



FORMER HOT MILL, LLANWERN

Bat Activity Survey Report

Tata Steel UK Ltd

2486598-D05 (02)

www.rskbiocensus.com

RSK
biocensus
EXPERTS IN ECOLOGY

General Notes

Document ref.: 2486598-D05 (01)

Title: Former Hot Mill, Llanwern – Bat Activity Survey Report

Client: Tata Steel UK Ltd

Date: August 2025

Office: Bristol

Status: Draft for client review

Revision	Date	Comments/amendments	Prepared by	Checked by	Approved by
00	22/08/2025	Draft for client review	ED18	TC47	TC47
01	16/09/2025	Amendments following client review	ED18	TC47	TC47
02	26/09/2025	Minor amendments requested by client	ED18	PR18	PR18

Executive Summary

1. RSK Biocensus was appointed by Tata Steel, to carry out bat surveys at the Construction, Design and Management area (CDM) of the former 'Hot Mill' building, surrounding buildings and structures.
2. The site is located within the Llanwern Steelworks, North of Queensway, Llanwern, Newport, South Wales (central grid ref: ST 37619 86666).
3. The objective of the assessment was to determine whether bats are present, and if so which species, their numbers and how they are using the structure(s), in order to inform an impact assessment.
4. The former Hot Mill is a very large building, with a footprint of c. 11.6 hectares. The main body of the building is approximately 860 meters (length) x 60m (width) x 30m (height).
5. The proposed works are for demolition of the former Hot Mill and adjacent buildings and structures inside the CDM area. The demolition process is expected to take up to 3 years for the whole site.
6. Of the 33 buildings or structures within the Site and wider survey area and subject to preliminary roost assessment, 11 are considered to offer negligible potential to support bat roosts, 11 had low potential, two had moderate potential, and nine had confirmed evidence of use by bats.
7. Six of the buildings within the wider survey area are more than 200m from the former Hot Mill and therefore were only subject to a preliminary roost assessment.
8. Eight of the buildings with roosting potential (buildings 1, 2, 4B, 6, 8, 9A, 9D and 11 on Figure 2) were not subject to further survey in 2025, as they are all at least 30m from the former Hot Mill (consisting of buildings 10A, 10B, 10C and 12 on Figure 2), and will not be subject to works until 2027 or 2028.
9. Surveys were completed through 2025 including dusk emergence surveys, dawn back-tracking surveys and static detector deployments on nine of the buildings (buildings 9B, 9C, 10A, 10B, 10C, 10D, 12, 13, 16 on Figure 2). Survey results have identified small numbers of lesser horseshoe, common pipistrelle and brown long-eared bats are roosting on the Site.
10. All buildings within the Site boundary on Figures 1 and 2 are to be demolished. At the time of writing buildings 9B, 9C, 10A, 10C, 12 and 13 are confirmed bat roosts within the CDM boundary. 10A, 10B, 10C, 10D and 12 all make up sections of the former Hot Mill, which will take approximately three years to demolish.
11. Bats and their roosts are fully protected under Wildlife and Countryside Act 1981 (as amended) and Conservation of Habitats and Species 2017 (as amended). The works will lead to the loss of six buildings used as bat roosts by three species. In the absence of mitigation, bats could be disturbed, killed or injured during works and roosts will be lost.
12. A bat mitigation licence will be required from Natural Resources Wales (NRW), prior to start of works.
13. An outline mitigation strategy is presented in Appendix H, which will ensure that works can be undertaken in a legally compliant manner, and demolition of the buildings will not affect the favourable conservation status of the species present.
14. The outline mitigation includes requirement for a bat licence, enhancement of B16 which is outside the CDM boundary and not subject to demolition, and erection of bat boxes. Timing of works will apply to certain elements.

15. NRW take a minimum of 30 working days to assess a licence application. Submission of an application does not guarantee a licence will be accepted.
16. As part of the mitigation strategy, surveys of buildings to be demolished in 2027/2028 are proposed to take place in 2026. This will include emergence surveys of buildings 2, 6 and 11 (all identified as having 'low' potential to be used by roosting bats), buildings 1 and 9A (all identified as having 'moderate' potential to be used by roosting bats). Buildings 4B, 8 and 9D will initially be subject to further inspections, as the features identified can be inspected via torch / endoscope. Additional emergence surveys of building 4B may be required should endoscope surveys confirm cavity walls are present, which cannot be fully inspected. These buildings are all more than 30m away from any demolition works that will take place prior to surveys on them.
17. Prior to the start of demolition, equipment and machinery is proposed to be removed from the interior of the former Hot Mill (buildings 10A, 10B, 10C, 10D and 12 on Figure 2). These will be unbolted from the floors and lifted out via existing cranes that roll along tracks, and would deposit the machinery at existing roller shutters. Such works do intermittently take place already within the building, as part of routine maintenance. Provided works are discussed in detail with an ecologist, and areas with potential for roosting bats to be present are checked in advance, it is considered that this could start in advance of the bat mitigation licence having been received, as the risk of causing an offence is negligible.

Contents

1	Introduction	4
1.1	Purpose of the report.....	4
1.2	Background information.....	4
1.3	Proposed development.....	5
1.4	Site description and landscape context.....	5
1.5	Legislation.....	5
2	Methodology	7
2.1	Desk study	7
2.2	2025 preliminary roost assessment / building inspections.....	7
2.3	Emergence surveys	9
2.4	Dawn back-tracking survey	10
2.5	Static detector surveys	11
2.6	Limitations.....	14
2.7	Validity of data	15
3	Results	16
3.1	Desk study	16
3.2	Preliminary roost assessment / building inspections.....	17
3.3	Emergence / dawn re-entry survey	18
3.4	Static detector surveys	20
4	Valuation and Recommendations.....	25
4.1	Project proposals	25
4.2	Survey scope	26
4.3	Roost characterisation and conservation status	27
4.4	Project implications and recommendations.....	28
5	References.....	30
	Figures	31
	Appendix A - Desk Study Information.....	44
	Appendix B - PRA Results	46
	Appendix C - End of survey Infra-red camera stills	63
	Appendix D - End of survey thermal stills.....	65
	Appendix E - Emergence or re-entry infra-red camera stills	67
	Appendix F – Emergence or Re-entry thermal camera stills.....	71
	Appendix G – Bat Access Points Identified by Surveyors	72
	Appendix H – Outline Mitigation Plan	74

1 Introduction

1.1 Purpose of the report

- 1.1.1 RSK Biocensus was appointed by Tata Steel UK Ltd, to carry out bat surveys at the Construction, Design and Management area (CDM) of the former 'Hot Mill' building, surrounding buildings and structures.
- 1.1.2 The site is located within the Llanwern Steelworks, North of Queensway, Llanwern, Newport, South Wales (central grid ref: ST 37619 86666).
- 1.1.3 The objective of the assessment was to determine whether bats are present, and if so which species, their numbers and how they are using the structure(s), in order to inform an impact assessment.
- 1.1.4 The Site is the area within the CDM and is shown in the red-line boundary in Figure 1 (hereafter referred to as 'the Site'). The survey area included additional land and buildings shown within the blue-line boundary.

1.2 Background information

- 1.2.1 A Preliminary Roost Assessment (PRA) was conducted on the Site and a wider area of the steelworks on 26 March 2024 (RSK Biocensus, 2024) and an internal PRA inspection of the Hot Mill motor rooms was carried out on 12 December 2024 and hibernation surveys of the basement area of the building was carried out between 12 December 2024 and 07 March 2025 (RSK Biocensus, 2024).
- 1.2.2 Please refer to the bat survey reports titled '2486598 Llanwern Northern Site PRA FINAL Rev01' and '2486598 - Llanwern Hotmill Motor Room PRA and Bat Hibernation Survey Report Rev00' for the full survey reports and recommendations.
- 1.2.3 The PRA survey included a total of 28 buildings and structures within the site of the former steelworks. Five buildings (buildings B15, B16, B18, B20 and B22) were identified as bat roosts due to finding bat droppings during internal or external physical inspections for evidence of bats. Many parts of the buildings could not be internally inspected at the time due to asbestos and other access related issues. Some of these areas have now been made available for access and updated internal inspections have therefore been possible to carry out during 2025.
- 1.2.4 The hibernation survey conducted on part of the former Hot Mill (building 10A in Figure 2), in the Motor Rooms, between December 2024 and March 2025 found evidence of roosting bats, in the form of two dead bats (one pipistrelle species and one brown long-eared bat (*Plecotus auritus*)) and bats were recorded on static detectors within the building during this time (brown long-eared and common pipistrelle (*Pipistrellus pipistrellus*)).
- 1.2.5 The Mill motor rooms basement (c. 600m) was included in the hibernation survey. This area is at ground floor level and somewhat enclosed, although connected internally to other parts of the building via open staircases. The slab yard motor rooms basement (c. 200 m) and the northern cellars (c. 300m and located underground) were not included in the hibernation surveys.

1.3 Proposed development

- 1.3.1 The proposal is for demolition of the former Hot Mill and surrounding buildings. Works are anticipated to commence in Autumn 2025 on the Hot Mill and last for a duration of c. three years. The adjacent buildings are planned to be demolished at a later stage (likely 2-3 years from the start of the demolition works).
- 1.3.2 The aim is to remove all buildings within the redline boundary and infill all cellars and other underground structures.

1.4 Site description and landscape context

- 1.4.1 The c. 32 hectare (ha) Site is located east of the city of Newport. A review of aerial photographs and OS maps shows that the Site is bordered to all directions by the wider Llanwern Steelworks site, with the A4810 road 200m to the south, and the Tata exchange railway sidings c.330m north, which are separated from the mainline railway by a (c. 100m wide) woodland strip.
- 1.4.2 The Llanwern Steelworks site is bordered by industrial landscapes to south, east and west, with agricultural fields to the north beyond the main line railway. The Gwent levels are c.930m south and the Severn Estuary is located approximately 3km to the south.
- 1.4.3 The Site comprises 28 buildings and structures within the north-west of Llanwern steelworks complex, located around the Hot Mill. The Hot Mill occupies the majority of the Site area, with a footprint of approximately 11.6 hectares. Including all sections it is approximately 860m long, 30m high and between 60-195m wide. Surrounding the Hot Mill are a number of structures ranging from single storey buildings which were used as offices, to four storey concrete cooling towers and water treatment plants. The majority of the land between buildings is bare ground or hardstanding in the form of slag, gravel or tarmac. Scrub, ruderal and ephemeral vegetation has begun to colonize the mounds of fuel ash/slag and the edges and cracks within the hard standing and bare ground.
- 1.4.4 Site includes settlement tanks for treatment of oil effluents. An ornamental pond used by geese is present to the north-east.
- 1.4.5 The site features areas of habitat suitable for foraging by a range of bat species. Specifically, the dry lagoon in the north, channels and areas of grassland around the operational areas of the site. In the vicinity of the site there are blocks of woodland, with coastal grazing marsh to the south of the site.

