrelle	Heard not seen
20:56	Common pipistrelle	Heard not seen
21:00	Common pipistrelle	Heard not seen
21:03	Common pipistrelle	Heard not seen
21:08	Common pipistrelle	Heard not seen
21:13	Common pipistrelle	Heard not seen
21:36	Common pipistrelle	Heard not seen



TIME	SPECIES	ACTIVITY
21:39	Common pipistrelle	Heard not seen

Surveyor: Conor Evans (V6)

TIME	SPECIES	ACTIVITY
20:07	Common pipistrelle	Emergence from southeast aspect of B1
20:08	Common pipistrelle	Commuting east over building
20:10	Common pipistrelle	Foraging over building
20:11	Common pipistrelle	Commuting southeast over building
20:28	Common pipistrelle	Commuting southwest over building
20:41	Common pipistrelle	Heard not seen
20:47	Common pipistrelle	Heard not seen
20:48	Common pipistrelle	Foraging over building
20:52	Common pipistrelle	Foraging along Little Ancoats Street
20:56	Common pipistrelle	Foraging around building
21:02	Common pipistrelle	Heard not seen
21:05	Common pipistrelle	Heard not seen
21:10	Common pipistrelle	Heard not seen
21:35	Common pipistrelle	Heard not seen

Surveyor: Chorus (V8)

TIME	SPECIES	ACTIVITY
20:07	Common pipistrelle	Heard not seen
20:27	Common pipistrelle	Heard not seen
20:32	Common pipistrelle	Heard not seen
20:47	Common pipistrelle	Heard not seen
20:48	Common pipistrelle	Heard not seen
20:49	Common pipistrelle	Heard not seen
20:51	Common pipistrelle	Heard not seen
20:56	Common pipistrelle	Heard not seen
20:57	Common pipistrelle	Heard not seen
21:01	Common pipistrelle	Heard not seen
21:02	Common pipistrelle	Heard not seen
21:04	Common pipistrelle	Heard not seen
21:05	Common pipistrelle	Heard not seen
21:06	Common pipistrelle	Heard not seen
21:07	Common pipistrelle	Heard not seen
21:08	Common pipistrelle	Heard not seen
21:10	Common pipistrelle	Heard not seen
21:11	Common pipistrelle	Heard not seen
21:12	Common pipistrelle	Heard not seen
21:36	Common pipistrelle	Heard not seen
21:37	Common pipistrelle	Heard not seen
21:40	Common pipistrelle	Heard not seen



SURVEY 6

11TH SEPTEMBER 2024

Date: 11/09/2024
Sunset: 19:33
Start time: 19:18
End time: 21:03

Weather conditions: Mostly dry, light rain at 20:09 for two minutes, slight breeze, 12°C, 50% cloud cover

Surveyor: Anna Cocker (V7)

TIME	SPECIES	ACTIVITY
20:07	Common pipistrelle	Heard not seen, foraging
20:15-20:28	Common pipistrelle	Heard not seen, continuous foraging

Surveyor: Chris Atwell-Hughes (V9)

TIME	SPECIES	ACTIVITY
20:07	Common pipistrelle	Heard not seen
20:15	Common pipistrelle	Heard not seen
20:17	Common pipistrelle	Heard not seen
20:19	Common pipistrelle	Heard not seen
20:21	Common pipistrelle	Heard not seen
20:23	Common pipistrelle	Heard not seen
20:25	Common pipistrelle	Heard not seen
20:27	Common pipistrelle	Heard not seen

Surveyor: Conor Evans (V13)

TIME	SPECIES	ACTIVITY
-	-	No bats observed

Surveyor: Rowan Whittaker (V14)

TIME	SPECIES	ACTIVITY
20:08	Common pipistrelle	Seen but not heard, flying close to B5 roof, no detector activity

Surveyor: Lucy Hayward (V15)

