

WARWICK MILL, OLDHAM

Ecological Impact Assessment



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REPORT

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1 INTRODUCTION

1.1 Purpose and Scope of this Report

- 1.1.1 RPS was commissioned by Kam Lei Fong (UK) Ltd to undertake an Ecological Assessment of the proposed Warwick Mill Residential and Commercial Development (the Proposed Development), located at Warwick Mill, Middleton, Greater Manchester (referred to henceforth as the “Site”).
- 1.1.2 A Preliminary Ecological Appraisal Report (PEAR) was prepared (Ecology Resources, 2021) and later updated (RPS-a 2023) which made recommendations for three emergence surveys for roosting bats and an internal survey of Warwick Mill for bats. Warwick Mill was previously confirmed to be a common pipistrelle (*Pipistrellus pipistrellus*) bat roost in 2015 (Arup, 2015). The emergence and internal surveys have subsequently been carried out in 2023, and the findings of these have been included in this report. This report provides an Ecological Impact Assessment (EclA) based on the results of all surveys which supports the planning application for the development.
- 1.1.3 A Biodiversity Net Gain (BNG) Assessment (RPS-b, 2023) and a Biodiversity Enhancement Management Plan (RPS-c, 2023) have also been produced to support this development.

1.2 Study Area and Zone of Influence

- 1.2.1 The Site is located adjacent to and south of Oldham Road. Ashton Lane borders the Site to the east and Wince Brook borders the Site to the south. The Site’s address is Warwick Mill, Middleton, Greater Manchester M24 1AZ and it is approximately 1.23 ha in size. The National Grid coordinates for the centre of the Site are SD 87098 05678.
- 1.2.2 The Site’s red line boundary is shown on Figure 1. The Site comprises predominately buildings, hardstanding, and ruderal/ephemeral habitat. Also present are small areas of scrub and grassland with scattered trees especially in the east of the Site (see Figure 2).
- 1.2.3 Aerial imagery was also reviewed to assess the Site in relation to its context in the wider landscape. The Site lies within a predominately urban context overall. However, the River Irk is present 0.15 km to the north-north-east (but separated from the Site by Oldham Road), and there is a connection to woodland areas to the west and east of the Site via the adjacent Wince Brook and its wooded banks.
- 1.2.4 The term Zone of Influence (Zol) is used to describe the geographic extent of potential impacts of a proposed development. The Zol is determined by the nature of the development and also in relation to designated sites, habitats or species which might be affected by the proposals.
- 1.2.5 For the Proposed Development, the Zone of Influence is considered to be land on and immediately adjacent to the site. The Zone of Influence for species is dependent on their habitat requirements, mobility and distances indicated in any best practice guidelines, for example, 500 m of suitable habitat for great crested newt (GCN; *Triturus cristatus*).

1.3 Development Proposals

- 1.3.1 When operational the Proposed Development will provide 273 residential units (across Warwick Mill and The Loom), approximately 77 parking bays (including additional space for motorcycles), approximately 340 bicycle racks, two restaurants, and seven commercial units (totalling 2097.5 m²). Project components are summarised below and include:
- Demolition of an existing derelict building on Site (a former office building known as “London House”) which is immediately west of Warwick Mill (see Figure 1).

- Construction of a new ten-storey building (referred to as “The Loom”) in the west of the Site which covers the area London House currently occupies as well as the existing car parking area south of it. The Loom will be directly joined to Warwick Mill via an overhead footbridge.
- The Loom will feature a ground floor car park and bike storage. A mechanical plant room, tank room, generator, substation and electrical switch room are also proposed on the Loom’s ground floor.
- Green roof habitat will be created on the western and southern edges of The Loom’s roof. The bridge to Warwick Mill and adjacent area will be an open area for residents and guests which will feature ornamental planting and planted trees.
- The interior of the five-storey Warwick Mill will be developed into a mix of residential apartments and commercial units including a restaurant. The exterior façade of Warwick Mill will be retained, keeping the existing and historic aesthetic.
- A section of the ground floor walls and windows will be removed on the northern side to create a new main entrance into the building which leads into the lower ground floor. The lower ground floor will feature the reception/lobby, car/bike parking, studios, and a large commercial area.
- The upper ground floor features residential units surrounding a landscaped area in the western half and an equivalent area in the eastern half of Warwick Mill. These two landscaped areas will be comprised of ornamental plantings and planted trees.
- The first, second and third floor of Warwick Mill will have the floors removed above the two landscaped areas on the upper ground floor and these spaces are referred to as Atrium A and Atrium B. The same section of the roof will be removed, and a glazed-glass roof added above to allow light into the landscaped areas and throughout the building/atriums. Between the atriums there is a central area on each floor which will feature stairs and wall climber lifts.
- All windows and cast-iron rainwater pipes on Warwick Mill are to be replaced. Existing wiring, ducting, redundant lighting et cetera are to be removed. The brickwork, stonework and detailing of doors, windows, et cetera are to be cleaned/restored.
- Numerous existing lifts, stairs, doors, windows, openings and external escape stairs are to be removed/infilled and new ones created in different positions to better serve the new functions and layout of Warwick Mill.
- A small one-storey brick building in the northeast of the Site will be converted into a restaurant (referred to as “The Lodge”).
- A small one-storey brick building in the east of the Site will be demolished and amenities will be provided in this area and surrounding it including a bicycle store and bin store.
- The southeast of the Site will become a car parking area.
- Access will be via existing openings onto Oldham Road and Ashton Lane. A new access point will be created onto Oldham Road in the northeast, intended to be used by pedestrians (and vehicles in an emergency).
- Landscaping will create and manage the green roof, a neutral grassland (wildflower meadow), various ornamental planting and plant 58 trees across the site and especially adjacent to Wince Brook.

1.3.2 The proposed site plans showing the lower and upper ground floor of Warwick Mill and The Loom are provided in Appendix A.

1.4 Legislation and Policy

- 1.4.1 Relevant legislation, policy guidance and both Local and National Biodiversity Action Plans (BAPs) are referred to throughout this report where appropriate. Their context and application are explained in the relevant sections of this report.
- 1.4.2 The relevant articles of legislation are:
- The National Planning Policy Framework (NPPF) (NPPF, 2023);
 - ODPM Circular 06/2005 (retained as Footnote 61 on NPPF 2023);
 - Local planning policies (Policy JP-G 9 of the Greater Manchester Joint Development Plan by the Greater Manchester Combined Authority (GMCA, 2021) and the Core Strategy of Rochdale Borough Council (Rochdale Borough Council 2016).);
 - The Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019;
 - The Wildlife and Countryside Act 1981 (as amended);
 - The Protection of Badgers Act 1992;
 - The Countryside and Rights of Way Act 2000;
 - The Natural Environment and Rural Communities Act 2006; and
 - National / Local Biodiversity Action Plan for Greater Manchester (GM BAP, 2009).
- 1.4.3 A summary of legislation relevant to protected or other species identified as potential constraints in this report is provided in Appendix B.

2 METHODS

2.1 Desk Study

- 2.1.1 Ecological records within a 2 km radius of the site were requested from Greater Manchester Ecological Unit (GMEU) to inform the PEAR (Ecology Resources, 2021). Data request results for protected species were filtered to records for protected species recorded within the last ten years, and data request results for sites of nature conservation interest were limited to within 2 km of the site. The desk study included a review of existing statutory sites of nature conservation interest within 10 km of the site, such as Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Area of Conservation (SACs) and National Nature Reserves (NNRs), and non-statutory sites, such as Sites of Importance for Nature Conservation (SINCs) and Local Wildlife Sites (LWSs). The distance of 2 km is considered robust as this covered the potential ZOI for any habitats or protected species which might be affected by the proposals, and for statutory sites of nature conservation it is an appropriate distance for considering potential impacts to mobile species associated with these sites that might be affected by the proposals.
- 2.1.2 Locations of statutory designated sites were accessed via the government 'MAGIC' website¹.
- 2.1.3 A 1:25,000 OS map was used to identify nearby features such as ponds or green corridors that could provide habitat or connectivity to other areas.

2.2 Field Surveys

Habitats

- 2.2.1 Habitats on Site were originally identified via a Phase 1 Habitat Survey of the Site (Ecology Resources, 2021) whereby all habitats were mapped using the methodology described in the Joint Nature Conservation Committee's Handbook (JNCC, 2010). Habitats were re-surveyed on the 12th of July 2023 by an experienced ecologist (RPS-a, 2023) using the UK Habitat Classification User Manual Version 1.1 (UKHab; Butcher *et al.*, 2020). The UKHab results have superseded the preceding Phase 1 habitat results and therefore this EclA report will reference the UKHab results.
- 2.2.2 During the UKHab survey the surveyor also recorded habitat condition using the Biodiversity Metric 3.1 Technical Supplement (Panks *et al.*, 2022). In conjunction with the UKHab survey a protected species scoping survey was carried out to assess the Site's potential to support protected species including an evaluation of the potential for each structure and tree on Site to support roosting bats. Additionally, the presence of invasive non-native species (INNS) subject to legal control was identified.

Great Crested Newts

- 2.2.3 No ponds are present on Site. The only waterbody within 500 m of the Site's red line boundary is approximately 300 m to the west and separated from the Site by the A664 which would present a major barrier to amphibian species. Consequently, no survey methodology for GCN was employed.

Reptiles

- 2.2.4 Areas of suitable reptile habitat were assessed within the Site boundary. Reptiles require dry habitats with areas of refugia and basking such as rock piles, crags, scree, and drystone walls.

¹ <https://magic.defra.gov.uk/home.htm>

Any features such as these were assessed for their potential to support reptile species such as adder (*Vipera berus*) and slow worm (*Anguis fragilis*).

Breeding Birds

- 2.2.5 All areas of suitable habitat (e.g., trees and scrub) within the Site boundary were surveyed for their potential to support breeding birds and any nests identified were noted. Any birds identified within the Site boundary or flying thereover were recorded during the UKHab survey.

Bats

Bat Roost Potential

- 2.2.6 Warwick Mill itself, three other buildings, and all trees on Site were assessed for their Bat Roost Potential (BRP) during the protected species scoping survey. The assessment criteria as per the Bat Conservation Trust (Collins, 2016) are detailed in Table 2-1.

Table 2.1: Bat Habitat Suitability Criteria

Suitability	Description of Roosting Habitats
Negligible	Negligible habitat features on site not likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to its size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

Emergence Surveys

- 2.2.7 Three dusk emergence surveys were conducted on Warwick Mill in 2023 taking place on the 17th of August, the 31st of August and the 19th of September. Dawn surveys were ruled out due to safety concerns regarding frequent trespassers reported on Site. The emergence surveys were carried out in accordance with the guidance published by the Bat Conservation Trust (Collins, 2016).
- 2.2.8 Six surveyors were present on each survey and they were equipped with either a Batlogger M or an EchoMeter touch 2. Two Nightfox Red HD digital night vision goggles were utilised on each survey and set to record. They were aimed at Potential Roost Features (PRFs) including the previously identified roost (Arup, 2015). Additionally, one other surveyor used Nightfox Swift digital night vision goggles. In total, half of the surveyors on each survey had infrared technology.
- 2.2.9 Bat species, flight direction and behaviour were noted including any instances of an emergence/re-entry of a bat from Warwick Mill. The recorded bat calls have been analysed to confirm species present. The infrared camera footage has been reviewed to check for emerging or re-entering bats.

Internal Inspection

- 2.2.10 An internal inspection of Warwick Mill was carried out on the 31st of August 2023 by a bat-licensed ecologist with an assistant. A focused torch and an endoscope were used to assess any internal

PRFs and the building's suitability for hibernating bats was assessed. Each floor of Warwick Mill and every accessible room was assessed. The internal survey was carried out in accordance with the guidance published by the Bat Conservation Trust (Collins, 2016).

Badger

- 2.2.11 All areas of suitable habitat (e.g., scrub) within the Site boundary were surveyed for badger (*Meles meles*) signs (latrines, paw prints, push throughs, setts, snuffle holes etc.).

Otters

- 2.2.12 No waterbodies, watercourses, or minor ditches are present within the Site boundary. Wince Brook is adjacent, and it was assessed for its potential to support otters (*Lutra lutra*) from the accessible northern bank.

Water Voles

- 2.2.13 Wince Brook was assessed for its potential to support water voles (*Arvicola amphibius*). Habitat suitability criteria were based on information given in Strachan and Moorhouse (2011) and included the species' known preference for:

- slow flowing water;
- slow water level fluctuation;
- banks suitable for burrowing;
- lush bankside vegetation to provide food and shelter; and
- an absence of American mink (*Neovison vison*), a predator of water vole.