1.5 Legislation

- 1.5.1 Table 1 below provides a summary of the legislation considered in this assessment.

Table 1: Legislation considered in this assessment

Legislation/Source	Notes
The Conservation of Habitats and Species Regulations (Habitats Regulations) 2017 (as amended) The Wildlife and Countryside Act (WCA) 1981 (as amended)	Affords protection to certain species and habitats listed on the relevant schedules.
The Environment (Wales) Act 2016	Places a duty on planning authorities to consider habitats and species of principal importance in planning applications.

2 Methodology

2.1 Desk study

- 2.1.1 A data search for records of bats and their roosts within the Site boundary and a 2 kilometre (km) buffer was obtained from South East Wales Biodiversity Records Centre in July 2025.
- 2.1.2 The desk study also included a search for any statutory and non-statutory designated sites for which bats are a reason for designation/qualifying feature.
- 2.1.3 The desk study was carried out in July 2025.

Table 2: Data Sources

Information Obtained	Available From
Bat records	South East Wales Biodiversity Records Centre
Designated site locations and citations	Natural Resource Wales
Designated site locations and citations	Joint Nature Conservation Committee (JNCC) Website
Designated site locations and citations	South East Wales Biodiversity Records Centre
Designations and legal protection of noteworthy species	Joint Nature Conservation Committee (JNCC) Website
Areas/Habitats of Strategic Significance	https://www.newport.gov.uk/environment/biodiversity

- Internationally designated statutory sites search distance: 10 km.
 - All statutory designated sites search distance: 2 km.
 - Non-statutory designated sites search distance: 2 km.
- 2.1.4 The search areas used has taken into account the potential distance/ area over which an impact could occur as a result of the proposed works.

2.2 2025 preliminary roost assessment / building inspections

- 2.2.1 The Bat Conservation Trust (BCT) provides guidance for bat survey work in the *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 4th ed (Collins, 2023). The survey was carried out in-line with best practice guidelines.
- 2.2.2 An update preliminary roost assessment (PRA) survey of 33 buildings or structures were undertaken by RSK Biocensus in 2025 to look for new evidence of bats (following March 2024 PRA) and inform subsequent presence/likely absence or further survey requirements. External, and where possible internal, assessment of the buildings and structures was carried out.
- 2.2.3 PRA surveys in the form of internal inspections for evidence of bats (such as e.g. live or dead bats, droppings or insect feeding remains) were carried out of the former Hot Mill (different sections labelled as buildings 10A, 10B, 10C, 10D and 12 on Figure 12) and buildings (B1-13, B16-B22, and B28A-C). Buildings B16-B22 are located outside of the Site but were included in the surveys to provide context to the findings from the Site.

- 2.2.4 The 2025 building inspections were carried out over nine visits between 22 May and 01 August 2025. This approach was taken due to the very large size of the former Hot Mill and its surrounding buildings. Surveys were conducted by staff ED18 and TC47.
- 2.2.5 TC47 holds a bat licence (NRW ref no: S092623/1), is a full member of the Chartered Institute of Ecologists and Environmental Management (CIEEM) and has over fourteen years' experience of undertaking bat survey work.
- 2.2.6 ED18 holds a bat licence (NRW ref no: S091598-1), is a full member of the Chartered Institute of Ecologists and Environmental Management (CIEEM) and has over fifteen years' experience of undertaking bat survey work.
- 2.2.7 Visual, systematic examinations were made of each building/structure for characteristics that may be used by roosting bats externally and internally. Potential access points into internal features (e.g. voids) were noted as well as any crevices and voids in the building fabric which could provide roosting opportunities.
- 2.2.8 The PRA also involved searching for direct signs of roosting bats including live or dead bats, droppings, urine stains, odour, staining from fur-oils, wear marks, feeding remains, odour, squeaking and chattering. Bat droppings can prove beyond doubt that bats use a building and can help to identify roosting locations because piles often accumulate beneath roosting sites or entrance points, although absence of droppings does not mean bats are absent.
- 2.2.9 A detailed inspection (using an endoscope, binoculars and a torch) of potential roost features was undertaken where safely accessible. The criteria shown in Table 3 were used to categorise each building according to its suitability for roosting bats, considering year round use.
- 2.2.10 Winter use includes 'classic' hibernation sites, i.e. sites (often underground) providing cool stable conditions. However, many bats roost individually or in small numbers in buildings (particularly pipistrelles) or in trees. In addition, when prevailing conditions are favourable, many bats are frequently found in thermally unstable roost sites and not necessarily in hibernation torpor. Winter use is notoriously difficult to determine, particularly in non-classic sites, and an assessment needs to take into account likely suitability, connectivity and landscape context (see Reason and Wray, 2023).
- 2.2.11 Whilst not a primary target of the survey, incidental evidence of nesting birds or other animals identified during the survey was recorded.

Table 3: 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 (adapted from Collins, 2023).

Potential suitability	Roosting habitats in structures	Potential flight-paths and foraging habitats
None	No habitat features on Site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on Site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible	No obvious habitat features on Site likely to be used by roosting bats; however, a	No obvious habitat features on Site likely to be used as flight-paths or by foraging

Potential suitability	Roosting habitats in structures	Potential flight-paths and foraging habitats
	small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. 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 and not a classic cool/stable hibernation site, but could be used by individual hibernating bats).	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat.
Moderate	A structure 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, such as maternity and hibernation – the categorisation described in this table is 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 flight-paths 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 with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths 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.

2.3 Emergence surveys

- 2.3.1 Two dusk emergence bat surveys of the former hot mill building and immediately adjacent structures were undertaken during 15 May and 16 July 2025. This covered buildings 10A, 10B, 10C, 10D, 12 (all parts of the Hot Mill) on Figure 2. Due to the scale of the building, a non-standard approach to surveys was adopted. Eight FLIR thermal cameras were deployed around the building, covering all elevations. These cameras have a working range of 200-400m, allowing them to view much larger areas than infra-red cameras (or surveyors eyes). Cameras were paired with a Elekon Batlogger M bat detector. Four surveyors took up stations near the cameras, primarily to monitor the

cameras rather than view the building themselves. FLIR Research Studio software was used for analysis of the results.

- 2.3.2 Two dusk emergence bat surveys were carried out on building B13 during 22 May 2025 and 25 July 2025. This building was deemed to have moderate bat roosting suitability during the 2024 PRA survey. Two surveyors were present, using two Canon XA-11 infra-red cameras 22 May and three two Canon XA-11 infra-red cameras 25 July. Each camera had a separate IR lamp on a tripod. Elekon Batlogger M bat detectors were paired with each camera.
- 2.3.3 Two dusk emergence bat surveys were carried out of building B16 during 17 July 2025 and 06 August 2025. Two surveyors were present, using three Canon XA-11 infra-red cameras. Each camera had a separate IR lamp on a tripod. Elekon Batlogger M bat detectors were paired with each camera.
- 2.3.4 The lead surveyor for all dusk surveys was staff reference number ED18. Thermal or IR video cameras were positioned with a good view of likely bat access points.
- 2.3.5 The dusk emergence surveys commenced 30 minutes before sunset and continued for at least 1.5 hours after sunset for building B13. Dusk emergence surveys commenced 30 minutes before sunset and continued for 2 hours after sunset (30 additional minutes) for building B16 and the Hot Mill due to horseshoe bat roosting potential.

2.4 Dawn back-tracking survey

- 2.4.1 One dawn backtracking survey was conducted of the Hot Mill on 24 July 2025.
- 2.4.2 Two pairs of surveyors started the survey 2 hours before sunrise and finished 20 minutes after. Two routes were walked, one along the northern side of the Hot Mill and along the eastern side of the discharge bay (which runs north to south on western end), with the second route along the southern side of the Hot Mill and through B12 (hangar like structure on south of Hot Mill).
- 2.4.3 The surveyors were listening for and observing bat activity in the form of bats flying close to or entering the Hot Mill or adjacent buildings using Elekon Batlogger M2 bat detectors. Two thermal scopes (HIKMICRO Explorer E20 plus) were used for spot checks of bat activity close to the buildings. Bats identified flying towards the Hot Mill were followed to try and determine likely entry / roosting location.
- 2.4.4 Four Canon XA-11 IR cameras paired up with Elekon Batlogger M and Wildlife Acoustics SM4BAT-FS bat detectors were deployed in likely locations of bat entry, two on the north side and two on the south side.

Table 4: Weather conditions – Dusk/ dawn surveys

Date	Building Number	Survey Start	Sunset Time	Survey End	Temperature at start (°C)	Wind speed (mph)	General weather
15/05/2025	B10	20:56	21:26	23:26	15°C	8mph	Clear sky
22/05/2025	B13	20:57	21:07	22:57	12°C	5mph	Part cloud
03/07/2025	B13	21:02	21:32	23:02	18°C	6mph	Clear sky
16/07/2025	B10/B12	20:52	21:22	23:05	19°C	3mph	Light rain 22:30
17/07/2025	B16	20:51	21:21	23:21	20°C	5 mph	Cloudy

Date	Building Number	Survey Start	Sunset Time	Survey End	Temperature at start (°C)	Wind speed (mph)	General weather
24/07/2025	B10/B12	03:23	05:23	05:45	17°C	2mph	Part cloud
06/08/2025	B16	20:22	20:52	22:52	17°C	6mph	Part cloud

2.5 Static detector surveys

- 2.5.1 Static acoustic monitoring surveys were conducted on various sections of the Hot Mill (including the northern cellars, motor room, slab mill motor room, northern ramp (all sections of B10A), reheat furnace offices (B10C), discharge bay (B10B) and slab mill yard (B12)). In addition, statics were deployed within B16, B9C, B9B and on a woodland strip in an area between two train tracks along the northern edge of the site. See Figure 11 for all statics detector locations.
- 2.5.2 Passive acoustic monitoring static bat detector surveys were carried out between the dates of 22 May and 30 July 2025, over a total of 65 nights.
- 2.5.3 The locations of the statics were rotated with the aim of covering different areas within the Hot Mill and determined after reviewing other survey results such as updated PRA internal inspections (after finding bat droppings) and the sound analysis results from the dusk emergence and dawn backtracking survey.
- 2.5.4 Full spectrum Wildlife Acoustics SM4BAT-FS static bat detectors with omnidirectional microphones were used. Each had a microphone mounted at a height of 1-2m to maximise the probability of recording bat calls in addition to reducing the likelihood of noise interference from insects and moving vegetation.
- 2.5.5 The surveys were conducted in weather suitable for bats to be active i.e., no rain, no strong wind and sunset air temperature of 10°C or above, although influence of weather is considered less given statics were primarily deployed inside buildings.