TIME	SPECIES	ACTIVITY
20:04	Common pipistrelle	Heard not seen
20:08	Common pipistrelle	Heard not seen
20:14-20:23	Common pipistrelle	Heard not seen, constant activity



SURVEY 7

16TH SEPTEMBER 2024

Date: 16/09/2024
Sunset: 19:21
Start time: 19:06
End time: 20:51

Weather conditions: Dry, slight breeze, 18°C, 10 % cloud cover

Surveyor: Jacob Ng (V1)

TIME	SPECIES	ACTIVITY
19:57	Common pipistrelle	Heard not seen

Surveyor: Rowan Whittaker (V2)

TIME	SPECIES	ACTIVITY
19:45	Common pipistrelle	Heard not seen
19:57	Common pipistrelle	Heard not seen

Surveyor: Rebecca Owens (V3)

TIME	SPECIES	ACTIVITY
19:43	Common pipistrelle x2	Commuting
19:44	Common pipistrelle	Foraging
19:45	Common pipistrelle	Continuous foraging
19:49	Common pipistrelle	Continuous foraging
19:53	Common pipistrelle	Foraging
19:54	Common pipistrelle	Commuting

Surveyor: Conor Evans (V6)

TIME	SPECIES	ACTIVITY
19:43	Common pipistrelle	Foraging over building and along Little Ancoats Street
19:46	Common pipistrelle x2	Second common pipistrelle commuting over building south to north
19:52	Common pipistrelle	Commuting over building
19:57	Common pipistrelle	Commuting over building
20:09	Common pipistrelle	Heard not seen, socialising
20:17	Common pipistrelle	Heard not seen, foraging and social calls
20:21	Common pipistrelle	Heard not seen, commuting and social calls
20:28	Common pipistrelle	Heard not seen, social calls
20:31	Common pipistrelle	Heard not seen, social calls
20:40	Common pipistrelle	Heard not seen, social calls
20:43	Common pipistrelle	Heard not seen, social calls
20:49	Common pipistrelle	Heard not seen, social calls



Surveyor: Eloise Adams (V8)

TIME	SPECIES	ACTIVITY
19:44	Common pipistrelle	Continuously foraging, circling above vantage point
19:51	Common pipistrelle	Continuously foraging
20:07	Common pipistrelle	Heard not seen, continuously foraging
20:17	Common pipistrelle	Heard not seen, continuously foraging
20:27	Common pipistrelle	Heard not seen, foraging
20:41	Common pipistrelle	Heard not seen, social call
20:46	Common pipistrelle	Heard not seen, social call