2.3 Impact Assessment

- 2.3.1 The methodology for evaluation of the nature conservation value of ecological features affected by development (ecological receptors) is adapted from the current Chartered Institute of Ecology & Environmental Management guidelines for Ecological Impact Assessment (CIEEM, 2018). These guidelines recommend assignment of value (or potential value) to ecological receptors in accordance with the following scale:

1. International;
2. UK;
3. National (England)
4. Regional;
5. County (Lancashire/Greater Manchester);
6. District (Rochdale/Middleton);
7. Local; and/or
8. within immediate zone of influence only.

- 2.3.2 In appraising any impacts, the review considers the client's site proposals and any subsequent recommendations made are proportionate and appropriate to the site and have considered the Mitigation Hierarchy as identified below:

- **Avoid:** Provide advice on how the development may proceed by avoiding impacts to any species or sites by either consideration of site design or identification of an alternative option.

- **Mitigate:** Where avoidance cannot be implemented mitigation proposals are put forward to minimise impacts to species or sites as a result of the proposals. Mitigation put forward is proportionate to the site.
- **Compensate:** Where avoidance cannot be achieved any mitigation strategy will consider the requirements for site compensatory measures.
- **Enhance:** The assessment refers to planning policy guidance (e.g. NPPF) to relate the ecological value of the site and identify appropriate and proportionate ecological enhancement in line with both national and local policy.

2.3.3 When describing impacts on ecosystem structure and function, reference is made to the following aspects where appropriate:

- extent;
- magnitude;
- duration;
- reversibility; and
- timing and frequency.

2.3.4 Understanding the nature of the impact enables determination of the effect on the ecological integrity of the ecological receptor. This in turn is assessed against the importance of the receptor to determine the significance of the effect on nature conservation interests as being (i) not significant, or (ii) a significant positive or adverse impact.

2.3.5 Effects or residual effects are considered to be significant under the Environmental Impact Assessment (EIA; England and Wales) Regulations 2000 (EIA Regulations) if they are at a level of Moderate or Major (i.e. “a likely significant effect”). Effects that are neutral, negligible or minor are not considered significant with respect to the EIA Regulations. It is worth noting that the Proposed Development is not felt to be a project to which EIA applies and the EIA Regulations are used as a reference point only within this assessment.

2.4 Limitations

Desk Based Assessment

2.4.1 The desk study data is third party controlled data, purchased for the purposes of the 2021 PEAR and referenced in this report. RPS cannot vouch for its accuracy and cannot be held liable for any error(s) in these data.

Surveys

2.4.2 It should be noted that whilst every effort has been made to provide a comprehensive description of the Site, no investigation can ensure the complete characterisation and prediction of the natural environment.

2.4.3 Buildings and trees outside of the Site boundary were not surveyed for bat roost potential. The River Irk to the north-north-east of the site was not accessible and is separated from the Site by Oldham Road. Therefore, it was not assessed for otter and water vole suitability.

Accurate Lifespan of Ecological Data

2.4.4 The majority of ecological data remain valid for only short periods due to the inherently transient nature of the subject. The survey results contained in this report are considered accurate for two years, assuming no significant considerable changes to the site conditions.

3 DESK STUDY

3.1 Designated Sites

- 3.1.1 There are four statutory designated sites for nature conservation value within 2 km of the Site (Table 3-1). The closest of these is Alkrington Woods and Rhodes Lodges Local Nature Reserve (LNR) / Site of Biological Importance (SBI) 0.2 km directly west from the Site and hydrologically connected via Wince Brook. Rochdale Canal Special Area of Conservation (SAC) / Site of Special Scientific Importance (SSSI) is 1.8 km east of the Proposed Development Site. A minor hydrological connection is present as Rochdale Canal can feed into Wince Brook via an overflow spillway however Wince Brook cannot feed into Rochdale Canal and therefore there is no pollution pathway from the Development Site to the Designated Site.
- 3.1.2 Seven non-statutory designated sites are located within the 2 km search radius of the Site including two sites which have both statutory and non-statutory designations (Alkrington Woods and Rhodes Lodges LNR/SBI; and Hopwood Woodland LNR/SBI; Table 3-1). Rochdale Canal Lock at Scrowcroft Farm to Stott's Lane SBI is also a section of the Rochdale Canal SAC/SSSI. Alkrington Woods and Rhodes Lodges LNR/SBI is the closest non-statutory designated site, and Boardman Brook SBI is adjacent and connected to that site.
- 3.1.3 A summary of these sites is provided in Table 3-1 below and the location of each site is shown on the GMEU map provided in Appendix C.

Table 3.1: Designated sites within 10 km of the study area

Site name	Type	Interest Features	Distance from site
Statutory			
Alkrington Woods and Rhodes Lodges	LNR	14.37 ha of mature woodland, meadows and five fishing lodges. The River Irk flows along the lower reaches of the reserve, which is fed by Wince Brook. The site supports diverse bird communities with abundant records for kingfisher (<i>Alcedo atthis</i>).	0.2 km west
Hopwood Woodlands	LNR	An area of 7.38 ha of broadleaved woodland blocks around the grounds of Hopwood Hall, including a small area of ancient woodland. The woodland supports a diverse woodland bird assemblage.	1.8 km north
Rochdale Canal	SAC/SSSI	Centred on SD 893 038 and equating to 2.37 ha the SAC's (UK0030266) primary designation feature is the presence of Annex II nationally scarce floating water-plantain (<i>Luronium natans</i>). The SAC is also designated as a SSSI for its submerged aquatic plants and emergent vegetation. The condition of the SSSI is currently unfavourable recovering.	1.8 km east
Non-statutory			
Alkrington Woods and Rhodes Lodges	SBI	14.37 ha of mature woodland, meadows and five fishing lodges. The River Irk flows along the lower reaches of the reserve, which is fed by Wince Brook. The site supports diverse bird communities with abundant records for kingfisher. Designated for its habitat mosaic.	0.2 km west
Boardman Brook	SBI	The SBI is adjacent to Alkrington Woods and Rhodes Lodges LNR / SBI. It is designated for its woodland habitat.	1.1 km west
Scowcroft Reservoir	SBI	A reservoir surrounded by semi-natural broadleaved woodland with a network of accessible paths for recreational activity. Designated for its pond and woodland habitat.	1.1 km east
Higher Boarshaw Clough	SBI	Area of native trees and small river system lodge with a network of paths for recreational activity. Designated for its woodland and watercourse habitat.	1.6 km east
River Irk Marsh	SBI	Part of the River Irk catchment with surrounding wetland habitats. Designated for its grassland habitat.	1.6 km east
Rochdale Canal Lock at Scrowcroft Farm to Stott's Lane	SBI	A section of the Rochdale Canal designated for its open water habitats, floating water-plantain and American Pondweed.	1.7 km east
Hopwood Clough	SBI	This area of woodland is also part of the larger Hopwood Woodlands LNR. Hopwood Clough is designated for its ancient woodland habitat.	1.8 km north

Abbreviations used in Table 3-1; LNR: Local Nature Reserve; SAC: Special Area of Conservation; SBI: Site of Biological Importance; SSSI: Site of Special Scientific Interest; ha: hectare.

3.2 Species

- 3.2.1 Records of protected species were obtained from Greater Manchester Local Records Centre (Ecology Resources, 2021). A number of species of conservation importance or otherwise notable were recorded within the 2 km search radius of the Site (Table 3-2).
- 3.2.2 In order to simplify the results, only records of species from the last 10 years are shown. In addition, only data with a 6-figure grid reference resolution or higher are provided since locations given at a lower resolution do not allow accurate calculation of distance to the Site boundary.

Table 3.2: Notable species records from the last 10 years within 2 km of the site

Species	Status	Comments
Bats (<i>Chiroptera</i>)	WCA, SPI, LBAP, HR	There is a single record for common pipistrelle (<i>Pipistrellus pipistrellus</i>) located within the site boundary. The wider 2km search area has records of common pipistrelle, soprano pipistrelle (<i>Pipistrellus pygmaeus</i>), Daubenton's bat (<i>Myotis daubentonii</i>) and an unidentified <i>Myotis</i> species. European protected species licence (EPSL) (EPSM2010-2397) for destruction of breeding place for common pipistrelle at SD 870 485. Licence period 2011 to 2013. Located 1.1km north. EPSL 2014-2836-EPS-DDX for destruction of breeding place for common pipistrelle at SD 8704 3920. The licence period was in 2014.
Badgers	WCA	No desk study records.
Great Crested Newt	WCA, SPI, LBAP, HR	No desk study records.
Water vole	WCA, SPI, LBAP	No desk study records.
Otter	WCA, SPI, LBAP	No desk study records.
White Clawed Crayfish (<i>Austropotamobius pallipes</i>)	WCA, SPI, LBAP	No desk study records.
Invasive Plant Species	WCA Schedule 9	No desk study records.
Birds	WCA, SPI	Bird data included records of kingfisher (<i>Alcedo atthis</i>), dunnoek (<i>Prunella modularis</i>), bullfinch (<i>Pyrrhula pyrrhula</i>), house sparrow (<i>Passer domesticus</i>), reed bunting (<i>Emberiza schoeniclus</i>), song thrush (<i>Turdus philomelos</i>), grasshopper warble (<i>Locustella naevia</i>) and peregrine falcon (<i>Falco peregrinus</i>). The closest record to site was a kingfisher, located on Wince Brook directly to the south of the site.
Other fauna	WCA, LBAP	Hedgehog (<i>Erinaceus europaeus</i>) records associated at varying locations within Middleton and also at Alkrington Woods and Rhodes Lodges LNR/SBI.

Abbreviations used in Table 3-2: WCA: Part 1 of the Wildlife & Countryside Act 1981 (as amended); WCA9: Wildlife & Countryside Act Schedule 9; SPI: Species of Principal Importance in England listed on S41 of the NERC Act 2006; LBAP: Greater Manchester Local Biodiversity Action Plan; HR: The Conservation of Habitats and Species Regulations 2017.

Fish Populations

- 3.2.3 Wince Brook is a tributary to the River Irk and is classified by the EA under the Water Framework Directive (WFD; waterbody ID GB112069061120). In 2022, the most recent year that classifications are available for, it was classified as having Bad Ecological Status, predominantly due to point source pollution (intermittent and continuous sewage discharges). The watercourse has been extensively realigned and over-deepened along its length, including where it flows past the Proposed Development (Robins and Naura, 2019). Downstream of the Proposed Development, a major weir is present which could inhibit upstream fish migration and upstream of the Proposed Development several long culverts and weirs may also inhibit fish movements within the watercourse.
- 3.2.4 No information on fish populations in Wince Brook was available, but brown trout (*Salmo trutta*) and three-spined stickleback (*Gasterosteus aculeatus*) were previously recorded in the River Irk downstream of the Proposed Development.

4 FIELD SURVEYS

4.1 UK Habitat Survey

- 4.1.1 The survey results are presented in the form of a map with the habitat types and secondary codes marked (Figure 2). Descriptions of the habitat types and boundary features are detailed below. Habitat descriptions are defined by UKHab (Butcher *et al.*, 2020), with habitat condition as defined by the BNG Metric 3.1 Technical Supplement (Natural England, 2022). For justification of habitat condition assignment, please see the Biodiversity Net Gain Assessment report (RPS, 2023b).
- 4.1.2 A summary of habitats recorded on Site and their size, condition, conservation status, and importance are provided in Table 4-1. Following the Natural England guidance on habitat condition types, habitats with the condition 'N/A' do not require condition assessment, being of no value, by default.

Table 4.1: Habitats on Site

Habitat	UKHab code	Area (ha)	Condition	Conservation Status	Importance
Buildings	u1b5	0.51	N/A	None	None
Developed land; Sealed surface	u1b	0.23	N/A	None	None
Developed land; Sealed surface – Ruderal/Ephemeral	u1b – 17	0.27	Poor	None	Zol
Urban and developed area – Ruderal/ephemeral	u1-17	0.08	Moderate	None	Zol
Other neutral grassland	g3c	0.08	Poor	None	Zol
Other neutral grassland	g3c	0.01	Moderate	None	Zol
Mixed scrub	h3h	0.05	Poor	None	Zol
Bramble scrub	h3d	0.03	N/A	None	Zol
Wince Brook	r2	0.24 (km)	N/A	UK BAP	District
Individual tree	11	N/A	Moderate	None	Local
Built linear features	u1e	0.50 (km)	N/A	None	None

UK BAP: UK Biodiversity Action Plan. The length of Wince Brook refers to the section which bounds the Site. Individual trees have an area calculated for the purposes of BNG which is not considered to be part of the Site's actual area. Zol: Zone of Influence.

Buildings (u1b5)

- 4.1.3 This is the dominant habitat on Site. Warwick Mill itself is a large five-storey brick building. Two one-storey brick buildings are present in the east of the Site. A six-storey flat-roofed office building ("London House") is present in the west of the Site. Adjacent to this building is a small, one-storey storage/electricity generator building with a flat roof.
- 4.1.4 This habitat did not receive a condition assessment.
- 4.1.5 This habitat is of negligible ecological value and is **not considered to be of importance**.