Table 5 Static detector locations

Deployment number	Dates of deployment	Location of deployment (see Figure 11 for locations)	Number of nights deployed
1	27/05-15/06/2025	B10A – hot mill motor room	19
2	27/05-15/06/2025	B10A - slab mill motor room basement	19
3	22/05-12/06/2025	B10C – reheat furnace offices (kitchenette)	21
4	22/05-16/06/2025	B10A – hot mill basement (north side)	25
5	26/06-30/06/2025	B10A – hot mill north cellar fire zone 7	4
6	26/06-02/07/2025	B10C – reheat furnace offices (by broken window)	7
7	26/06-03/07/2025	B16 – lab room in south-eastern corner	8
8	30/06-03/07/2025	B10A - hot mill north cellar furnace	4
9	03/07-15/07/2025	B10C – reheat furnace offices	12

Deployment number	Dates of deployment	Location of deployment (see Figure 11 for locations)	Number of nights deployed
10	03/07-15/07/2025	B16 – lab room in south-eastern corner	12
11	03/07-15/07/2025	Woodland strip between train tracks to north of survey area	12
12	03/07-15/07/2025	Woodland strip between train tracks to north of survey area	12
13	17/07-24/07/2025	B10A – hot mill motor room	6
14	17/07-24/07/2025	B10C – reheat furnace offices (by broken window)	6
15	17/07-24/07/2025	B12 – slab yard (under canopy)	6
16	17/07-24/07/2025	B10B – discharge bay	6
17	25/07-31/07/2025	B16 – lab room in south-eastern corner	6
18	25/07-31/07/2025	B10A – hot mill motor room – west side two-storey building	6
19	26/07-31/07/2025	B10A – hot mill – ramp by large opening on north side (external)	6
20	26/07-31/07/2025	B10A – slab mill motor room basement	5
21	26/07-31/07/2025	B10A – hot mill motor room – east side two-storey building	5
22	06/08-26/08/2025	B9C – external boiler room	20
23	26/08-09/09/2025	B9B – dark corridor	13

Interpretation of Static Result

- 2.5.1 In addition to number of recordings per location and deployment, the static survey results were looked at in relation to sunset and sunrise times. These were added to the tables with results (from the website <https://www.timeanddate.com/> for the Llanwern location) and compared.
- 2.5.2 The analysis focused on lesser horseshoe (*Rhinolophus hipposideros*) and brown long-eared bats as both species have been recorded inside the buildings surveyed.
- 2.5.3 These two species are known to both be difficult to record (as quiet or directional echolocation calls) and are known to emerge from their roosts late (approx. 30min -1 hour after sunset) and re-enter early (approx. 30 min – 1 hour before sunrise).
- 2.5.4 It was deemed that any activity before or after the official sunset or sunrise could be seen as indication of a bat roost (as very likely to be inside the building at that time), and that any activity within 1 hour of the official sunset or sunrise time could indicate the presence of a roost, although bats may also be roosting nearby.

Data Analysis

- 2.5.5 Bat species were identified from the characteristics of their calls (including shape, peak frequency, minimum and maximum frequency, call duration, and inter-pulse interval).

Bat calls were analysed Kaleidoscope Lite software (version 5.7.0) and BTO Acoustic Pipeline.

- 2.5.6 The IR camera footage was reviewed in real time and analysed with VLC media player (V3.0.21).
- 2.5.7 The Thermal camera footage was reviewed using FLIR Research studio software (version 2025.04.0.).
- 2.5.8 All suspected bat emergences were saved as a short video clip to review and use for reference (as required) and a screen shot of footage showing the bat emerging was saved and included in the report,

Quality Assurance

- 2.5.9 Manual quality assurance was undertaken of all calls of species of interest to the survey results (in this case the focus was on lesser horseshoe (*Rhinolophus hipposideros*) and brown long-eared (*Plecotus auritus*) bats, and of all other unexpected or rarer species, including *Myotis* species).
- 2.5.10 These calls were subject to manual verification having been run through BTO pipeline. QA was not carried out of all common and soprano pipistrelle bats (unless emerging from buildings) as these were so abundant, or *Nyctalus* species as these were assumed to be commuting and foraging in the distance.
- 2.5.11 Echolocation calls were identified down to species wherever possible; however, depending on the type of bat encountered and call recorded, it is not always possible to reliably identify all bats beyond their genus. In particular, because of the similarities of their frequency-modulated calls, *Myotis* bat species cannot always be reliably separated.
- 2.5.12 All manual quality assurance of recorded calls was carried out by experienced bat ecologists.
- 2.5.13 Note that it can also be difficult to separate some calls of *Plecotus* (long-eared) bats as well as separating some *Plecotus* calls from *Myotis* bats - although only one species of *Plecotus* (*P. auratus*), the brown long-eared bat) is known to be present in Newport. It can also be difficult to distinguish between the two bats in the *Nyctalus* genus (noctule *N. noctula* and Leisler's bat *N. leisleri*), with those of serotine (*Eptesicus serotinus*). Analysis of cryptic calls can also be more difficult with faint or poor-quality recordings.
- 2.5.14 It should be noted that there are a number of variables that affect the 'detectability' of a bat call, ranging from their biology and ecology, to the environmental conditions and condition of the equipment, and so there are limitations in drawing certain conclusions about bat activity on a site from the use of bat detectors / sound analysis alone. Given the different detectability between different species of bats i.e. from a few meters (for the quietest species such as brown long-eared bats) up to 100 m (for noctule), the percentage distributions of units of activity (recordings containing a particular species' calls) detected should not be extrapolated to estimate abundance or compare levels of relative activity between species groups.
- 2.5.15 Caution should be exercised when reviewing the results as the number of recordings does not equate to the number of individual bats, and therefore assumptions cannot be made about species populations.

2.6 Limitations

2025 PRA Surveys

- Multiple areas within the Hot Mill and other buildings were inaccessible due to health and safety considerations - such as asbestos, oil, gas, chemicals, hazardous dust / residue, live electrics, unsafe structures. Therefore evidence of bats may have been missed.
- Many internal areas were difficult to survey due to dust, oil and stored items (many are disused) which means evidence of bats may not have been obvious.
- Dense buddleia scrub obscured some elevations of buildings or prevented close access.
- The height and complexity of some buildings, particularly the hot mill, made it difficult to see all potential gaps that may be used as access points.

Emergence Surveys

- One of the thermal cameras (camera 4) failed during the 1st dusk survey. During the 2nd dusk survey cameras 4 and 6 failed, while two of the cameras partially failed (camera 7 recorded for 1 hour 7 minutes and camera 9 recorded for 28 min).
- The 2nd dusk survey of the Hot Mill was cut short by light rain, so the survey finished 15 minutes early at 23:05.
- During 2nd dusk survey of Hot Mill one of the IR cameras failed at 22:33 (B10B North Ramp Large Opening), about 28 minutes earlier than survey end.
- During the dawn backtracking survey two IR cameras had issues with footage freezing causing a loss of about 22 minutes for camera 1 and about 10 minutes for camera 2. For both cameras this happened in the mid part of the survey.
- The dawn backtracking survey was carried out along the northern and southern sides of the Hot Mill B10B (including inside the slab mill B12) only, it did not cover the entire building.

Static Surveys

- Statics could only be placed where safe access was possible.
- Deployment 14 of SM4 bat detector failed to record inside B10C during 17 – 24 July 2025.
- Deployment 23 inside B9B during 26 August – 09 September 2025 was affected by a door opening (likely due to strong winds) next to the deployment in a dark corridor under an opening into the roof void. This allowed for light and draught ingress.
- While presence/ absence of different species in the genera *Myotis*, *Plecotus* and *Nyctalus* is now becoming easier to ascertain where high-quality calls have been collected, there are always calls where certainty is not possible and therefore levels of bat activity by species (rather than genus) must be interpreted with a degree of caution.
- *Myotis spp.* and some large bat calls were only identified to genus level. It is possible that some of these recordings could represent species not identified in the analysis of the recorded data.
- Due to passive (static) monitoring methodologies depending on sound reaching the microphone, the detection rate of bat calls varies with a bias towards loud bat calls; with quieter calls, namely brown long-eared bats potentially being under-recorded.

- 2.6.1 However, despite limitations it is considered that the survey effort and data gathered is sufficient to determine the use of the Site by bats and inform an impact assessment.

2.7 Validity of data

- 2.7.1 The Bat Survey Guidelines suggests that reports 12-18 months old are likely to be valid with some exceptions, but the reasons for repeating any surveys should be considered (see 2.6.16 et seq; Collins, 2023).

3 Results

3.1 Desk study

Designated sites

3.1.1 A review of statutory and non-statutory designated sites for nature conservation within 2km of the Site identified none that mention bats as a primary or secondary reason for designation.