APPENDIX II

VANTAGE POINT

FIELDS OF VIEW





VANTAGE POINT 1

Figure 3: Showing V1 on 05th August 2024



Figure 4: Showing V1 on 28th August 2024

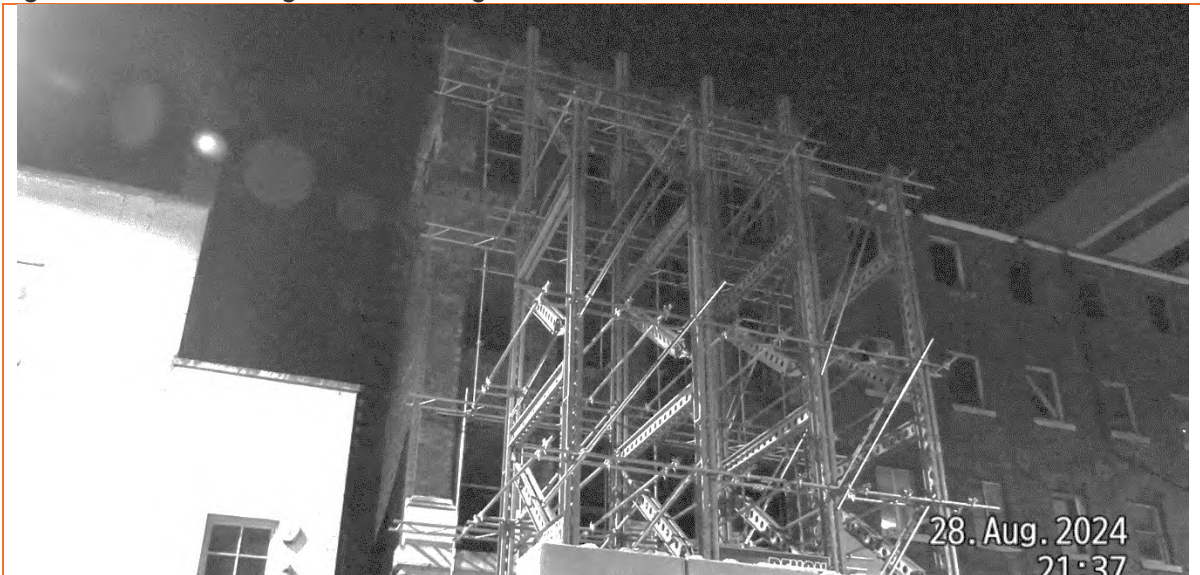




Figure 5: Showing V1 on 16th September 2024



VANTAGE POINT 2

Figure 6: Showing V2 on 05th August 2024





Figure 7: Showing V2 on 28th August 2024



Figure 8: Showing V2 on 16th September 2024





VANTAGE POINT 3

Figure 9: Showing V3 on 05th August 2024



Figure 10: Showing V3 on 28th August 2024





Figure 11: Showing V3 on 16th September 2024



VANTAGE POINT 4

Figure 12: Showing V4 on 14th August 2024





VANTAGE POINT 5

Figure 13: Showing V5 on 14th August 2024



VANTAGE POINT 6

Figure 14: Showing V6 on 05th August 2024





Figure 15: Showing V6 on 28th August 2024



Figure 16: Showing V6 on 16th September 2024





VANTAGE POINT 7

Figure 17: Showing V7 on 29th July 2024



Figure 18: Showing V7 on 20th August 2024





Figure 19: Showing V7 on 11th September 2024



VANTAGE POINT 8