Developed Land; Sealed Surface (u1b)

- 4.1.6 Hardstanding covers a large portion of the Site and the area in the southeast of the Site has little vegetation cover.
- 4.1.7 This habitat did not receive a condition assessment.
- 4.1.8 This habitat is of negligible ecological value and is **not considered to be of importance**.

Developed Land; Sealed Surface – Ruderal/ephemeral (u1b-17)

- 4.1.9 The hardstanding in the west of the Site has been assigned the secondary category of ruderal/ephemeral as a notable amount of buddleia (*Buddleja davidii*) and other ruderal species are growing from cracks in the margins and in the centre of these areas, although overall constituting <15% of the habitat's surface area.
- 4.1.10 This habitat was classed as "Vacant or derelict land" in the BNG assessment and is considered to be "Poor" condition as the vegetation structure was considered unvaried and besides the buddleia it features few plants of notable benefit to wildlife.
- 4.1.11 This habitat is of very low ecological value and is considered to be of **importance within the immediate Zol only**.

Urban and Developed Area – Ruderal/ephemeral (u1-17)

- 4.1.12 Two areas of derelict land were noted. The larger area in the east of the Site is comprised of a large pile of tires upon which many ruderal species are growing densely. Red campion (*Silene dioica*) is the dominant species and INNS Himalayan balsam (*Impatiens glandulifera*) is present.
- 4.1.13 This habitat was also considered "Vacant or derelict land" in the BNG assessment and is considered to be "Moderate" condition as it passed all criteria however invasive non-native species were present.
- 4.1.14 This habitat is of very low ecological value and is considered to be of **importance within the immediate Zol only**.

Other Neutral Grassland (g3c)

- 4.1.15 This habitat is present in two small areas in the northeast in which grass is growing between the gaps in cobblestones and bryophyte species are growing over the cobblestones themselves.
- 4.1.16 This habitat is also present in two areas in the west of the Site in which cobblestones are not present and the grass has almost total coverage.
- 4.1.17 Other neutral grassland is also present adjacent to Wince Brook with a mix of grass, ruderal vegetation, aquatic marginal vegetation and individual trees. INNS Himalayan balsam and Japanese knotweed (*Fallopia japonica*) are growing densely along Wince Brook in this adjacent grassland habitat (TN1; Figure 2).
- 4.1.18 Most of these other neutral grassland habitats are "Poor" condition however the grassland adjacent to Wince Brook is rated "Moderate" condition.
- 4.1.19 The coverage of this habitat was small in extent, and it is a commonly occurring habitat type. This habitat is of low ecological value and is considered to be of **importance within the Zol only**.

Mixed Scrub (h3h)

- 4.1.20 This habitat is comprised of a mix of scrub and shrub species with buddleia and downy birch (*Betula pubescens*) being the most common. Bramble and INNS Himalayan balsam are also present.
- 4.1.21 This habitat is rated as "Poor" condition due to the dominance of non-native species.
- 4.1.22 This habitat is of small extent and low ecological value and is considered to be of **importance within the Zol only**.

Bramble Scrub (h3d)

- 4.1.23 This habitat is present along the south of Warwick Mill. It is growing extremely densely and reaching up to eight feet high. Bramble comprises >95% of the species composition of this habitat.
- 4.1.24 Bramble scrub habitat is automatically considered to be of “Poor” condition.
- 4.1.25 This area of habitat was small in extent, and it is a commonly occurring habitat type. This habitat is of low ecological value and is considered to be of **importance within the Zol only**.

Running Water (r2; Wince Brook)

- 4.1.26 Wince Brook bounds the Site to the south, it has sloped, concrete banks on either side. Dense vegetation is growing to either side where the concrete ends and this includes grass, INNS (Himalayan balsam and Japanese knotweed) and numerous individual trees.
- 4.1.27 Wince Brook lies adjacent to the Site’s red line boundary and is an ecologically important habitat within the development’s impact zone.
- 4.1.28 Watercourses are UK BAP priority habitats and Wince Brook connects to designated sites of nature conservation downstream where it connects to the River Irk. It is considered to be of **importance at the district level**.

Individual Trees (11)

- 4.1.29 Individual trees are present in the east and west of the Site and are usually associated with another habitat or along a boundary feature such as Wince Brook (see Figure 2). Forty-six trees are present across the Site and only eight are considered to be of medium size with the remainder being small. Almost all of the trees are considered to be semi-mature with downy birch being the most common species. Two copper beech (*Fagus sylvatica f. purpurea*) trees growing adjacent to each other in the northwest are the only mature trees. All trees have been rated as “Moderate” condition.
- 4.1.30 None of the trees present are ancient, veteran or notably mature. They are considered to be of low ecological value and **important within the Zol only**.

Built Linear Features (u1e)

- 4.1.31 Wooden sheet fencing is present around much of the Site, metal-wire fencing is present between the Site and Wince Brook, and an old brick wall is present along the eastern boundary of the Site.
- 4.1.32 This habitat does not receive a condition assessment.
- 4.1.33 This habitat is of negligible ecological value and is **not considered to be of importance**.

4.2 Species

White Clawed Crayfish

- 4.2.1 Wince Brook is highly disturbed, has artificial banks and is within a heavily urbanised area. It is considered to be unsuitable for white clawed crayfish (*Austropotamobius pallipes*).

Great Crested Newts and Other Amphibians

- 4.2.2 No ponds are present on Site. The only waterbody within 500 m of the Site’s red line boundary is approximately 300 m to the west and separated from the Site by the A664 which would present a major barrier to amphibian species.

- 4.2.3 The possibility of amphibians commuting through the Site cannot be ruled out however due to the lack of suitable habitat GCN are not considered to be present and are not considered further within this report.

Breeding Birds

- 4.2.4 Feral pigeon (*Columba livia domestica*) were present and nesting within Warwick Mill. This is a species of the least conservation concern however their nests are protected under the Wildlife and Countryside Act.
- 4.2.5 During the bat emergence survey on the 31st of August 2023 a kestrel (*Falco tinnunculus*) was observed perching on the western and eastern faces of Warwick Mill. This is a species with a declining population and its national population is considered to have Amber conservation status under Birds of Conservation Concern (BOCC, 2021). The habitats on Site are considered to provide poor foraging potential for kestrels.
- 4.2.6 No other notable bird species were observed on Site during the field surveys. Habitats present such as scrub and scattered trees do offer potential nesting habitat for breeding birds, however, they cover a small percentage of the Site. Wince Brook has habitat of moderate potential for breeding birds - in the form of trees and scrub along the river corridor. The breeding bird assemblage is considered to be of **local value**.

Bats

- 4.2.7 Photos are provided of the previously confirmed roost features in Appendix D. If it is a photo of a confirmed or potential roost the emergence/re-entry point is circled in red. Arup's 2015 bat report is provided in Appendix E.

Bat Roost Potential (BRP)

- 4.2.8 Warwick Mill previously confirmed to have a common pipistrelle roost underneath the headstone of a boarded-up window (see Photo 01). It was noted that there was also a possible re-entry in the roof above that window in 2015 (Arup, 2015; Appendix E). The other buildings on Site and structures such as the boundary brick wall were assessed as having negligible BRP.
- 4.2.9 A single tree (TN2, Figure 2) was noted as having low BRP.

Internal Survey

- 4.2.10 The building is comprised of five floors. The lowest floor was almost entirely dark at the time of the survey. There was smoke damage from a fire across two of the rooms within. The rooms had either bare brick or plastered walls. A false ceiling was present in part of the ground floor, with many missing tiles. There were several broken or open windows, or holes in the walls for vents.
- 4.2.11 Separate lift shafts and stair wells are present at the north of the western and eastern sides of the building. Additionally, there was a large lift shaft/machinery area at the south-eastern side of the building that was unsafe to enter and only viewed from various openings into the building. It appeared that there had been windows in this section in the past, but these have been bricked or boarded up. On aerial imagery it appears that there is a large opening in the roof in this section of the building, with skylights present across the rest of this section of roofline. Viewed from inside the mill it appeared that there may be gaps between large stones on a flat section of roof in this area. This area had an old metal staircase in some sections. Numerous feral pigeons were present with large piles of accumulated nesting material and guano.
- 4.2.12 The four upper floors were large open spaces, with metal columns present across each floor and a vaulted brick ceiling. On the first, second floors, and third floors there were some internal partitions

creating toilet or office areas. The toilet blocks had been extensively damaged creating openings into the ceiling areas and into areas where old pipework or electrical cables ran.

- 4.2.13 Across all the top four floors there were minor gaps in mortar in the ceiling and occasional holes in the brickwork of walls and ceiling. Water was pooling in several places across all floors, appearing to be entering from a leak in the roof and dripping between the floors over time. Pigeons were nesting on every floor.
- 4.2.14 The windows on all floors were in wooden frames however many were broken and coming away from the brickwork. Windows across all floors were a mix of part boarded, netted, broken or missing entirely (Photo 02). No bats, droppings, urine stains or feeding remains were recorded.
- 4.2.15 During the internal survey all floors, in particular the lower ground floor, were assessed as having hibernation potential for bat species.

Emergence Surveys

- 4.2.16 The surveyor locations are shown on Figure 3 (labelled S1, S2, et cetera) as well as the locations of the roosts identified in 2023 (plotted as gold stars). During the first emergence survey on the 17th of August 2023, the surveyors were positioned at S1, S2, S5, S6, S7, and S8. The surveyors at S1 and S2 were positioned on Oldham Road and both of these surveyors recorded no bat activity and noted that noise from cars and light from streetlamps was at very high levels which made the northern aspect of Warwick Mill unlikely to feature bat activity. For the subsequent surveys on 31st of August and 19th of August, these locations were not used again and instead surveyors were positioned at S3, S4, S5, S6, S7 and S8.
- 4.2.17 The results and weather conditions of the surveys are shown in Table 4-2. Common pipistrelle is the most common bat species on Site. Call analysis confirmed that noctule (*Nyctalus noctula*) was the only other species recorded during the field surveys and was only recorded during the final emergence survey.
- 4.2.18 The majority of common pipistrelle activity was concentrated along Wince Brook, with frequent commuting and foraging there. Foraging was also recorded along the bramble scrub parallel to Wince Brook south of Warwick Mill. Additionally, bats foraged to the immediate west and east of Warwick Mill and bats were recorded foraging around the roof on the west side of Warwick Mill.

17th August 2023

- 4.2.19 On the 17th of August 2023 between 21:09 and 21:11 (53 to 55 minutes after sunset) three or four bats emerged from the top left of the same boarded up window in which a roost was found in 2015 (Photo 03) These bats did not emit audible calls which does not allow for species level identification. However, given this was previously confirmed to be a common pipistrelle roost (Arup, 2015; Appendix E) and only common pipistrelles were recorded on Site that night it is highly likely these emerging bats were common pipistrelle. The recorded infrared footage failed to capture the emergences. The bats emerged within a typical timeframe for common pipistrelle and the surveyor nearby at VP8 recorded common pipistrelles calls shortly after the emergences.

31st August 2023

- 4.2.20 A single bat emerged from behind a window board directly adjacent to the window where the emergence recorded on 17th August 2023. The bat emerged from the left-hand side of the window at 20:16, 14 minutes after sunset (Photo 4). Common pipistrelle calls were recorded around the same time as the emergence and therefore it is considered likely that the bat was a common pipistrelle.
- 4.2.21 Another bat may have emerged from a window on the second floor on the western elevation (Photo 05). This was recorded using the IR camera. The bat is not visible prior to being seen flying

in front of a window on that floor however the precise location it may have emerged from is not clear.

- 4.2.22 There was another potential emergence from the eastern elevation where a bat potentially emerged from underneath a window board (Photo 06). Only common pipistrelle calls were recorded on this survey and therefore it is considered likely that both potential emergences were common pipistrelle bats.

19th September 2023

- 4.2.23 At 19:06 (nine minutes before sunset) on the 19th of September 2023 a single common pipistrelle bat emerged from a crack in the roof above the boarded-up window (Photo 07 and Photo 08). This might be the same feature from which a potential emergence was recorded in 2015 (Arup 2015; Appendix E).
- 4.2.24 Also, on the 19th of September 2023 at 19:28 (28 minutes after sunset) there was a possible emergence of a single common pipistrelle from a first-floor window on the western side (see Photo 09).