3.1.2 The desk study returned records of seven bat species as outlined in Table 6 below.

Table 6 Bat records within 2 km of the site boundary

Scientific name	Common name	Designation	Most Recent
<i>Myotis</i>	Myotis bat species	EPS(Sch2), WCA5	2021
<i>Myotis daubentonii</i>	Daubenton's bat	EPS(Sch2), WCA5	2021
<i>Myotis nattereri</i>	Natterer's bat	EPS(Sch2), WCA5	2023
<i>Nyctalus</i>	Nyctalus bat species	EPS(Sch2), WCA5	2018
<i>Nyctalus noctula</i>	Noctule	EPS(Sch2), WCA5, S7	2023
<i>Pipistrellus</i>	Pipistrelle bat species	EPS(Sch2), WCA5, S7	2019
<i>Pipistrellus pipistrellus</i>	Common pipistrelle	EPS(Sch2), WCA5, S7	2023
<i>Pipistrellus pipistrellus</i>	Pipistrelle	EPS(Sch2), WCA5, S7	2016
<i>Pipistrellus pygmaeus</i>	Soprano pipistrelle	EPS(Sch2), WCA5, S7	2023
<i>Plecotus</i>	Long-eared bat species	EPS(Sch2), WCA5	2018
<i>Plecotus auritus</i>	Brown long-eared bat	EPS(Sch2), WCA5, S7	2019
<i>Rhinolophus hipposideros</i>	Lesser horseshoe bat	EPS(Sch2), WCA5, S7	2018

3.1.3 In addition to the above, the desk study returned records from Llanwern Steelworks from between 1/7/2018 and 30/09/2018. These records are associated with historic proposed works to the north of the Survey Area, in the strip of woodland between the train tracks, approximately 380m north of the Site. The records suggest up to 23 tree roosts and one building roost were identified during the course of the surveys, all of single bats, all outside the Survey Area.

Table 7 Roosts previously identified within the Llanwern Steelworks site by Mott MacDonald between 01/07/2017 and 30/09/2018

Species	Common name	Roost location	Number of roosts identified
<i>Chiroptera</i>	Bat	Tree	4
<i>Eptesicus serotinus</i>	Serotine	Tree	7
<i>Nyctalus noctula</i>	Noctule	Tree	1
<i>Pipistrellus</i>	Pipistrelle Bat species	Tree	3
<i>Pipistrellus</i>	Pipistrelle Bat species	Building	1
<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	Tree	5

<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	Tree	3
------------------------------	---------------------	------	---

- 3.1.4 A search for known roosts within 5km of the Site was undertaken, with 22 roosts returned (not including those in Table 7 above). The results from this part of the desk study are outlined in Table 8 of Appendix A.

3.2 Preliminary roost assessment / building inspections

- 3.2.1 The Hot Mill is a very large building, with a footprint of c. 11.6 hectares. The main body of the building (consisting of B10A, 10C and 10D) is approximately 800 meters (length) x 60m (width) x 30m (height). The two attached hangar like structures the 'Receipt Bay' (B10B) is c. 450m (length) x 70m (width) x 30m (height) and the 'Slab Mill Yard' (B12) is c. 350m (length) x 135m (width) x 30m (height).
- 3.2.2 The Hot Mill structure has a complex layout where the main body of the Hot Mill has an upstairs 'main hall', with 'basements' that are actually at ground level and 'cellars' that are below ground. Only the northern half of the Hot Mill (divided horizontally) has the underground cellars, here referred to as the 'northern cellars'. The northern cellars have an internal measurement of c. 300 meters (length) x 3-9m (width) x 4-6m (height). Buildings 10B, 10C, 10D and 12 have no underground areas.
- 3.2.3 Full descriptions of each building/structure surveyed are set out in Appendix B. The 33 buildings surveyed were recorded to have various roosting suitability categories following the PRA. These are set out in Table 8 below.

Table 8 Bat roost suitability of buildings following PRA

Category of suitability	Building number	Number in category
None	0	0
Negligible	B3A, B3B, B4A, B5, B7A, B7B, B9E, B28A, B28B, B28C, B28D.	11
Low	B2, B4B, B6, B8, B9D, B10B, B11, B17, B19, B20, B21.	11
Moderate	B1 and B9A	2
High	0	0
Confirmed	B9B, B9C, B10A, B10C, B12, B13, B16, B18, B22.	9

- 3.2.4 The following evidence of bats was identified during the PRA surveys, the evidence for each is set out in Appendix B and summarised as follows:

- B9B – evidence of bats in the form of droppings of a size, shape and consistency for lesser horseshoe were identified within a corridor on the northern side of the building, accessed via an open doorway on the eastern elevation. Approximately 30 droppings were identified concentrated under a light fitting, in the only room in the building not to have a window;
- B9C – evidence of bats in the form of droppings of a size, shape and consistency for lesser horseshoe were identified in a boiler room on the southern elevation, accessed via an open doorway. Approximately 70 droppings were identified in two concentrations, one in each of the two small rooms accessible via the open door;
- B10C - evidence of bats in the form of droppings of a size, shape and consistency for lesser horseshoe were identified in a kitchenette and a shower room. Approximately 100 droppings were identified with about 50 droppings fresh being found inside the kitchenette and 50 older droppings inside the shower room. In addition, c. 10 chewed

peacock and lesser tortoise shell butterfly wings (typical of bat insect prey) were found inside one of the office rooms. The roosting areas are believed to be in the void (c. 1m internal height) above the false inner ceiling panels. These areas could not be fully surveyed due to risk of asbestos. Flight access into the building which is an extension of the Hot Mill (B10A) is via a broken window but is also internally connected to the main hall of the Hot Mill;

- B16 - evidence of bats in the form of c. 100 droppings of a size, shape and consistency for lesser horseshoe were identified inside the building, with concentrations in three rooms in the south section near the south-eastern corner. Droppings were found on floor areas under missing inner ceiling panels. Flight access to the building was via broken windows on the western and eastern elevations. The roosting areas are believed to be in the void (c. 1m internal height) above the false inner ceiling panels. These areas could not be fully surveyed due to risk of asbestos;
- B18 – this building was confirmed as a bat roost after the 2024 PRA, when droppings consistent with a pipistrelle species were identified in the porch. No additional findings in 2025;
- B20 – this building was confirmed as a bat roost after the 2024 PRA, when droppings consistent with a pipistrelle species were identified in two of the office rooms. No additional findings in 2025;
- B22 – evidence of bats in the form one dead common pipistrelle bat found inside 2025. Reports of bat activity inside from staff 2024 and 2025. Bat droppings were found 2024.

3.3 Emergence / dawn re-entry survey

Surveys

- 3.3.1 In total seven of the 33 buildings within the survey area were subject to emergence or dawn re-entry surveys in 2025. These are buildings 10A, 10B, 10C, 10D, 12, 13, and 16.
- 3.3.2 These buildings were chosen as works are due to start on them in 2025/2026, whilst other buildings are not due to be subject to any works until 2026-2028.
- 3.3.3 Building B16, although outside the Site area where demolition will take place, was subject to further survey after it was identified as a potential option for mitigation.
- 3.3.4 End of survey stills from IR and Thermal cameras have been provided in Appendix C and D to illustrate the lighting levels of the footage at the darkest point. These stills also illustrate what parts of the building elevations that were covered by the camera footage.

Results

- 3.3.5 Summary of bats seen to either emerge or return to roost during the various surveys are set out in Table 9 below. Photographs of access-points from which bats emerged are set out in Appendix G Bat Access Points Identified by Surveyors (no NVA footage).
- 3.3.6 Common pipistrelle and lesser horseshoe bats were seen to emerge or return to roost on five buildings covered by the surveys. The majority of these were associated with building 10A, where up to 18 common pipistrelle bats were identified emerging from a large open doorway on the northern elevation during the first emergence survey. Some of these may have been exiting after entering from elsewhere, however the majority are

believed to be emergences, as nine were identified returning to roost during the dawn back-tracking survey, at six locations around the former hot mill (buildings 10A and 12 on Figure 2).

- 3.3.7 Locations of all roosting locations identified can be seen in Figure 12. It should be noted that for some species the exact roosting location has not been identified, as once inside the building there are many opportunities for an individual or small numbers of bats to roost, particularly crevice dwelling species such as common pipistrelle.

Table 9: Emergence and Dawn survey results

Survey date	Building #	Bat species	No. seen	Time and activity	Access point elevation	(Likely) roosting areas
B10A-D/B12						
15/05/2025	None	None	None	N/A	N/A	N/A
16/07/2025	B10A	Common pipistrelle	18	21:18-22:26. Likely emergence for some	North elevation Large ramp opening	Unknown locations (likely multiple) inside Hot Mill building.
16/07/2025	B10A	Common pipistrelle	4 Not proof of roost	Entering 21:18, 21:19, 21:23 and 21:24.	North elevation Large basement opening	None. This is believed to be entry for foraging inside the building.
24/07/2025	B10A	Common pipistrelle	1	Re-entering 03:29.	South elevation Concrete Bay	Unknown location inside Hot Mill building
24/07/2025	B10A	Common pipistrelle	1	Re-entering 04:44	North elevation Metal structure	Unknown location inside Hot Mill building
24/07/2025	B10A	Common pipistrelle	3	Re-entering 04:51, 04:53 and 04:54.	North elevation Corner	Unknown location inside Hot Mill building
24/07/2025	B10A	Common pipistrelle	1	Re-entering 05:01	North elevation Mid Part	Unknown location inside Hot Mill building
24/07/2025	B10A	Common pipistrelle	2	Re-entering 05:03 and 05:04	North elevation Mid Part	Unknown location inside Hot Mill building
24/07/2025	B12 Slab Mill	Common pipistrelle	1	Re-entering 05:40	East elevation NE corner of Slab Mill	Gap in ceiling for wires

Survey date	Building #	Bat species	No. seen	Time and activity	Access point elevation	(Likely) roosting areas
B10A-D/B12						
17/07/2025	B10C	Unknown species (likely to be lesser horseshoe based on static detector analysis)	1	Entry and emergence via broken window (repeated several times) 22:23-22:24	West facing broken window.	Inside disused office building.
B13						
22/05/2025	B13	Common pipistrelle	1	Emergence 21:38	NE corner fascia board	Gap under fascia board or wall cavity behind
03/07/2025	None	None	N/A	N/A	N/A	None
B16						
17/07/2025	B16	Common pipistrelle	2	Emergence 21:47	Inner courtyard	Unknown but assumed to be in external roof areas of courtyard.
06/08/2025	None	None	N/A	N/A	N/A	None

Commuting and foraging activity

- 3.3.8 During the surveys activity was generally low, with commuting and foraging observed by a small number of bats of the following species: common pipistrelle, noctule, soprano pipistrelle, lesser horseshoe and brown long-eared.