Figure 20: Showing V8 on 05th August 2024





Figure 21: Showing V8 on 28th August 2024



Figure 22: Showing V8 on 16th September 2024





VANTAGE POINT 9

Figure 23: Showing V9 on 29th July 2024



Figure 24: Showing V9 on 20th August 2024



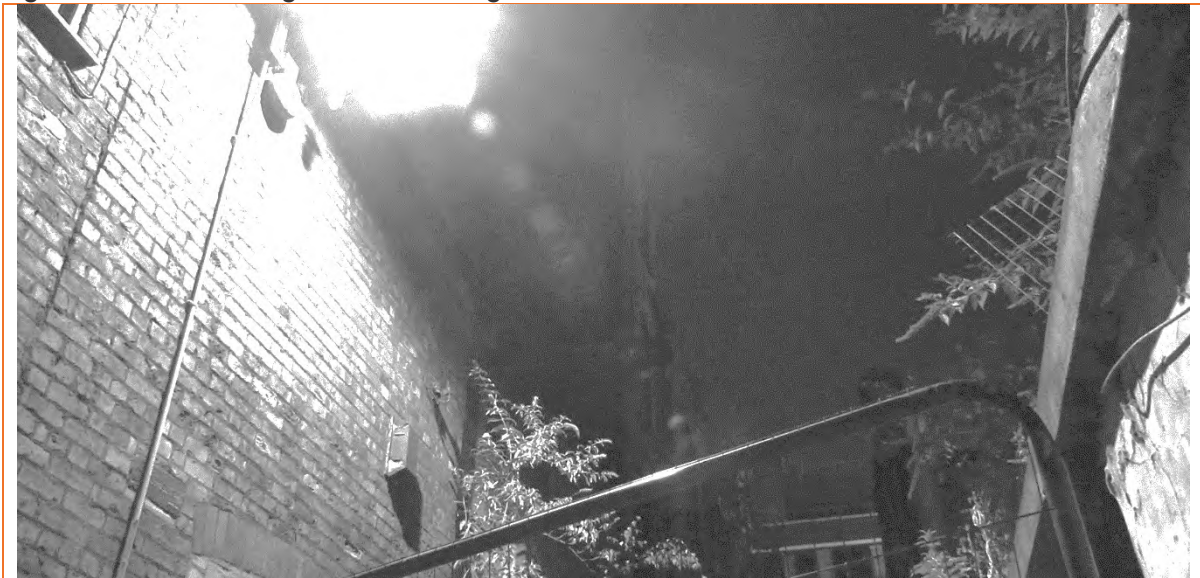


Figure 25: Showing V9 on 11th September 2024



VANTAGE POINT 10

Figure 26: Showing V10 on 14th August 2024





VANTAGE POINT 11

Figure 27: Showing V11 on 14th August 2024



VANTAGE POINT 12

Figure 28: Showing V12 on 14th August 2024





VANTAGE POINT 13

Figure 29: Showing V13 on 29th July 2024

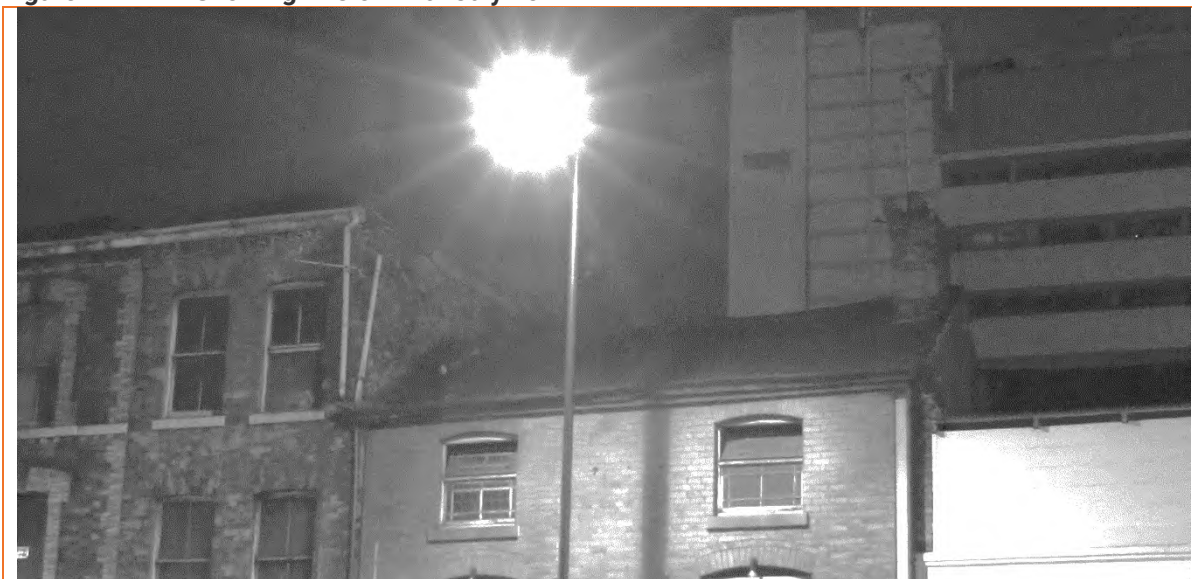


Figure 30: Showing V13 on 20th August 2024





Figure 31: Showing V13 on 11th September 2024



VANTAGE POINT 14

Figure 32: Showing V14 on 29th July 2024





Figure 33: Showing V14 on 20th August 2024



Figure 34: Showing V14 on 20th August 2024





VANTAGE POINT 15

Figure 35: Showing V15 on 29th July 2024



Figure 36: Showing V15 on 20th August 2024





Figure 37: Showing V15 on 11th September 2024