Assessment

- 4.2.25 Six roost locations were recorded. All the roosts are considered to be common pipistrelle day roosts. All but one roost location had single bats recorded emerging from them. One roost location had three or four bats emerge during the survey undertaken on August 17th 2023 (Photo 03). All bat species in the UK are European Protected Species and all bats and their roosts are protected under the Wildlife and Countryside Act 1981. Common pipistrelle is a common and widespread species across the UK. The bat roosts on Site are therefore considered to be of **importance at the Site level**.
- 4.2.26 The habitat corridor along Wince Brook provides the highest value habitat for foraging/commuting bats around the Site, providing connectivity to other watercourses and woodlands to the west and east. Habitats within the Site are dominated by hardstanding, however areas of scrub and ruderal/ephemeral vegetation do provide suitable habitat for foraging bats, as was recorded during the emergence surveys. Common pipistrelle bats were recorded foraging along three sides of the building, with no activity recorded to the north of the Site where a busy road is present. Given the limited extent of the Site, habitats within the Site are considered to be of **importance at the Site level**, with habitats along the Wince Brook corridor of up to **local importance**.
- 4.2.27 Hibernation surveys have not yet taken place. On a precautionary basis for the purposes of assessment it has been assumed that a small number of common species such as common pipistrelle may use the mill building as a hibernation site. A common pipistrelle hibernation site would be of **district importance**.

REPORT

Table 4.2: Bat Emergence Survey Results

Date	Surveyor location	Sunset	Survey period	Temp (°c)	Wind (ms ⁻¹)	Cloud (1/8 th)	Rain	Species recorded	Roosts
17.08.2023	S1	20:33	20:16 - 22:01	17	4	1	Dry	None.	No.
17.08.2023	S2	20:33	20:16 - 22:01	20	4	1	Dry	None.	No.
17.08.2023	S5	20:33	20:16 - 22:01	18	5	1	Dry	P.pip	No.
17.08.2023	S6	20:33	20:16 - 22:01	17	2	3	Dry	P.pip	3-4 common pipistrelle emerged from top of window under keystone.
17.08.2023	S7	20:33	20:16 - 22:01	19	5	2	Dry	P.pip	No.
17.08.2023	S8	20:33	20:16 - 22:01	18	3	8	Dry	P.pip	No.
31.08.2023	S3	20:02	19:47 - 21:32	18	1	8	Light shower for first ten mins then dry	P.pip	Potential emergence from second floor on western elevation. Likely common pipistrelle. Single bat.
31.08.2023	S4	20:02	19:47 - 21:32	17	0	8	Light shower for first ten mins then dry	P.pip	No.
31.08.2023	S5	20:02	19:47 - 21:32	18	1	8	Light shower for first ten mins then dry	P.pip	No.
31.08.2023	S6	20:02	19:47 - 21:32	19	2	8	Light shower for first ten mins then dry	P.pip	Single bat from second window south from main building. Behind window board. Likely common pipistrelle.
31.08.2023	S7	20:02	19:47 - 21:32	19	1	8	Light shower for first ten mins then dry	P.pip	Potential emergence from under window board on eastern elevation. Single bat. Likely common pipistrelle.
31.08.2023	S8	20:02	19:47 - 21:32	18	0	8	Light shower for first ten mins then dry	P.pip	No.
19.09.2023	S3	19:15	19:00 - 20:45	19	5	8	Very light showers, mostly dry throughout	P.pip	No.
19.09.2023	S4	19:15	19:00 - 20:45	18	4	8	Very light showers, mostly dry throughout	P.pip	No.
19.09.2023	S5	19:15	19:00 - 20:45	17	5	8	Very light showers, mostly dry throughout	P.pip	Potential emergence from first floor window. Single bat, common pipistrelle.
19.09.2023	S6	19:15	19:00 - 20:45	19	4	8	Very light showers, mostly dry throughout	P.pip, N.noc	Emerged from crack in roof. Common pipistrelle, single bat.
19.09.2023	S7	19:15	19:00 - 20:45	18	5	8	Very light showers, mostly dry throughout	P.pip, N.noc.	No.
19.09.2023	S8	19:15	19:00 - 20:45	16	7	8	Very light showers, mostly dry throughout	P.pip	No.

Abbreviations used in Table 3-4: P.pip: Common pipistrelle; N.noc: Noctule

Badgers

- 4.2.28 The Site habitats offer limited suitable habitat for badger foraging and no potential for sett creation. Moreover, the walls and fences surrounding the Site are likely to prevent badgers from entering it. No badger signs were noted during the ecological scoping survey. Badgers are therefore not considered to be present within the area and are not considered further within this report.

Water Voles and Otter

- 4.2.29 Wince Brook has concrete banks either side which exclude the possibility of otter holt or water vole burrows being present. The possibility of either species commuting through Wince Brook cannot be ruled out, however there were no records of either species found during the desk study. Moreover, the numerous invasive species adjacent to the banks offer poor foraging potential for water voles. Both water voles and otters are considered unlikely to be resident in habitats adjacent to Site and are not considered further within this report.

Other Mammals

- 4.2.30 No signs of other mammals were recorded during the ecological scoping survey however habitats on Site such as the grassland and scrub have potential for hedgehog which is a nationally declining species and multiple records were present in the desk study. This species may be able to access the Site by passing under the fences or gates and then forage and commute through it. This potential hedgehog population is considered to be of **local value**.

Reptiles

- 4.2.31 Habitats were assessed as having low potential to support reptiles. Occasional piles of rubble and tires in the east of the Site may provide some suitable habitat for common lizard (*Zootoca vivipara*) however the foraging habitat around these features is poor for the species with only small areas of grassland and scrub. The Site is located in a highly urbanised area with limited connectivity to other areas of suitable habitat (apart from Wince Brook however this has steep to sheer banks by the Site). It is considered highly unlikely that reptiles are present in the area. They are not considered further within this report.

Fish

- 4.2.32 Wince Brook has potential to support a population of fish. There are no records of fish from the watercourse, and it was recorded as being having a bad ecological status in 2022. Due to the heavily modified nature of the watercourse, with the presence of weirs creating barriers to movement for fish, it is assumed that any fish population is likely to be small and restricted to pollution tolerant species. The fish assemblage is valued as being of **local importance**.

5 IMPACT ASSESSMENT

5.1 Potential Impacts

- 5.1.1 Potential impacts from the construction, operation, and decommissioning phases of the proposed Warwick Mill development are outlined below.
- Habitat loss
 - the development plans require the loss of existing habitats including the scrub, grassland, and ruderal/ephemeral habitat and the loss of 23 trees on Site.
 - Construction disturbance
 - noise and visual disturbance would occur across the Site, which may affect fauna using the area including along Wince Brook.
 - Post-development disturbance
 - the new residents of The Loom and Warwick Mill and visitors to the various commercial units and amenities will increase the human presence on Site and noise disturbance will be increased, which may affect fauna using the area;
 - increased light pollution during construction and post-development phase which can have an adverse impact on bats (Bat Conservation Trust, 2011) and other nocturnal animals.
 - Increased traffic in the area may lead to fauna fatalities during both the construction and post-development phase.
 - Loss of the bat roosts in Warwick Mill and potential to harm or kill bats roosting within.
 - Loss of foraging/commuting habitats on Site (such as grassland and scrub) through site clearance including the initial loss of the habitats adjacent to Wince Brook (in preparation for landscaping).
 - Destruction of feral pigeon nests in Warwick Mill, London House and the two other buildings. Additionally, there is the potential to harm or kill feral pigeons and other birds inside the buildings.
 - Nests within scrub or scattered trees may be destroyed during habitat clearance.
 - Animals such as hedgehogs may be killed during vegetation clearance.
 - There is a risk that invasive species such as Himalayan balsam and Japanese knotweed will be spread to other sites, including downstream, if not properly treated and cleared.
 - Mortality of commuting animals
 - for example, through falling into open excavations or being crushed by machinery.
 - Water pollution
 - sedimentation and pollution from surface run off could occur into Wince Brook during the construction period.
 - Changes to Site drainage post-development may affect the flow rate and water level of Wince Brook.

5.2 Development Design Mitigation

- 5.2.1 The measures set out below will be implemented as part of the Proposed Development and constitute mitigation embedded in the design of the proposed development. As such, any

assessment of effects presented below assumes the implementation of the embedded mitigation. A summary of embedded mitigation includes the following:

- Landscaping proposals will result in a 10% increase in habitat units (RPS-b, 2023) including the creation of habitats beneficial to invertebrates, birds, bats and commuting animals.

Limitations to the Assessment

- 5.2.2 As with any environmental assessment there will be elements of uncertainty; these are identified and reported on along with the measures taken to reduce these. Any assumptions made include commentary as to the likely extent that such difficulties affect the conclusions.
- 5.2.3 The level of certainty of the magnitude of impact predictions varies depending upon a range of parameters. For some elements, such as direct habitat-take, it is relatively straightforward to assess and quantify the area of habitat that will likely be lost within the Site, and therefore quantify potential effects of this land-take. The current assessment approach is based on 'likely' effects.
- 5.2.4 The main limitations in this assessment are common to most ecological assessments. Firstly, surveys undertaken were based on sampling techniques so that the results give an indication of numbers and activities of species at the particular times that surveys were carried out. Species occurrence changes over time and therefore the results presented in this report are snapshots in time.
- 5.2.5 Secondly, putting survey results into a wider geographical context is difficult because most species have not been systematically surveyed beyond the Site. Thus, defining a population as locally or regionally important is difficult because local or regional population estimates do not exist for most taxa and habitats. Wherever such uncertainty exists, professional judgement and published evidence has been used and populations in the site have been defined upwards to their highest potential level of geographical/ecological importance.
- 5.2.6 At the time of writing there was no drainage strategy for the Proposed Development. Therefore, it has been assumed that there will be outputs to the brook with no attenuation.

5.3 Assessment of Effects

Designated Sites

- 5.3.1 There will be no direct or indirect impacts to the majority of designated sites due to their distance from the Site.
- 5.3.2 There is no pollution pathway from the Site to Rochdale Canal SAC/SSSI and Rochdale Canal – Lock at Scowcroft Farm to Stott's Lane SBI as they are both located upstream of the Proposed Development and Wince Brook is not able to feed into Rochdale Canal. Moreover, they are considered to be sufficiently distant and separate from the Site to not be affected by the Proposed Development in any other respect either.
- 5.3.3 Hopwood Woodlands LNR and Hopwood Clough SBI, Higher Boarshaw Clough SBI, Scowcroft Reservoir SBI, and River Irk Marsh SBI are considered to be sufficiently distant to avoid being impacted and have no connection to the Site.

Alkrington Woods and Rhodes Lodges LNR/SBI and Boardman Brook SBI

Construction Effects

- 5.3.4 There will be no direct habitat loss within any of the designated sites. However, Alkrington Woods and Rhodes Lodges LNR/SBI and Boardman Brook SBI are located downstream of the Site and

hydrologically connected to it via Wince Brook. Potential construction impacts are anticipated to be:

- surface runoff and pollution into Wince Brook degrading habitats downstream;
- changes to drainage during the construction phase affecting flow rate and water level of Wince Brook with implications for habitats and fish populations downstream; and
- the potential to spread INNS (Himalayan balsam and Japanese knotweed) downstream during habitat clearance.

5.3.5 Surface runoff may occur after vegetation clearance or land stripping and could introduce large amounts of fine sediment and detritus into Wince Brook. Both Himalayan balsam and Japanese knotweed have the potential to be spread downstream or be carried off site (for example when caught in worker's shoe soles). Without mitigation the above potential impacts are considered to have the potential to have a **significant long-term negative effect** at a **regional level** of Alkrington Woods and Rhodes Lodges LNR/SBI and at a district level for Boardman Brook SBI.

Operational Effects

5.3.6 Potential operational impacts are anticipated to be:

- increased pollution into Wince Brook from the residential and commercial units which degrades habitats downstream; and
- changes to drainage post-development affecting flow rate and water level of Wince Brook with implications for habitats downstream and fish populations.

5.3.7 It should be noted that the coverage of impermeable surfaces on Site is not expected to significantly change post-development and therefore surface runoff should be comparable to pre-development levels. However, the introduction of many residents and commercial units on Site will increase water use and chemicals from sources such as cleaning products and cosmetics will be flushed down drains which could potentially enter Wince Brook untreated, especially during storm periods when drainage systems are overwhelmed. Moreover, this increased water use has the potential to raise Wince Brook's water levels and increase its flow rate. Overall, therefore, operation of the site is considered to have the potential to induce a **significant long-term negative effect** at the **regional level** on habitats and species associated with the designated sites.

Habitats

Construction Effects

5.3.8 Potential construction impacts are anticipated to be:

- Habitat loss.

5.3.9 The main habitats to be lost within the Site will be small areas of other neutral grassland (g3c), bramble scrub (h3d), mixed scrub (h3h), urban - ruderal/ephemeral (u1-17 and u1b-17) and 23 scattered trees (11).