3.4 Static detector surveys

Deployments

- 3.4.1 Due to the scale of the Site and likely opportunistic use of buildings by bats, static detectors were deployed in several buildings and external locations for a total of 65 nights between 22 May and 30 July 2025. A summary of key findings is laid out in Table 10 below.
- 3.4.2 Deployments 11 and 12 were located in the woodland strip in the north of the survey area. They were located here after it was identified this may be a suitable location for part of the mitigation strategy, and it was determined that determining activity in this area would be beneficial. During the course of the 12 night deployment they recorded lesser horseshoe, brown long-eared, common pipistrelle, soprano pipistrelle, Nathusius pipistrelle (*Pipistrellus nathusii*) noctule, serotine, Myotis species and barbastelle (*Barbastellus barbastellus*).

Interpretation of static results

- 3.4.3 In addition to the number of recordings per deployment the analysis of the static results focussed on lesser horseshoe and brown long-eared bats as both species have been recorded inside the buildings surveyed.
- 3.4.4 It was deemed that any activity before or after the official sunset or sunrise could be seen as indication of a bat roost (as very likely to be inside the building at that time), and that any activity within 1 hour of the official sunset or sunrise time could indicate the presence of a roost, although bats may also be roosting nearby.
- 3.4.5 For lesser horseshoe bats inside building B10A it was found that recordings were made inside B10A Slab Mill Motor Room Basement 08/06/2025 at 20:59, 21:17 and 21:18. The official sunset was 21:26 so the recordings were made 25 minutes, 9 minutes and 8 minutes before sunset indicating likely day roosting.
- 3.4.6 Recordings were made inside B10A Basement Level by Cellar Stairs 20:58 30/05/2025 (official sunset 21:17) 19 minutes before sunset and 21:02 02/06/2025 (official sunset 21:21) 19 minutes before sunset indicating likely roosting.
- 3.4.7 Recordings were made inside B10C The Reheat Furnace Offices 21:18 09/07/2025 (official sunset 21:27) 8 minutes before sunset, 21:14 10/07/2025 (official sunset 21:27) 13 minutes before sunset, and 21:13 13/07/2025 (official sunset 21:24) 11 minutes before sunset indicating likely roosting.
- 3.4.8 Additional activity within 1 hour after official sunset or 1 hour before official sunrise was noted inside B10C The Reheat Furnace Offices, B10A Slab Mill Motor Room Basement, B10A Basement Level by Cellar Stairs, B10A North Cellar Fire Zone and B16 The Lab Room 20.
- 3.4.9 For brown long-eared bats, no activity inside buildings was noted before or after the official sunset times or within 1 hour after official sunset or 1 hour before official sunrise.

Table 10: Summary of static detector results

Deployment number	Dates of deployment	Location of deployment (see Figures 11 for locations)	Number of nights deployed	Summary of results Number of recordings
1	27/05-15/06/2025	B10A – hot mill motor room	19	No bat recordings.
2	27/05-15/06/2025	B10A - slab mill motor room basement	19	15 lesser horseshoe bat
3	22/05-12/06/2025	B10C – reheat furnace offices	21	210 lesser horseshoe bat
4	22/05-16/06/2025	B10A – hot mill basement (north side)	25	10 lesser horseshoe and 484 soprano pipistrelle,
5	26/06-30/06/2025	B10A – hot mill north cellar fire zone 7	4	11 lesser horseshoe bat and 42 common pipistrelle
6	26/06-02/07/2025	B10C – reheat furnace offices	7	12 lesser horseshoe bat
7	26/06-03/07/2025	B16 – lab room in south-eastern corner	8	1 lesser horseshoe bat
8	30/06-03/07/2025	B10A - hot mill north cellar furnace	4	8 common pipistrelle
9	03/07- 15/07/2025	B10C – reheat furnace offices	12	96 lesser horseshoe bat
10	03/07- 15/07/2025	B16 – lab room in south-eastern corner	12	19 lesser horseshoe bat
11	03/07- 15/07/2025	Woodland strip between train tracks to north of survey area Mitigation Location 1	12	No activity that could determine roosting (as located outside). To assess location for mitigation. 6,037 common pipistrelle, 2,141 soprano pipistrelle. 1,726 Nyctalus species, 34 Myotis species, 22 brown long-eared, 6 serotine, 4 lesser horseshoe bat, 3 Nathusius' pipistrelle
12	03/07- 15/07/2025	Woodland strip between train tracks to north of survey area Mitigation Location 2	12	No activity that could determine roosting (as located outside). To assess location for mitigation. 16,558 common pipistrelle, 13,939 Nyctalus species, 199 soprano pipistrelle. 160 brown long-eared, 114 Myotis species, 18 serotine, 23 lesser horseshoe bat, 1 barbastelle.
13	17/07- 24/07/2025	B10A – hot mill motor room	6	No bat recordings
14	17/07- 24/07/2025	B10C – reheat furnace offices	6	Static failed
15	17/07- 24/07/2025	B12 – slab yard (under canopy)	6	1,233 common pipistrelle, 12 soprano pipistrelle. 4 Nyctalus species, 2 Myotis species, 2 brown long-eared
16	17/07- 24/07/2025	B10B – discharge bay	6	3,266 common pipistrelle, 64 soprano pipistrelle. 48 brown long-eared, 2 Nyctalus species, 2 Myotis species

Deployment number	Dates of deployment	Location of deployment (see Figures 11 for locations)	Number of nights deployed	Summary of results Number of recordings
17	25/07- 31/07/2025	B16 – lab room in south-eastern corner	6	12 lesser horseshoe bat
18	25/07- 31/07/2025	B10A – hot mill motor room – west side two-storey building	6	392 common pipistrelle, 6 soprano pipistrelle
19	26/07- 31/07/2025	B10A – hot mill – ramp by opening on north side (external)	6	No activity that could determine roosting (as located outside). However, bats appear to use this opening for commuting in and out of the building. 5,818 common pipistrelle, 355 brown long-eared, 352 Nyctalus species, 184 soprano pipistrelle 14 Myotis species, 11 lesser horseshoe bat.
20	26/07- 31/07/2025	B10A - slab mill motor room basement	5	5 common pipistrelle
21	26/07- 31/07/2025	B10A – hot mill motor room – east side two-storey building	5	7 common pipistrelle
22	06/08- 26/08/2025	B9C – external boiler room	20	49 lesser horseshoe bat
23	26/08- 09/09/2025	B9B – dark corridor	13	1 lesser horseshoe bat (See 2.6 for limitations)

Summary of bat roosts identified per species

Lesser horseshoe bats:

- B10A - evidence of day and night roosts was found inside the building in the form of static sound files recorded before the official sunset time inside the basement level by cellar stairs 30/05/2025 and slab mill motor room basement 08/06/2025.
- B10C - evidence of day and night roosts was found inside the building in the form of droppings (typical in size, shape and location of the species), chewed butterfly wings (insect prey) and static passive acoustic monitoring.
- B16 - evidence of a day roost was found inside the building in the form of droppings (typical in size, shape and location of the species), and static passive acoustic monitoring.
- B9B - evidence of a day or night roost was found inside the building in the form of droppings (typical in size, shape and location of the species). See 2.6 for limitations.
- B9C - evidence of a day and night roost was found inside the building in the form of droppings (typical in size, shape and location of the species) and static passive acoustic monitoring.

Common pipistrelle

- B10A - evidence of day roosts was found in the form of up to 18 bats that were found to be commuting out of the building using the large opening at the north facing ramp during the emergence survey 16/07/2025, and 9 bats entering the building during the dawn back-tracking survey 24/07/2025 (into six different locations on the building). The 18 bats identified exiting on 16/07/2025 may not all have been roosting in building, as there is high potential later bats were entering the building from elsewhere and foraging inside.
- B12 - evidence of a day roost was found in the form of one bat entering the building during the dawn back-tracking survey 24/07/2025
- B13 - evidence of a day roost was found in the form of one bat emerging from the building 22/05/2025,
- B16 - evidence of a day roost was found in the form of two bats emerging from the building 17/07/2025.
- B22 - evidence of a day roost was found in the form of a dead common pipistrelle bat found inside the building 26/06/2025.

Brown long-eared

- Whilst not confirmed to be roosting within any of the buildings during the emergence / backtracking or static detector surveys, brown long-eared bats have previously been confirmed to roost within building 10A during the winter, specifically in the south-eastern corner (motor rooms) where a dead bat was identified in December 2024, and recordings were made in January 2025. During the summer activity surveys brown long-eared were encountered around the site on emergence and dawn backtracking surveys, and were recorded on five of the static bat detector deployments, primarily around the former Hot Mill (buildings 10A, 10 B and 12), suggesting that a small roost is present nearby.

4 Evaluation and Recommendations

4.1 Project proposals

- 4.1.1 The overall project proposals are to demolish all buildings within the Site (shown by red line boundary in Figure 1), infill any cellars, underground structures and pits and level the ground.
- 4.1.2 Proposed works are to demolish the former Hot Mill building and all other buildings within the Site to ground level in five phases. This will involve:
- Soft strip and removal of all equipment, machinery, storage tanks etc;
 - Dismantling of structural elements such as pipework, cables, supporting frameworks;
 - Controlled demolition of Hot Mill structures and removal of asbestos. Techniques include: controlled explosive blasting of chimneys (Slab area); welding, cutting and grinding techniques;
 - Demolition of buildings, ground clearance, in-fill and levelling using Demolition Excavators.
- 4.1.3 Phase 1
- Start slab discharge bay;
 - Clearance of slabbing mill motor room including asbestos removal;
 - Clearance of main motor room ready for asbestos removal;
 - Asbestos removal when clear of remaining items;
 - Removal of rollers & equipment throughout the mill (loose items);
 - Removal of outer pipe work north of mill including outside cranes;
 - Soft Strip main mill, continue other areas.
- 4.1.4 Phase 2
- Demolition of Slab Yards;
 - Asbestos removal from slabbing mill to end of reheat furnaces (back of Main Motor room);
 - Clearance of basement (loose items) below Main Motor room and across the mill;
 - Environment clean starting at the top and work down into cellars(tanks);
 - Soft strip.
- 4.1.5 Phase 3
- Demolition of slabbing mill area down to re heat furnaces;
 - Further asbestos removal down towards the rolling mills;
 - Demolition of structure past the reheat furnaces down to rolling mills.
- 4.1.6 Phase 4
- Further asbestos removal down to main mill;
 - Demolition of motor room;
 - Demolition of reheat furnaces;
 - Demolition roll shop down to tunnels.
- 4.1.7 Phase 5
- Crushing of hardcore ongoing throughout each phase;
 - Demolition of Hot mill down to coilers;

- Demolition of all outer buildings;
- Completion of demolition of main structure.

4.1.8 The demolition works are anticipated to take approximately three years. Currently timescales are proposed to start works in September 2025 and complete in September 2028. The proposed timings (subject to roosting bat and nesting bird constraints) are to:

- Dismantle Slab Import building September 2025 to December 2025;
- Demolish Slab Yard Bays September 2025 to April 2026;
- Explosive Blow down of chimneys in Slab Yard May/July 2026; and for concrete Slab Yard between 2027 and 2028;
- Demolition of Hot Mill building April 2026 to July 2028;
- Demolition of other buildings between April 2026 and July 2028.

4.1.9 Working hours would be:

- Monday to Friday 07:00 to 19:00
- Saturday 07:00 to 18:00
- Sunday 07:00 to 16:00

4.1.1 Lighting would be required during work hours.

4.2 Survey scope

4.2.1 The 2025 survey scope was informed by the 2024 PRA and proposed works. As described above, demolition works to the entire former Hot Mill building (consisting of sections 10A, 10B, 10C, 10D and 12 on Figure 2) will take between 2-3 years. Whilst other buildings within the Site are also due to be demolished, the majority of these will not be until 2027 or 2028. Given the timeframe for demolition, and the distances between the Hot Mill and other buildings (all at least 30m), surveys of all buildings was not completed in 2025.

4.2.2 Of the 33 buildings within the Site and wider survey area and subject to PRA in 2025, 11 are considered to offer negligible potential to support bat roosts (buildings 3A, 3B, 4A, 5, 7A, 7B, 9E, 28A, 28B, 28C, 28D on Figure 2).

4.2.3 Seven of the buildings were covered by the dusk / dawn surveys completed (buildings 10A, 10B, 10C, 10D, 12, 13, 16 on Figure 2).

4.2.4 An additional five are over 200m north of the former Hot Mill and were included in the PRA to provide wider context to findings (buildings 17-21 on Figure 2).

4.2.5 B22 is 200m south of the Hot Mill and was also included in the PRA to provide context.

4.2.6 B16 was subject to PRA and dusk surveys as a potential mitigation option.

4.2.7 Buildings within the CDM boundary (Site boundary in Figure 1) which have bat roosting potential but were not subject to dusk/dawn surveys in 2025 are buildings 2, 4B, 6, 8, 9D and 11 (all identified as having 'low' potential to be used by roosting bats), buildings 1 and 9A (all identified as having 'moderate' potential to be used by roosting bats), and buildings 9b and 9C (confirmed bat roosts as part of PRA). It is noted that for some of these buildings their roosting potential has increased since the 2024 PRA. In most cases this was due to asbestos investigation works in 2025, which lead to doors being left open and holes made in ceilings / external features. These buildings are all over

30m from the former Hot Mill (consisting of buildings 10A, 10B, 10C and 12 on Figure 2), and will not be subject to works until 2027 or 2028.

- 4.2.8 Additional surveys are proposed on these building in 2026 to provide relevant data to determine whether they are used as bat roosts. Buildings 9B and 9C are to be subject to additional static detector monitoring to determine roost type. Both of these buildings are used by lesser horseshoe bats.
- 4.2.9 The scale of the Site (the former Hot Mill is a 11.6ha building) and historic use has provided some unique challenges to the survey effort, including 800m long building sides and hazards including asbestos (purported to be the largest concentration in Europe) and potential for pyrophoric materials to be present. Taking into account the overall site suitability and low likelihood for a roost of high conservation status, it is considered highly unlikely that a significant roost has been missed, and therefore the surveys completed are sufficient to inform the impact assessment and future licence application. Survey results and roost characterisation are described below.

4.3 Roost characterisation and conservation status

- 4.3.1 Survey results have identified small numbers of lesser horseshoe, common pipistrelle and brown long-eared bats are roosting on the Site.

Common Pipistrelle

- 4.3.2 Common pipistrelle day roosts were recorded in buildings 10A (maximum 13 bats), 12 (max 1), 13 (max 1), 16 (max 2) and 22 (1 dead bat during PRA). The 18 bats identified exiting the open doorway on 16/07/2025 emerged between 21:18 and 22:26 (between four minutes before sunset and 1 hour 4 minutes after sunset). Given this spread in emergence times, the fact the average emergence times for common pipistrelle are 6.9-42.7 minutes after sunset (Collins, 2023), and the open nature of the building, it is considered unlikely that all of these observations are of bats roosting within the building, and likely include individual(s) which are entering the building from one of the many possible entry points, and flying out after foraging. For this reason the peak count is based on the dawn back-tracking survey, where 13 bats were identified re-entering into six different locations on both north and south of the building. As the maximum number of bats is less than 20 (Collins, 2023), and these are spread throughout the large building, there is no evidence that a maternity roost is present.
- 4.3.3 Evidence of winter use of the building was confirmed during the hibernation surveys of the motor room in building 10A (RSK Biocensus 2025a), when a dead pipistrelle bat was found in the basement, with common pipistrelle calls recorded on static detector between December 2024 and February 2025.
- 4.3.4 Taking into account the low numbers of bats identified, the common pipistrelle roosts comprising day and hibernation are considered to be of **Site value**.

Lesser horseshoe

- 4.3.5 Evidence of lesser horseshoe has been recorded in buildings 9B, 9C, 10A (north side basement, slab yard motor rooms, north side cellar fire zone), 10C, and 16.
- 4.3.6 Droppings have been identified in 9B, 9C, 10C and 16, whilst evidence for 10A comes from static recorders. The numbers of droppings identified are generally small in

concentration, suggesting individuals or small numbers. The static detectors identified lesser horseshoe calls prior to sunset in buildings 10A (slab mill motor room and northern basement level) and 10C confirming day roosting in these locations. The bats are using a number of the structures within the Survey Area as a combination of day and night roosts. Whilst no evidence of hibernation was identified over winter 2024, it is acknowledged that only part of building 10A was included in that survey, and there is potential lesser horseshoe may use areas of this building for hibernation. Notably the basement in the slab mill motor room, and under the northern half of 10A. Whilst not providing optimal hibernation conditions (generally quite dry), they have potential to support small numbers of bats.

- 4.3.7 The lesser horseshoe roosts onsite, comprising day, night and potential hibernation, are of **local value**, taking into account the small numbers and geographic location.

Brown long-eared

- 4.3.8 One dead brown long-eared bat was found inside building 10A (motor room, south-east corner) during hibernation surveys in December 2024, and two recordings were made inside December 2024 and January 2025. Whilst not confirmed to be roosting within any of the buildings during the 2025 emergence / backtracking or static detector surveys, brown long-eared were encountered on most deployments, and were recorded on five of the static bat detector deployments, primarily around the former Hot Mill (buildings 10A, 10 B and 12), suggesting that a small roost is present nearby.
- 4.3.9 Given the scale of the building, the quiet and highly directional call of brown long-eared bats and confirmation of roosting for at least part of the year, it is highly likely that small numbers of bats roost within 10A outside of the winter as well.
- 4.3.10 The brown long-eared roosts onsite, comprising day and hibernation roosts, are of **site value**.

4.4 Project implications and recommendations

- 4.4.1 All buildings within the Site boundary on Figures 1 and 2 are to be demolished. At the time of writing buildings 9B, 9C, 10A, 10C, 12, 13 and 16 are confirmed bat roosts. 10A, 10B, 10C, 10D and 12 all make up sections of the former Hot Mill, which will take approximately three years to demolish.
- 4.4.2 Bats and there roosts are fully protected under Wildlife and Countryside Act 1981 (as amended) and Conservation of Habitats and Species 2017 (as amended). The works will lead to the loss of six buildings used as bat roosts by three species. In the absence of mitigation, bats could be disturbed, killed or injured during works and roosts will be lost.
- 4.4.3 A bat mitigation licence will be required from Natural Resources Wales (NRW), prior to start of works.
- 4.4.4 An outline mitigation strategy is presented in Appendix H, which will ensure that works can be undertaken in a legally compliant manner, and demolition of the buildings will not effect the favourable conservation status of the species present. Building 16 is proposed to be used as part of the mitigation strategy, as it is not within the CDM boundary and has significant room for improvement as a bat roost.

- 4.4.5 NRW takes a minimum of 30 working days to assess a licence application. Submission of an application does not guarantee a licence will be accepted.
- 4.4.6 As part of the mitigation strategy, surveys of buildings to be demolished in 2027/2028 are proposed to take place in 2026. This will include emergence surveys of buildings 2, 6 and 11 (all identified as having 'low' potential to be used by roosting bats), buildings 1 and 9A (all identified as having 'moderate' potential to be used by roosting bats). Buildings 4B, 8 and 9D will initially be subject to further inspections, as the features identified can be inspected via torch / endoscope. Additional emergence surveys of building 4B may be required should endoscope surveys confirm cavity walls are present, which cannot be fully inspected.
- 4.4.7 Demolition works are proposed to start on 10B and 12, which have negligible hibernation potential, both being primarily steel structures clad in single skin metal cladding.
- 4.4.8 Prior to the start of demolition, equipment and machinery is proposed to be removed from the interior of the former Hot Mill (buildings 10A, 10B, 10C, 10D and 12 on Figure 2). These will be unbolted from the floors and lifted out via existing cranes that roll along tracks, and would deposit the machinery at existing roller shutters. Such works do intermittently take place already within the building, as part of routine maintenance. Provided works are discussed in detail with an ecologist, and areas with potential for roosting bats to be present are checked in advance, it is considered that this could start in advance of the bat mitigation licence having been received, as the risk of causing an offence is negligible.

5 References

Collins, J. (ed.) (2023), *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4th edn), The Bat Conservation Trust, London. Available online:

<https://www.bats.org.uk/resources/guidance-for-professionals/bat-surveys-for-professional-ecologists-good-practice-guidelines-4th-edition> (accessed [DATE])

Mathews, F., Coomber, F., Wright, J. and Kendall, T. (2018), *British Mammals 2018 – The Mammal Society's Guide to their Population and Conservation Status*. Mammal Society, Dorset.

Reason, P.F. and Wray, S. (2025 v1.2), *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats*. Version 1.1. Chartered Institute of Ecology and Environmental Management, Ampfield. Available online: <https://cieem.net/resource/uk-bat-mitigation-guidelines-2023/> (accessed 21.08.2025)

RSK Biocensus (2025a). '*Preliminary Roost Assessment and Bat Hibernation Survey of the Motor Room*'.