5.3.10 Except for 23 retained trees all of the existing habitats on Site are considered lost however the habitats affected are of low or very low ecological value.

5.3.11 New habitats are to be created across the Site. A wildflower meadow is being created adjacent to Wince Brook and this is classified as "other neutral grassland (g3c) of Moderate condition (RPS-b, 2023). Modified grassland (g4) is being created in the east of the Site, a biodiverse green roof (u1b5-87) is being created on The Loom, introduced shrub (u1b5-847) will be included on The Loom and in Warwick Mill's atrium, and 58 scattered trees (11) will be planted across the Site

(including in Warwick Mill's atrium). Additionally, 0.03 km of ornamental hedgerow (h2b) is being planted across the Site.

- 5.3.12 These new habitats have been calculated to result in a 10.12% increase in habitat units and a 100% increase in hedgerow units compared to the baseline (RPS-b, 2023).
- 5.3.13 Changes in habitats across the site are of large scale, moderate magnitude and cannot be expected to be reversed as many of the existing habitats are obstructive to the proposed new use of the Site. Habitat creation around the site will lead to an overall increase in the quality and variety of habitats within the site. A small loss of scrub habitat is expected however this is mitigated for by the planting of many new trees which are of a similar habitat category. Changes to habitats are therefore considered to be a **minor short-term negative effect** within the Zone of Influence only during the construction phase (when existing habitats have been cleared) and a **minor long-term positive effect** at the local level.
- 5.3.14 Table 5-1 below summarises the habitat types within the site and outlines the potential impacts of the development proposals to each of these habitats.

Table 5.1: Summary of potential impacts upon habitats

Habitat	UKHab code	Area (ha)	% of Site	Ecological Importance	Potential Impact
Buildings	u1b5	0.51	40.48%	None	None
Developed land; Sealed surface	u1b	0.23	18.25%	None	None
Developed land; Sealed surface – Ruderal/Ephemeral	u1b – 17	0.27	21.43%	Zol	Total habitat loss
Urban and developed area – Ruderal/ephemeral	u1-17	0.08	6.35%	Zol	Total habitat loss
Other neutral grassland	g3c	0.08	6.35%	Zol	Total habitat loss
Other neutral grassland	g3c	0.01	0.79%	Zol	Total habitat loss
Mixed scrub	h3h	0.05	3.97%	Zol	Total habitat loss
Bramble scrub	h3d	0.03	2.38%	Zol	Total habitat loss
Wince Brook	r2	0.24 (km)	N/A	District	Loss of adjacent habitat during construction phase
Individual tree	11	N/A	N/A	Local	Loss of 23/46 trees (50% habitat loss)
Built linear features	u1e	0.50 (km)	N/A	None	None

Operational Effects

- 5.3.15 Operational effects are considered to be isolated to Wince Brook. Potential impacts to the brook are covered in the designated sites section above.

Breeding Birds

Construction Effects

- 5.3.16 Construction effects are anticipated to be:
- destruction of nests;
 - loss of nesting and foraging habitat;
 - disturbance to breeding birds caused by noise of construction activities;
 - potential to harm or kill birds.
- 5.3.17 The restoration of Warwick Mill and The Lodge building and the demolition of London House and the small building in the east of the Site will necessitate displacing feral pigeons which are known

to nest all year round. This species is abundant both in the local area and nationally. Other birds may also visit the buildings on site (such as the kestrel recorded on Warwick Mill during a bat survey) and be at risk.

- 5.3.18 In the absence of mitigation measures, construction from the construction work is predicted to have a **minor medium-term negative effect** on breeding birds within the Zol only.

Operational Effects

- 5.3.19 The proposed development has the potential to have the following impacts on breeding birds during operation:

- disturbance caused by increased human presence, noise and light pollution;
- gain of nesting and foraging habitat via proposed landscaping.

- 5.3.20 In the absence of further mitigation measures the operation of the residential and commercial units is predicted to have a **minor long-term positive effect** on breeding birds within the Zol only.

Bats

Construction Effects

- 5.3.21 Construction effects are anticipated to be:

- destruction of roosts in Warwick Mill with potential to harm/kill common pipistrelle bats;
- potential loss of hibernation roost;
- disturbance caused by noise of construction activities;
- disturbance to foraging caused by artificial lighting from machinery/temporary plant;
- loss of foraging habitat.

- 5.3.22 In the absence of mitigation measures the construction work is predicted to have a **major long-term negative effect** at **up to district level**.

Operational Effects

- 5.3.23 The proposed development has the potential to have the following impacts on bats during operation:

- disturbance caused by noise of maintenance activities;
- increased light pollution across the Site and onto Wince Brook;
- gain of foraging habitat via proposed landscaping.

- 5.3.24 In the absence of mitigation, the disturbance and light pollution is predicted to result in a **minor negative long-term effect** to the species at a local level.

- 5.3.25 There will be an increase in foraging habitat when the wildflower grasslands, green roof and planted trees are created. This will be a **moderate long-term positive effect** at the Site level.

Other Mammals

Construction Effects

- 5.3.26 Construction effects are anticipated to be:

- mortality or injury of commuting mammals through interaction with machinery or falling into open excavations;
- disturbance caused by noise of construction activities;
- loss of foraging habitat.

5.3.27 Construction activities have potential to cause death or injury of hedgehogs and other small animals commuting across the Site. Without mitigation there is the potential for a **moderate medium-term negative effect** at the local level to mammals through mortality from construction activities.

5.3.28 Noise from construction activities has potential to disturb hedgehogs and other mammals within and around the site, and there is expected to be temporary loss of foraging habitat. Without mitigation this is predicted to result in a **minor short-term negative effect** at the local level.

Operational Effects

5.3.29 The proposed development has the potential to have the following impacts on hedgehog and other mammals during operation:

- disturbance caused by noise, light pollution and increased human presence;
- gain of foraging habitat via proposed landscaping.

5.3.30 In the absence of mitigation measures the operation of the proposed development is considered to be **minor long-term negative effect** at the local level.

6 MITIGATION AND ENHANCEMENT

6.1 Mitigation

6.1.1 The following mitigation measures are to be undertaken to reduce the impacts of the proposed Warwick Mill residential and commercial development:

Bats

- The works to develop Warwick Mill itself requires the destruction of the bat roosts in it (and if necessary, the translocation of bats inside). This will be undertaken under a European Protected Species licence obtained from Natural England which allows the destruction of roosts. This will require a Named Ecologist to make the application. The data used in the licence application is required to be from the most recent survey season. Therefore, should the bat license be applied for in or after March 2024, further bat surveys will be required. Any works that are to occur on Site that have the potential to disturb roosting bats prior to the destruction of the roosts must maintain a minimum of a 30 m distance from the identified bat roosts.
- A minimum of six artificial bat roosts, in the form of bat boxes, at least one of which should be a hibernation box, must be positioned on buildings and/or retained trees, to replace the destroyed roosts.
- Because the lower ground floor was assessed as having hibernation potential for bats during the internal survey it is recommended that hibernation surveys are conducted on Warwick Mill. Once completed this report should be updated with the hibernation survey results appended and recommended changes/additions to mitigation based on those results detailed.
- Works should be undertaken during daylight hours as much as possible (1 hour after sunrise and 1 hour before sunset) to minimise risks to commuting nocturnal species and disturbance to bats.
- Where artificial lighting is required, where practical use deflectors or angle lighting away from Wince Brook and tree lines to minimise disturbance.
- A sensitive lighting design should be adopted post-development for the Site following guidance from Bat Conservation Trust (Bat Conservation Trust, 2014). This will include:
 - Security lighting having a maximum of 2000 lumens (150W) lamps, which ideally should be fitted with a movement sensor, with the timer set to the minimum amount of 'lit time' (Institute of Lighting Professional, 2018);
 - Lighting around the Site should include using spectrum light sources to lower the range of species effected by the lighting, use light sources that emit minimal ultra-violet light, lights should not peak higher than 550nm or glass lantern covers should be used, avoid white and blue wavelengths to reduce insect attraction, and where white light sources are required they should be a warm/neutral colour (below 2700 kelvin); and
 - Pedestrian lighting should include low level lighting that can be directional and below 3 lux at ground level.

Birds

- Works should be timed to avoid the nesting bird season (nesting season defined as March-August inclusive). If works cannot be undertaken outside of the nesting bird season, then a nesting bird check will need to be undertaken within any areas to be affected, no more than 48 hours prior to works commencing.

- Pigeons are to be flushed out of Warwick Mill and excluded from the building. This must occur after the destruction of the bat roosts to minimise the chance of trapping bats. Alternatively, a GL42: general licence to kill or take certain species of wild birds to prevent serious damage may be obtained to allow the killing of individual birds and the destruction of nests and eggs.

Wince Brook

- Temporary drainage systems and barriers should be deployed during the construction phase to prevent surface runoff and pollution into Wince Brook.
- Fuel, oil and other chemicals will be stored at least 50 m from Wince Brook.
- Although withdrawn from England legislation, Guidance for Pollution Prevention (GPPs) (NetRegs, 2021) still offers advice that will be adhered to reduce the risk of or minimise any pollution incidents during works. Further guidance can be found on the government website (gov.uk).

Vegetation Removal

- Grassland, scrub and ruderal/ephemeral habitat should be cleared using hand tools to allow any animals within an opportunity to escape. If this occurs during the bird breeding season (season defined as March to August inclusive) then a suitably qualified ecologist or ornithologist should be present to perform a nest check prior to scrub being cleared or trees being felled.
- A treatment and removal plan is to be made for the Himalayan balsam and Japanese knotweed along Wince Brook, and the Himalayan balsam in the east of the Site (found in the “u-17 Urban – Ruderal/Ephemeral habitat” and the “h3h Mixed scrub” shown on Figure 2). Both of these INNS should be removed in their entirety including along the southern side of Wince Brook which is not part of the landscaping designs. Himalayan balsam should be treated and cleared outside its seeding period to reduce the chance of seeds being spread downstream or being carried off site (for example when caught in workers’ shoe soles). All machinery and tools should be cleaned and checked for Japanese knotweed rhizomes or Himalayan balsam seeds prior to departing site to ensure the species isn’t spread offsite.

General

- Open excavations will be covered at the end of each working day. Any trenches or pits will be inspected each morning to ensure that no animals have become trapped overnight. Should a trapped animal be encountered, a suitably qualified ecologist will be contacted immediately for further advice.
- Open pipes will be capped at the end of each day to prevent animals entering them and potentially becoming trapped.
- All tools are to be stored away securely overnight.
- A pre-works survey will be undertaken in advance of construction commencing to identify any changes in the baseline conditions and confirm the activity status of any protected features likely to be impacted.

6.2 Enhancement

- 6.2.1 The following enhancement measures are to be undertaken to reduce the impacts of the proposed Warwick Mill residential and commercial development, achieve BNG goals and provide general ecological benefits post-development:

- Landscaping creation and management is to follow the strategy as set out in the Biodiversity Enhancement Management Plan (BEMP) (RPS-c, 2023).
- Bird boxes, swift bricks and bee bricks are to be erected in suitable locations to be determined by an experienced ecologist on retained trees and buildings within the Site.

6.3 Residual Effects

- 6.3.1 Residual effects have been assessed post-mitigation. Prior to mitigation adverse effects were identified on Alkrington Woods and Rhodes Lodges LNR/SBI, Boardman Brook SBI, breeding birds, bats, and other mammals. Implementation of the mitigation and enhancement detailed above in Section 5 will reduce the effects of the development to these ecological features throughout all phases of its lifespan and no significant residual negative effects are predicted apart from impacts to fish, and Alkrington Woods and Rhodes Lodges LNR/SBI, Boardman Brook SBI due to the absence of a confirmed drainage strategy.
- 6.3.2 This report will be updated once a drainage strategy is available and effects to these receptors will be re-evaluated.

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Figures

Figure 1: Proposed Development Site's Red line Boundary

Figure 2: UKHab Map of Baseline Habitats in Proposed Development Site

Figure 3: Surveyor Locations and Bat Roosts

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Legend

Study_area

Rev	Description	By	CB	Date

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Client Client

Project Warwick Mill

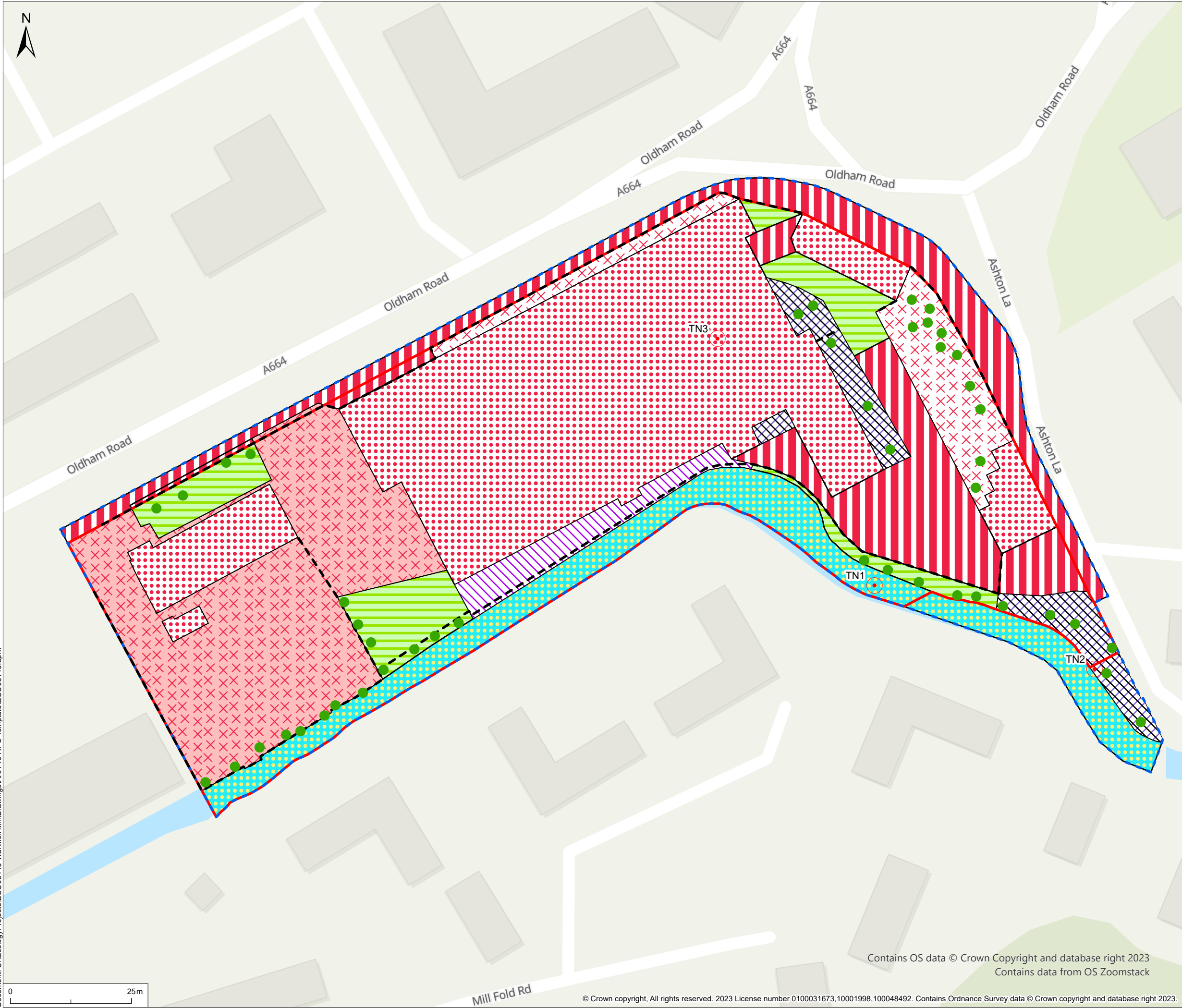
Title Red Line Boundary

Status Final Drawn By OW PM/Checked By BD

Project Number ECO03146 Scale @ A3 1:1,000 Date Created 11/07/23

Figure Number 1 Rev -

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- Legend**
- Site boundary
 - Survey area
 - Target note
 - 11 - individual trees
 - g3c - other neutral grassland
 - r2 - running water (Wince Brook)
 - u1b - developed land, sealed surface
 - u1b5 - buildings
 - u-17 - urban, ruderal/ephemeral
 - u1b-17 - developed land, sealed surface / ruderal/ephemeral
 - h3d - bramble scrub
 - h3h - mixed scrub
 - u1e - built linear features

Rev	Description	By	CB	Date
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Project **Warwick Mill**

Title **UKHab Classification Map**

Status Final	Drawn By LP	PM/Checked By BD
Project Number ECO03146	Scale @ A3 1:750	Date Created 26/10/23
Figure Number 2		Rev 03

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- Legend**
- Site boundary
 - Bat roost
 - Bat surveyor location
 - Surveyor line of sight

Rev	Description	By	CB	Date
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Project **Warwick Mill**

Title **Surveyor Locations and Bat Roosts**

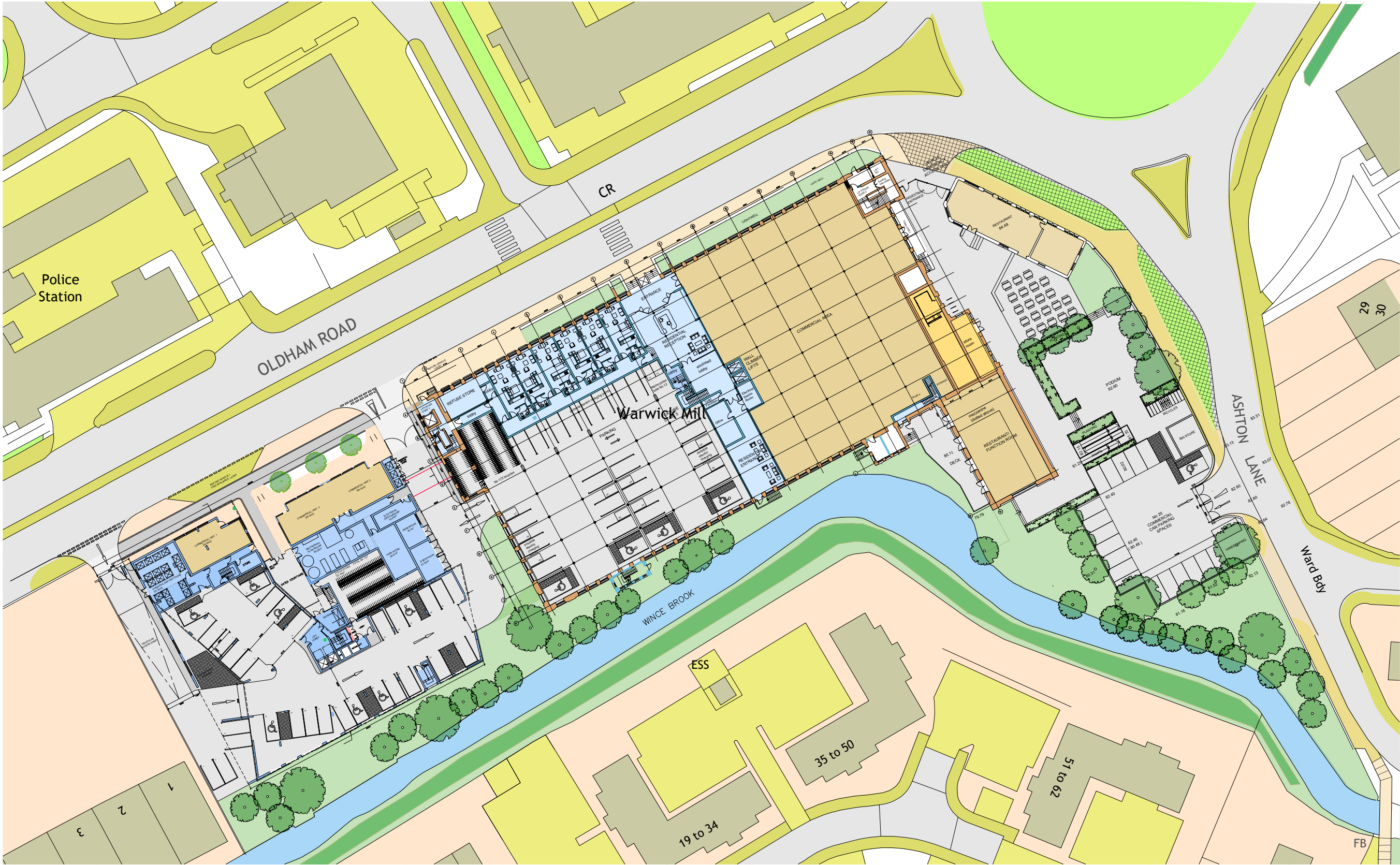
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Figure Number 3		Rev 01

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APPENDICES

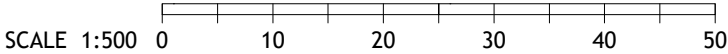
Appendix A

Development Site Plans



COMMERCIAL SPACE

RESIDENTIAL SPACE



- Notes :
- Dimensions are to be checked on site before fabrication and construction
 - Any discrepancies are to be immediately notified to the architects
 - Structural measurements are to be taken from the structural engineers drawings
 - Do not scale
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DRAWING ISSUE STATUS

PLANNING

Project
WARWICK MILL
MIDDLETON
MANCHESTER

Client
KAM LEI FONG LTD

Drawing
Warwick Mill Development
Site Plan Lower Ground Floor

Scale	Date	Drawn	Checked
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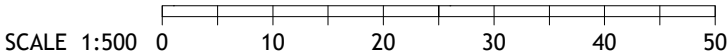
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DRAWING ISSUE STATUS

PLANNING

Project
WARWICK MILL
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MANCHESTER

Client
KAM LEI FONG LTD

Drawing
Warwick Mill Development
Site Plan Upper Ground Floor

Scale	Date	Drawn	Checked
1:500@A2	Sep '21	SJS	IL

Type	Client	
01	277/01	WM EH 011

REV	DESCRIPTION	DATE
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Appendix B

Relevant Legislation

Great Crested Newts

Great crested newts (*Triturus cristatus*) are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (and as amended), which affords the species protection under Section 9. The species is also listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2017. In combination, this makes it an offence to:

- intentionally kill, injure or take (capture etc.) a great crested newt;
- possess a great crested newt;
- intentionally or recklessly damage, destroy, obstruct access to any structure or place used by great crested newt for shelter or protection, or disturb any animal occupying such a structure or place; and sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative) or advertise for buying or selling such things.

Great crested newts are also listed on the UK BAP as a Priority Species and are listed as a species of principal importance for biodiversity in England & Wales under Section 41 of the Natural Environment & Rural Communities Act (2006).

Reptiles

All common UK reptile species including adder (*Vipera berus*), grass snake (*Natrix helvetica*), common lizard (*Zootoca vivipara*) and slow worm (*Anguis fragilis*) are protected through part of Section 9 (1 and 5) of the Wildlife & Countryside Act 1981 (as amended). This prohibits:

- intentional or reckless injuring or killing;
- selling, offering or exposing for sale, or having in possession or transporting for the purpose of sale, any live or dead wild animal or any part of, or anything derived from, such an animal; or
- publishing or causing to be published any advertisement likely to be understood as conveying buying or selling, or intending to buy or sell, any of those things.

Birds

All birds, their nests and eggs are afforded protection under the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. It is an offence to:

- intentionally kill, injure or take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; and
- intentionally take or destroy the egg of any wild bird.

Schedule 1 birds under the Wildlife and Countryside Act cannot be intentionally or recklessly disturbed when nesting and there are increased penalties for doing so. Licences can be issued to visit the nests of such birds for conservation, scientific or photographic purposes but not to allow disturbance during a development even in circumstances where that development is fully authorised by consents such as a valid planning permission.

Bats

All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. All British bats are also included on Schedule 2 of The Conservation of Habitats and Species Regulations 2017 as European Protected Species. It is an offence to:

- intentionally or recklessly kill, injure or capture bats;
- deliberately or recklessly disturb bats (whether in a roost or not); and
- damage, destroy or obstruct access to bat roosts.

A roost is defined as 'any structure or place which [a bat] uses for shelter or protection'. As bats tend to reuse the same roosts, legal opinion is that a roost is protected whether or not bats are present at the time of survey.

A licence will therefore be required by those who carry out any operation that would otherwise result in offences being committed.

The following bat species are listed as being of principal importance for the conservation of biodiversity in England, (commonly referred to as UK BAP Priority species): barbastelle (*Barbastella barbastellus*), Bechstein's bat (*Myotis bechsteinii*), noctule, soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared (*Plecotus auritus*), greater horseshoe (*Rhinolophus ferrumequinum*), and lesser horseshoe (*Rhinolophus hipposideros*).

Badger

Badgers are protected under the Protection of Badgers Act 1992. This act is based on the need to protect badgers from baiting and deliberate harm or injury. The act makes it an offence to:

- wilfully kill, injure, take, possess or cruelly ill-treat a badger, or attempt to do so;
- intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access routes.

A sett is defined as "any structure or place that displays signs indicating current use by a badger".