RSK Biocensus (2024). '*2486598 Llanwern Northern Site PRA FINAL Rev01*'.

Schofield, H. (2008). *Lesser Horseshoe Bat: Conservation Handbook*.

Figures

Figure 1. Site Location Plan

Figure 2. Building Plan

Figure 3. Building Assessment

Figure 4. Hot Mill Dusk 1 Survey Locations of Night Vision Aids and Bat Detectors- 15.05.2025

Figure 5. Hot Mill Dusk 2 Survey Locations of Night Vision Aids and Bat Detectors- 16.07.2025

Figure 6. Hot Mill Dawn Survey Locations of Night Vision Aids and Bat Detectors- 24.07.2025

Figure 7. B13 Dusk Survey Locations of Night Vision Aids and Bat Detectors- 22.05.2025

Figure 8. B13 Dusk Survey Locations of Night Vision Aids and Bat Detectors- 03.07.2025

Figure 9. B13 Dusk Survey Locations of Night Vision Aids and Bat Detectors- 17.07.2025

Figure 10. B13 Dusk Survey Locations of Night Vision Aids and Bat Detectors- 08.08.2025

Figure 11. Static Bat Detector Locations 25-31 July 2025

Figure 12. Results – location of identified bat roosts



- Legend:
- Site boundary
 - Survey area

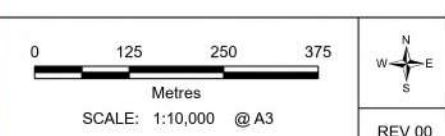


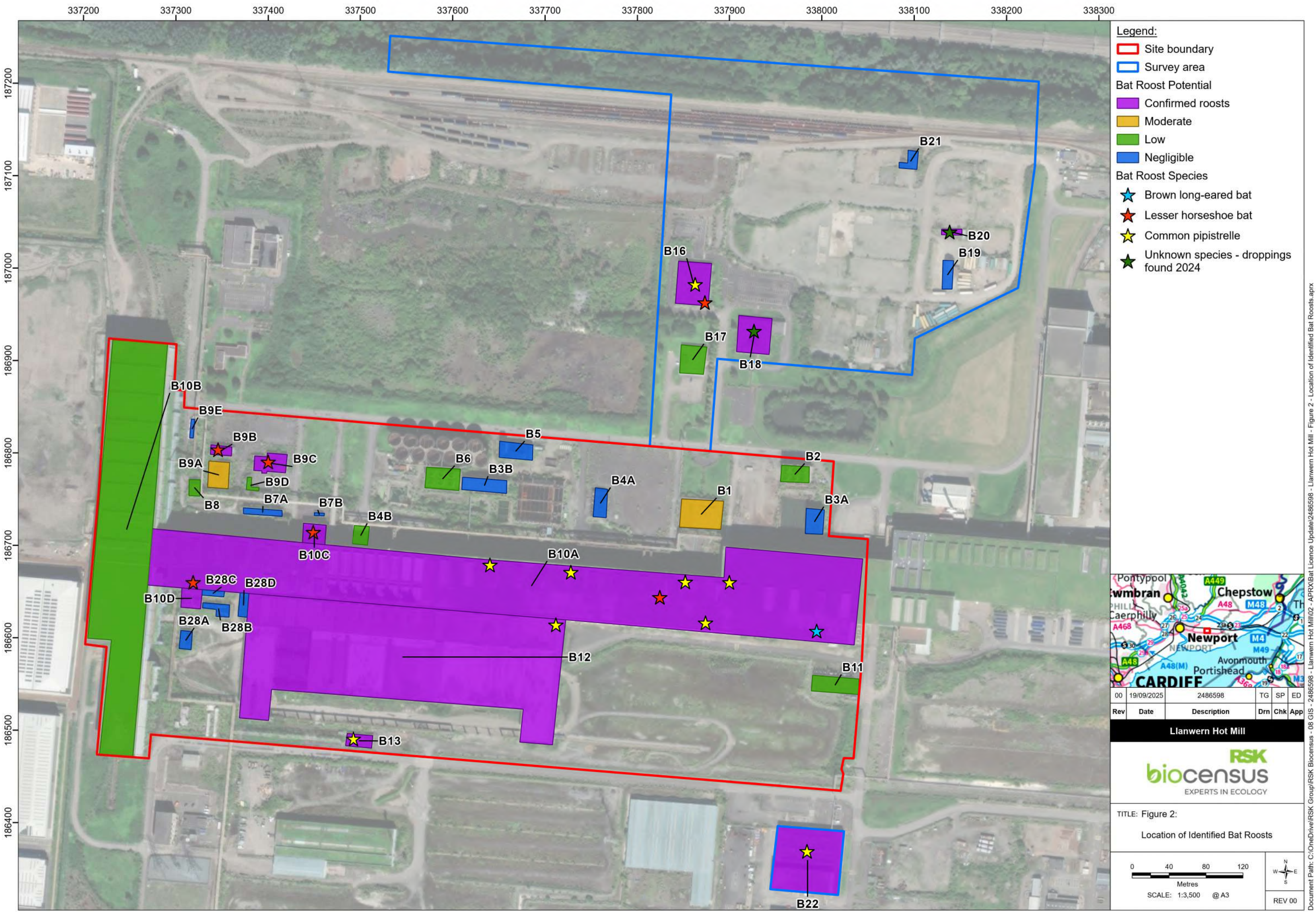
00	19/08/2025	2486598	TG	SP	AE
Rev	Date	Description	Drn	Chk	App

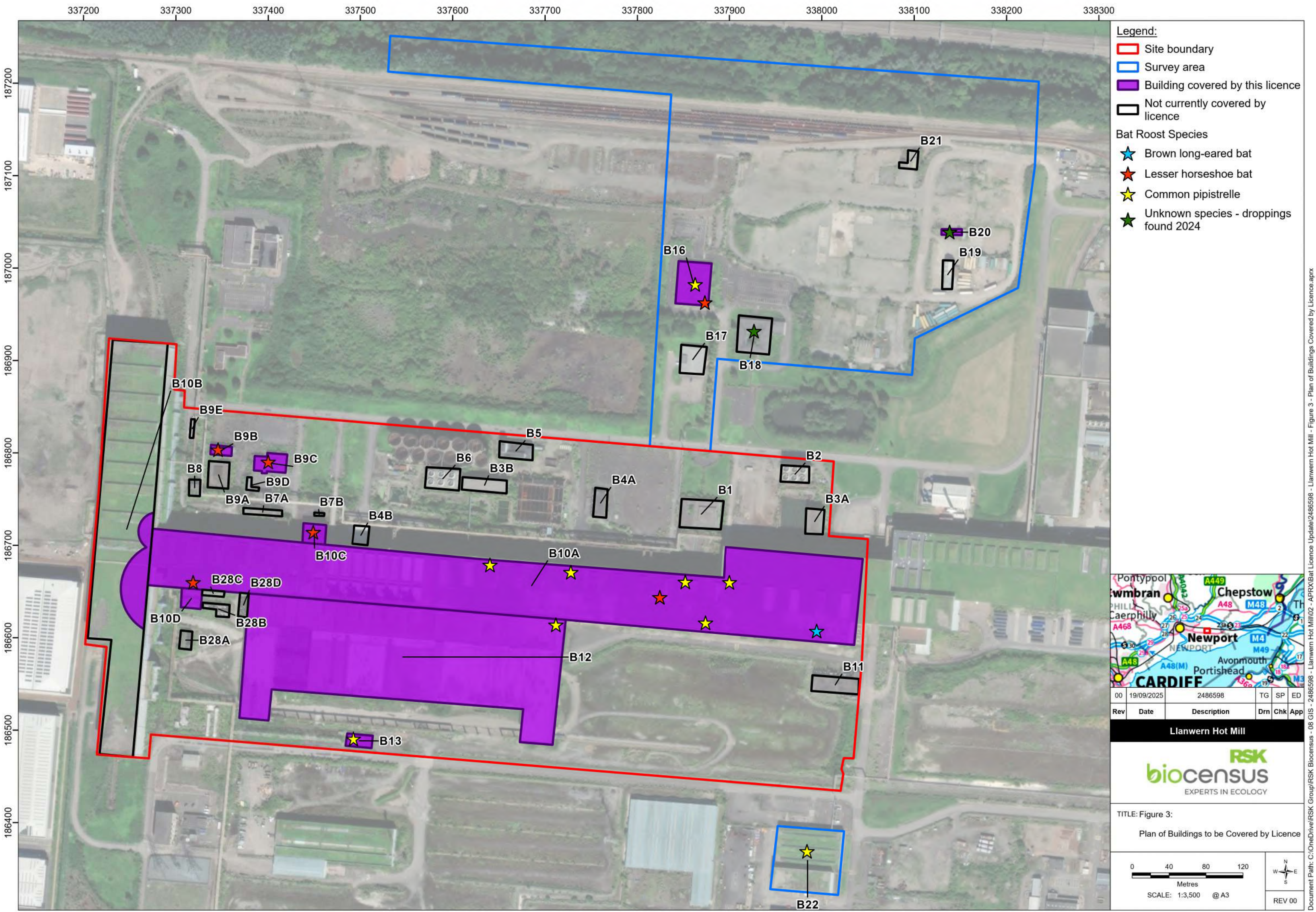
Llanwern Hot Mill



TITLE: Figure 1:
Site Location Plan







- Legend:
- Site boundary
 - Survey area
 - Building covered by this licence
 - Not currently covered by licence
- Bat Roost Species
- Brown long-eared bat
 - Lesser horseshoe bat
 - Common pipistrelle
 - Unknown species - droppings found 2024