Water Vole and Otter

Water vole and otter and their habitats are fully protected under the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is an offence to:

- capture, kill or injure a water vole or otter;
- damage, destroy or obstruct access to a breeding site or resting place (i.e., burrow);
- disturb a water vole or otter whilst in a place of shelter;
- possess or control a water vole or otter (live or dead), any part of a water vole or otter or anything derived from a water vole or otter;
- sell, barter or exchange a water vole or otter (live or dead), any part of a water vole or otter or anything derived from a water vole or otter; and/or
- advertise or offer for sale, barter or exchange a water vole or otter (live or dead), any part of a water vole or otter or anything derived from a water vole or otter.

Offences can result from intentional or reckless actions. Penalties include fines of up to £5000 and / or imprisonment for up to six months, per offence. Under certain circumstances a licence can be granted by Natural England to permit activities that would otherwise constitute an offence.

Otters have additional protection, being listed as a European Protected Species (EPS) under Conservation of Habitats and Species Regulations 2017. This makes it an offence to deliberately or recklessly:

- capture, injure or kill an otter;
- harass an otter or group of otters;
- disturb an otter in a holt or any other structure or place it uses for shelter or protection;
- disturb an otter while it is rearing or otherwise caring for its young;
- obstruct access to a holt or other structure or place otters use for shelter or protection or to otherwise deny the animal use of that place;
- disturb an otter in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species; and/or
- disturb an otter in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young.

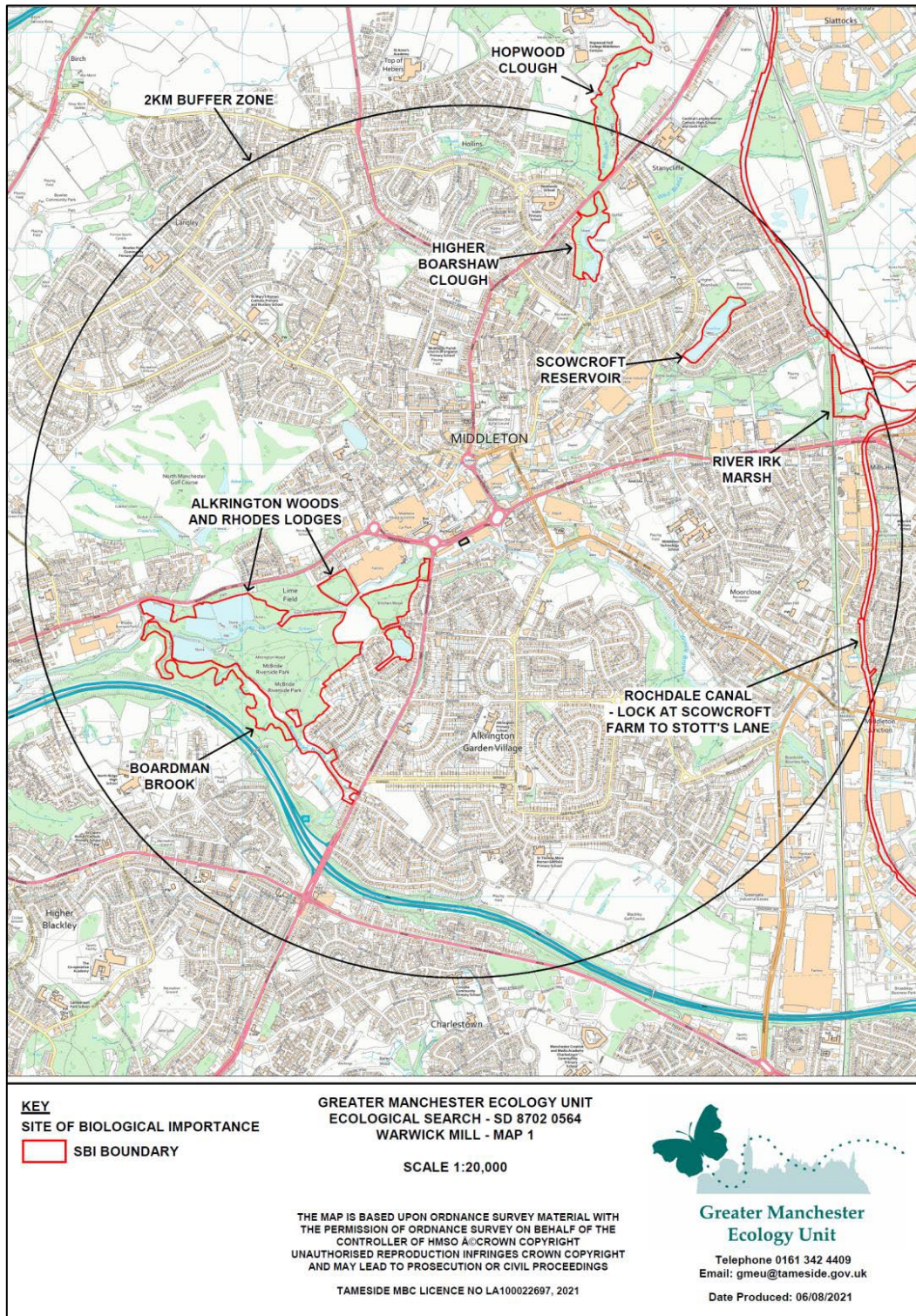
It is also an offence to:

- damage or destroy a breeding site or resting place of such an animal (note that this does not need to be deliberate or reckless to constitute an offence);
- keep, transport, sell or exchange or offer for sale or exchange any wild otter or any part or derivative of one (if obtained after 10 June 1994).

Both species are listed as Species of Principal Importance within Section 41 of the NERC Act 2006.

Appendix C

GMEU's Map of Designated Sites



Appendix D

Bat Survey Photos

Photo 01. Confirmed Roost in 2015 (Taken from Arup, 2015)



Figure 1: Location of bat roost entry point identified at the base of the keystone over a boarded up

Photo 02. First floor of Warwick Mill (internal survey)



Photo 03. Location bats emerged from on 17.08.2023



Photo 04: Roost behind window board emergence on 31.08.2023



Photo 05. Potential emergence from western elevation 31.08.2023

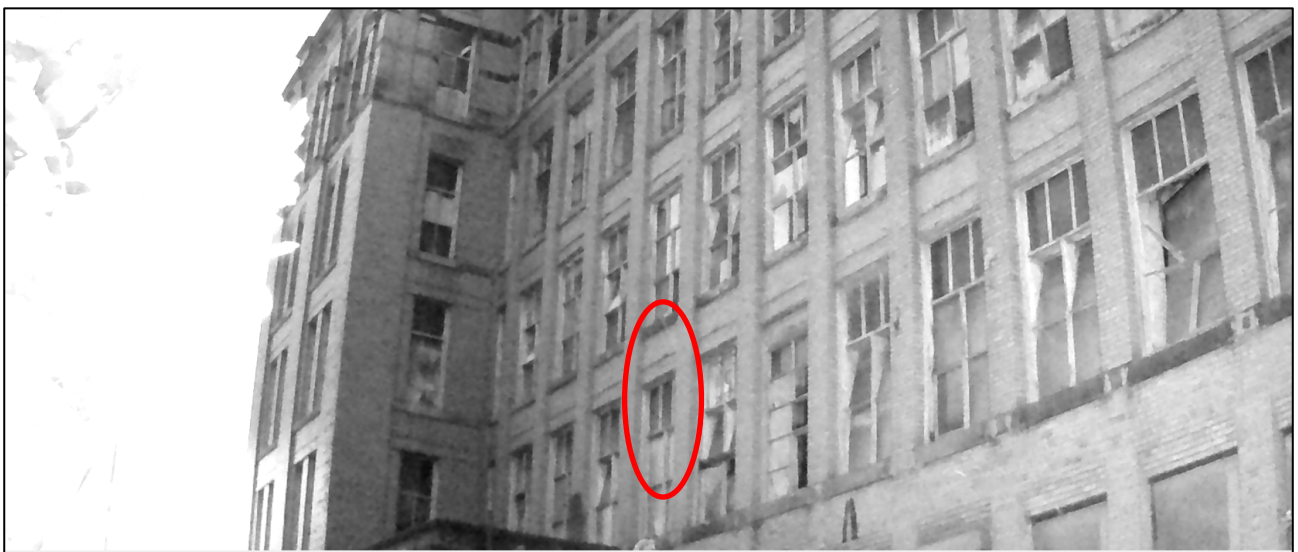


Photo 06. Potential emergence from top of window board on eastern elevation 31.08.2023 (time and date incorrect in image)



Photo 07. Location of crack near roof common pipistrelle emerged from on 19.09.2023 (viewed from ground)



Photo 08. Location of crack near roof pipistrelle emerged from on 19.09.2023 (viewed from west)



Photo 09. Location of window that common pipistrelle potentially emerged from on 19.09.2023



Appendix E

Arup Bat Survey Report 2015

LED Emporium (UK) Ltd

Warwick Mill

Bat Survey Report – Issue2 A3

WM-ARP-ZZ-ZZ-YE-RP-004 Bat Survey Report – Issue2 A3

Issue2 A3 | 18 September 2015

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 239717-00

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Executive Summary

This report details the results of the bat activity surveys undertaken at Warwick Mill. The key results are:

- Bat activity surveys were undertaken of buildings deemed to contain features of bat roost potential located within the proposed development site. This included Warwick Mill and ancillary buildings A and B.
- Surveys confirmed that the Warwick Mill building is being used as a common pipistrelle bat roost. No confirmed roosts were recorded within ancillary building A and B. The majority of the bat foraging activity was recorded to the south of the site along Wince Brook.
- Depending on the nature of the required renovation works at Warwick Mill it is likely that a licence from Natural England will be required. A licence will only be granted to permit the disturbance or loss of a roost once appropriate mitigation has been put in place. This is likely to require the provision of bat roosting sites incorporated into the building and bat boxes on the riparian trees along Wince Brook.

It is recommended that the river corridor along Wince Brook and, where possible, the southern section of Warwick Mill remains unlit. Where lighting is required it should be focused on the ground and should avoid lighting any ecologically sensitive areas (e.g. the vegetated riparian corridor along Wince Brook).

1 Introduction

Ove Arup & Partners Ltd (Arup) were commissioned by Led Emporium (UK) Ltd to undertake bat activity surveys for the proposed development of Warwick Mill, Middleton, Oldham.

The Warwick Mill development consists of the refurbishment and conversion of the existing, Grade II listed Warwick Mill building, the Lodge and a new surface car park to be built on the site of London House, which would be demolished.

Warwick Mill is a former cotton mill, which occupies just over a third of the overall site area and is currently unused apart from the lower ground floor, which is subject to two short-term tenancies. The London House building to the west is vacant.

The site is surrounded by a variety of residential, commercial and industrial land uses. The main residential areas are to the south and east of the site. To the north of the site, Oldham Road (A664) is the inner ring road to various industrial and commercial areas to the west and north.

The site is located in Middleton, Greater Manchester (Figure 1) and is centred on National Grid Reference SD 87058 05650.

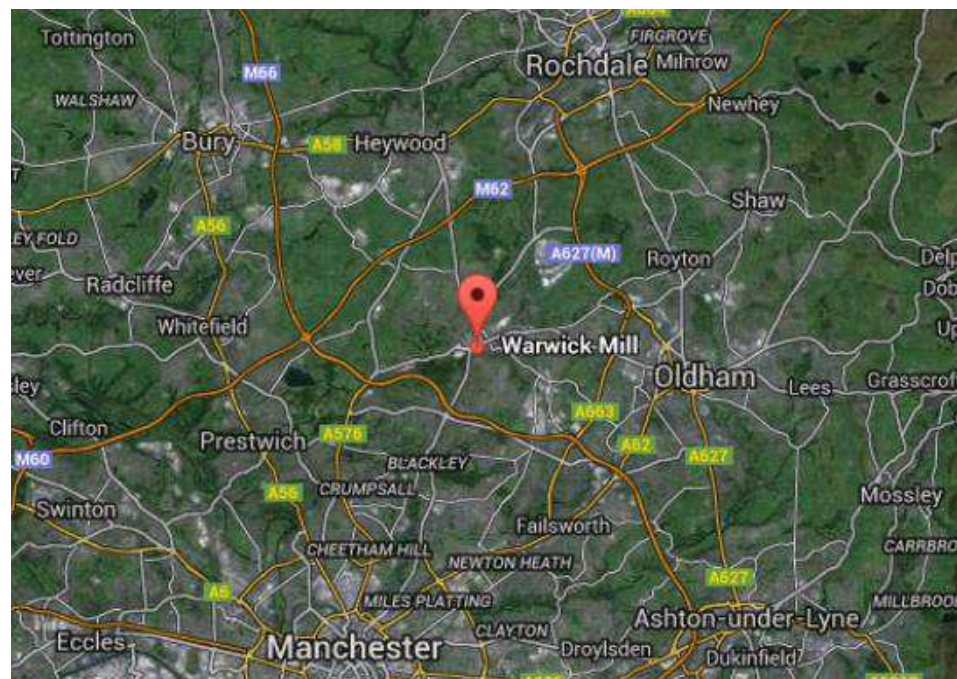


Figure 1: Site location plan (Map data © 2015 Google).