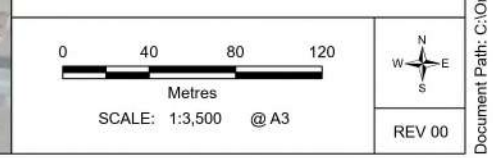


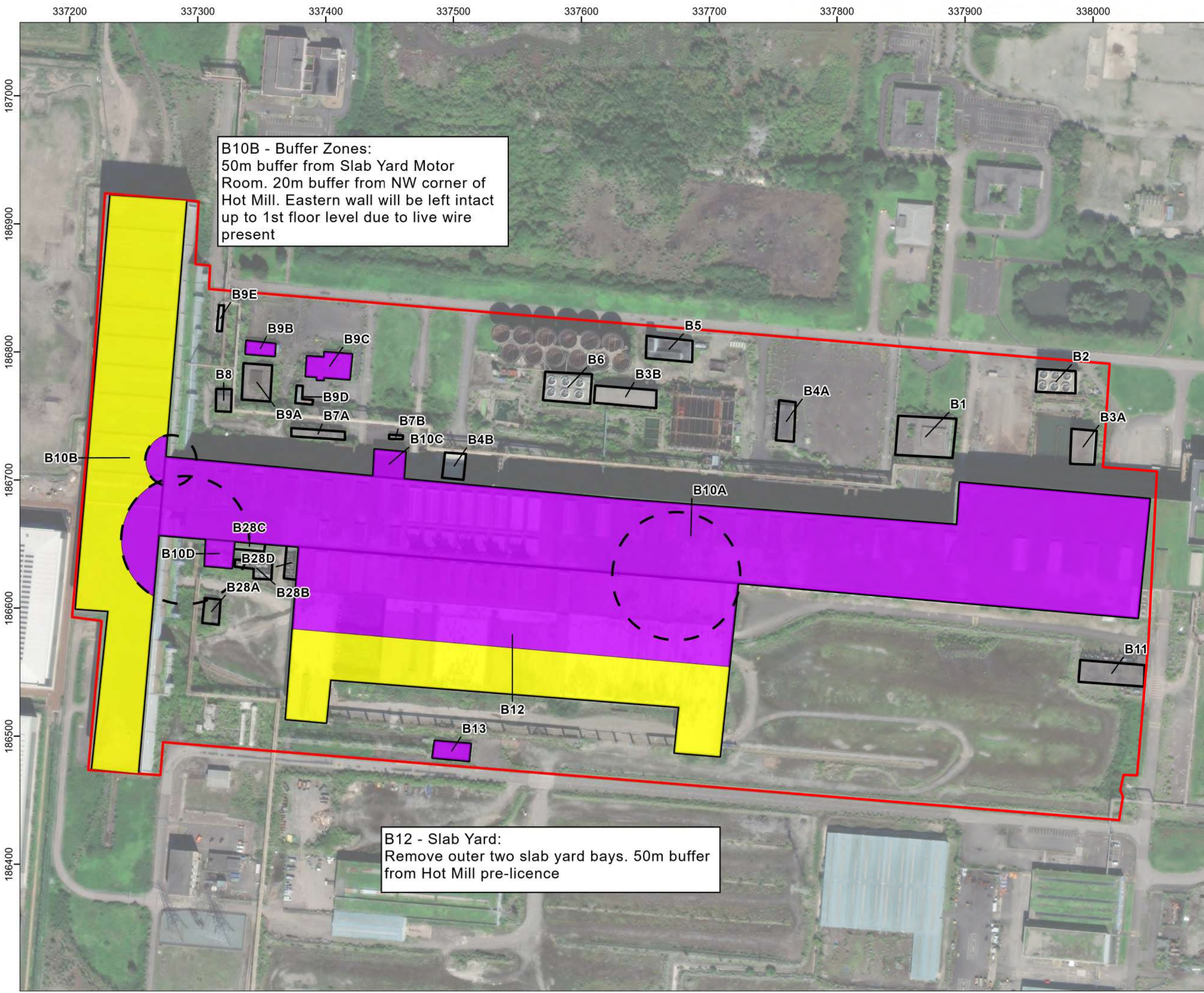
00	19/09/2025	2486598	TG	SP	ED
Rev	Date	Description	Drn	Chk	App

Llanwrn Hot Mill



TITLE: Figure 3:
Plan of Buildings to be Covered by Licence

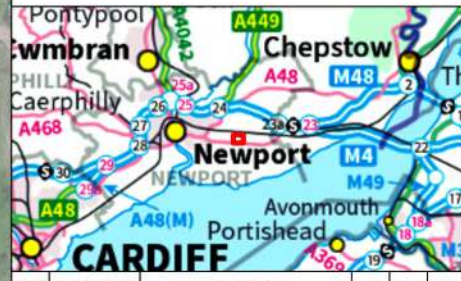




B10B - Buffer Zones:
50m buffer from Slab Yard Motor Room. 20m buffer from NW corner of Hot Mill. Eastern wall will be left intact up to 1st floor level due to live wire present

B12 - Slab Yard:
Remove outer two slab yard bays. 50m buffer from Hot Mill pre-licence

- Legend:
- Site boundary
 - Surveyed building
 - Hot Mill buffer zone
 - Works that may start prior to NRW Licence granted. Note buffer zones
 - NRW Bat Licence required prior to start of works

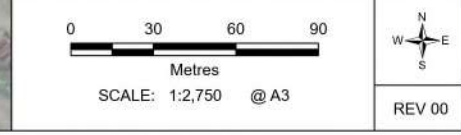


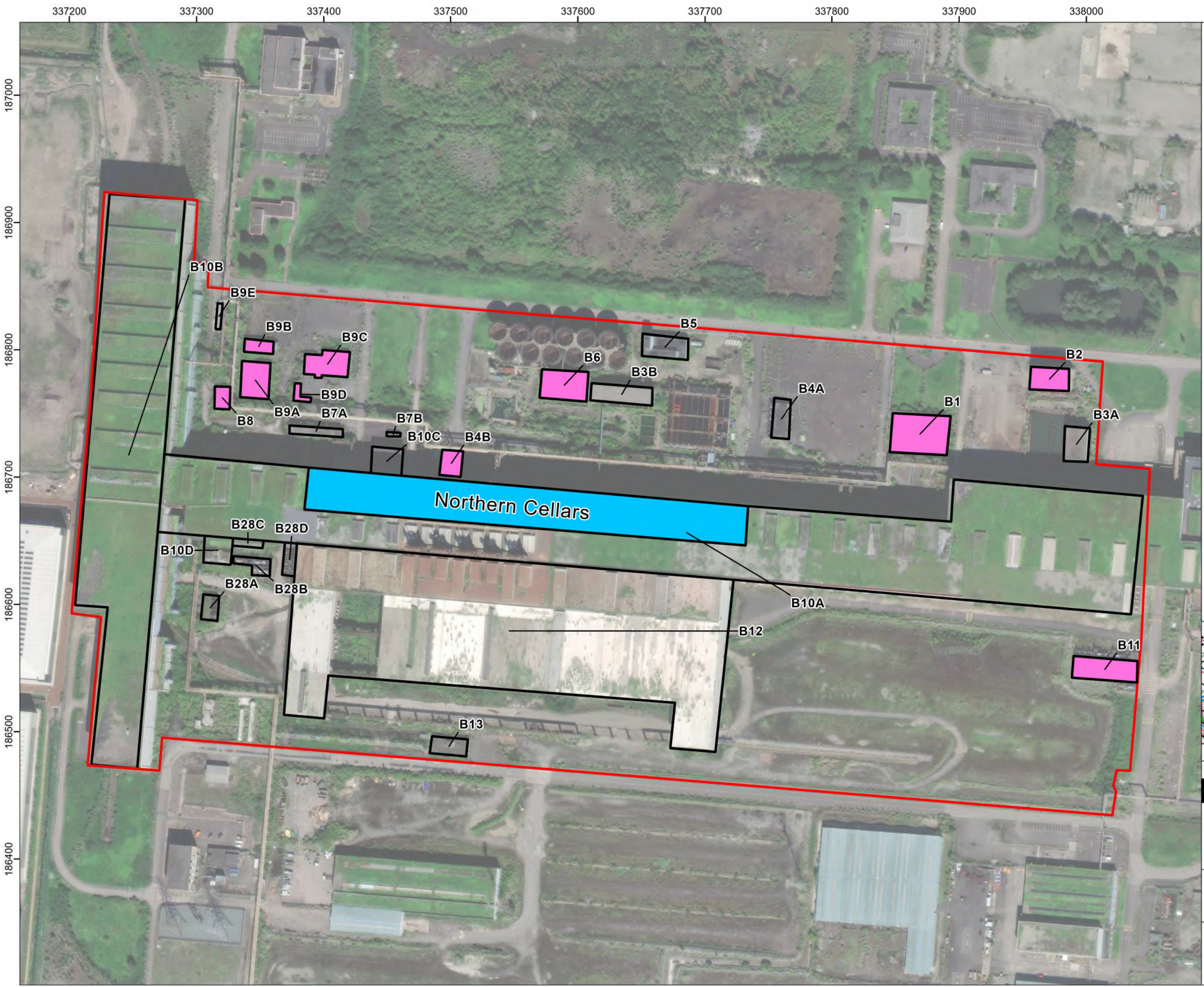
00	19/09/2025	2486598	TG	SP	AE
Rev	Date	Description	Drn	Chk	App

Llanwrn Hot Mill



TITLE: Figure 4:
Works Pre-Licence Approval and Buffer Zones





- Legend:
- Site boundary
- Further Surveys
- Hibernation checks December to February
 - Dusk and/or static surveys May - August 2026
 - No further surveys, pre-demolition checks/supervision only

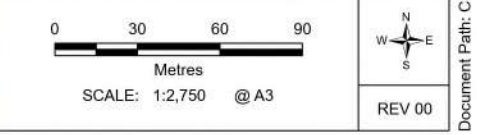


00	19/09/2025	2486598	TG	SP	AE
Rev	Date	Description	Drn	Chk	App

Llanwern Hot Mill



TITLE: Figure 6:
Further Surveys Proposed
within Redline Boundary





Legend:

External Windows / Doors

- Painting / boarding needed to block light
- Painting / boarding not needed to block light

Internal Windows / Doors

- Painting / boarding needed to block light, doors to be closed
- Painting / boarding not needed to block light, doors to be closed
- Painting / boarding not needed to block light, doors to be open

Current open / broken windows

- keep open, remove glass where broken for safety

Four bat boxes - two x Beumaris bat box midi or equivalent bat boxes and two x Schwegler 1FF or equivalent bat boxes, to be installed on building externally

Two cool towers. 1.5m high x 1m wide. Hollow inside, built of concrete blocks (don't need to be cemented). Details to follow

Not shown on plan:

Two ceiling panels to be removed from within each internal room where doors are open

00	19/09/2025	2486598	RG	RS	ED
Rev	Date	Description	Drn	Chk	App
Llanwern Hot Mill					
TITLE: Figure 7: B16 Bat Mitigation Design					
 SCALE: 1:500 @ A3			 REV 00		