The site is situated to the south of Oldham Road extending west just beyond London House at the boundary with the small adjoining retail park. It is bound to the east by Ashton Lane and to the south by Wince Brook, forming the boundary presented in Figure 2 below.

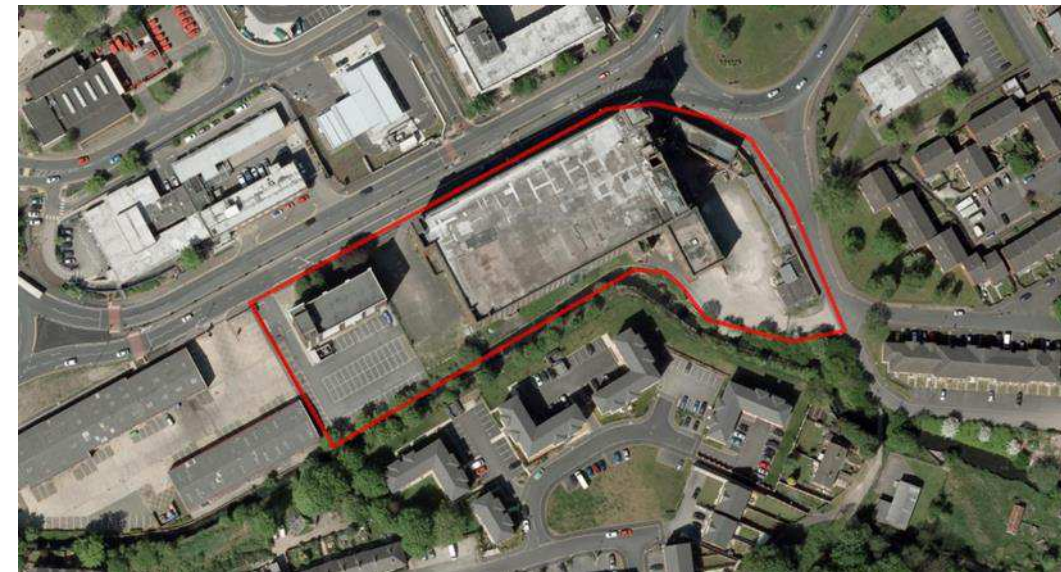


Figure 2 Image showing the approximate site extent with Warwick Mill shown to the east of site and the smaller London House in the west (Map data © 2015 Google).

1.1 Objective

The original Preliminary Ecological Appraisal (PEA) for the site was undertaken in May 2015¹. Of the four buildings assessed for their bat roost potential on site, Warwick Mill was deemed to be of high potential; the ancillary buildings A and B were of low potential and London House was of negligible potential for roosting bats (Figure 2). It was therefore recommended that bat activity surveys were undertaken on buildings deemed to have bat roost potential.

The purpose of the bat activity surveys was to ascertain the presence or likely absence of bat roosts within the surveyed buildings. An assessment of bat usage of the site as a whole was also included. This report presents the findings of the surveys, identifies whether further survey works are required and recommends mitigation and enhancement measures as appropriate.

1.2 Report Structure

Section 1: Introduction.

Section 2: Methodology.

Section 3: Results.

Section 4: Discussion and Recommendations

¹ Arup (2015). *Warwick Mill, Middleton. Preliminary Ecological Assessment*.

2 Methodology

2.1 Desk Study

Protected species and designated sites records within a 2km radius of the site were obtained from the Greater Manchester Ecology Unit (GMEU).

In addition, online ecological information sources were consulted, including:

- Multi-Agency Geographic Information for the Countryside (MAGIC) website - www.magic.gov.uk.

Historical reports for the area were also reviewed including:

- Environmental Research & Advisory Partnership (2007) ‘Warwick Mill, Middleton, Report of Licensed Bat Survey’.

2.2 Field Survey

All dusk emergence/dawn re-entry surveys were undertaken in line with current guidelines.²

The bat roost potential assessment undertaken as part of the PEA identified that the Warwick Mill building has features with high potential to support roosting bats, the ancillary buildings A and B were of low potential and London House was of negligible potential (Figure 2). Consequently a programme of three surveys was undertaken on Warwick Mill and one survey on each of the ancillary buildings. The surveys on Warwick Mill entailed one dusk emergence survey and two dawn surveys. One dawn survey was undertaken on the ancillary buildings A and B.

The dusk emergence surveys began 30 minutes before sunset until two hours after, or, until all bats have emerged. The dawn re-entry surveys were undertaken from approximately two hours before sunrise until sunrise (or 15 minutes after last bat, whichever was the latest). Five surveyors were present to cover the features on Warwick Mill which were highlighted as having potential to be used by bats. Two surveyors were used to cover ancillary building A, and two surveyors to cover ancillary building B. All surveyors used hand held bat detectors to identify species during the surveys and all bats heard during the surveys were recorded.

All surveys were led by experienced ecologists who hold a Class 1 bat survey licence as supplied by Natural England namely:

Lyndsey Smith (Class Licence Registration Numbers: 2015-11665-CLS-CLS – CL18 Bat Survey, and 2015-11663-CLS-CLS – CL19 Bat Roost Visitor).

Belinda Wiggs (Class Licence Registration CLS001079).

Jonathon Moore (Class Licence CLS00314).

The timings and weather conditions of the 2015 surveys are provided in Table 2.1

Date	Type of Survey	Timings	Buildings Surveyed	Weather Conditions
29th June 2015	Dusk	Sunset: 21:41 Start: 21:19 End: 23:16	Ancillary buildings A and B	Precipitation: none Wind: Beaufort 1 Cloud: 100% cover Start temperature: 21.5°C End temperature: 18.8°C
30th June 2015	Dawn	Sunrise: 04:43 Start: 02:43 End: 04:43	Warwick Mill	Precipitation: none Wind: Beaufort 1 Cloud: 80% cover Start temperature: 16.9°C End temperature: °C
21st July 2015	Dawn	Sunrise: 05:05 Start: 03:11 End: 05:05	Warwick Mill	Precipitation: light spitting for a couple of minutes at 03:26 and 04:40 – bats still flying so survey continued. Wind: Beaufort 3 Cloud: 90% cover Start temperature: 16°C End temperature: 14°C
18th August 2015	Dusk	Sunset: 20:32 Start: 20:06 End: 22:06	Warwick Mill	Precipitation: none Wind: Beaufort 1 Cloud: 80% cover Start temperature: 16°C End temperature: 14.2°C

Table 2.1: Bat survey timings and weather conditions

² Bat Conservation Trust (2012) ‘Bat Surveys – Good Practice Guidelines – Second Edition’

3 Results

3.1 Desk Study

The results of the data search within 2km of the site provided by GMEU is provided in Appendix B. A summary is provided below.

3.1.1 Statutory Designations

There are no statutory designations located within the site boundary. However within a 2km radius surrounding the site, Rochdale Canal Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) is located approximately 1.7km to the east. Alkrington Woods Local Nature Reserve (LNR) is located approximately 150m south west of the site and Hopwood Woodlands LNR is located 1.8km north of the site. Sites designated for biological interest are detailed in Table 3.1. No other statutory designations relating to nature conservation exists within a 2km radius of the site.

Site	Designation	Approximate distance from site	Principal Citation/Designation
Rochdale Canal	SAC & SSSI	1.7km east	Rochdale Canal contains important habitats for submerged aquatic plants and emergent vegetation, including extensive colonies of the nationally scarce floating water-plantain <i>Luronium natans</i> . The site also supports a diverse assemblage of aquatic flora, in particular nine species of pondweed <i>Potamogeton</i> spp.
Alkrington Woods	LNR	150m south west	Alkrington Wood comprises a mosaic of habitats including woodland, grassland, marsh, standing water and amenity areas. Alkrington Woods are connected to the proposed site via Wince Brook which flows along the southern boundary of the site and into Alkrington Woods.
Hopwood Woodlands	LNR	1.8km north	Hopwood Woodlands comprises a number of small woodlands scattered around the grounds of Hopwood Hall.

Table 3.1: Statutory designations within 2km of the site

3.1.2 Non-Statutory Designations

Eight non-statutory designated sites, referred to as Sites of Biological Importance (SBI), were identified within the 2km search radius. However, only one site was identified within a 1km radius, namely Alkrington Woods and Rhodes Lodges SBI. The SBI designation covers the area included within Alkrington Woods LNR described above (Table 3.1).

3.1.3 Bat Records

The data search identified 83 records of bats of which 23 were confirmed roosts. Species recorded were common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, Natterer’s bat *Myotis nattererii*, whiskered

bat *Myotis mystacinus* and Daubenton’s bat *Myotis daubentonii*. A summary of the desk study is provided in Table 3.2.

Species	Number of records	Number of roost records	Location of nearest records to site
Brown long-eared bat	1	0	Approximately 1.3km to the north east.
Common pipistrelle	28	4	Approximately 150m to the east. Nearest roost record is approximately 590m to the north west.
Daubenton’s bat	1	0	Approximately 1.6km to the north west.
Natterer’s bat	1	0	Approximately 1.6km to the south east.
Pipistrelle species	40	20	Nearest record is a roost located approximately 210m to the south west.
Soprano pipistrelle	3	0	Approximately 850m to the north east.
Whiskered bat	1	0	Approximately 1.5km to the south east.
Unknown bat species	8	4	Approximately 380m to the north east. Nearest roost record is located approximately 700m to the north east.

Table 3.2: Bat records within 2km of the site.

3.2 Field Survey

3.2.1 Habitats

The habitats within the site are urban in nature, e.g. ornamental planting / introduced shrubs and street trees, and provide a limited foraging resource for bats. However, the vegetated riparian corridor along the southern boundary is likely to be utilised as a linear commuting corridor to extensive areas of more suitable habitat such as Alkrington Wood LNR (150m south west) and the areas of green space and trees along Wince Brook upstream of the site (120m east). It is also likely that the residential houses immediately to the south and east of the site also offer suitable bat roosting opportunities for pipistrelle bat species.

3.2.2 Activity Survey Results

Bats were recorded on each survey visit. The most common species recorded was common pipistrelle with one *Myotis* sp. bat recorded on one occasion. The majority of the bat activity recorded was to the south of the site along the vegetated watercourse known as Wince Brook. Foraging activity was also associated with the upper parts of the Warwick Mill building on the southern side.

Common pipistrelles were observed foraging and commuting around ancillary buildings A and B but no roosts were recorded within these buildings.

The surveys covering the Warwick Mill building identified the building as being used as a common pipistrelle roost. A confirmed bat roost was identified at Warwick Mill with two common pipistrelle bats recorded entering the building at the base of the keystone of the arched opening over a boarded up window (Figure 3 and Figure 4) at approximate grid

reference SD8714905664. A possible re-entry of a common pipistrelle bat was also observed re-entering the area of the roof above this window on a different occasion.

A summary of the survey results is provided in Table 3.3.

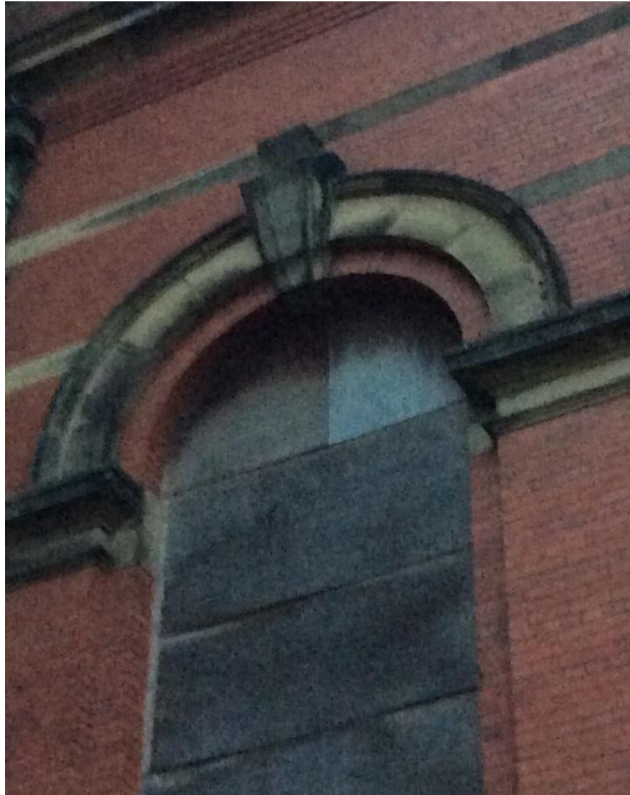


Figure 1: Location of bat roost entry point identified at the base of the keystone over a boarded up

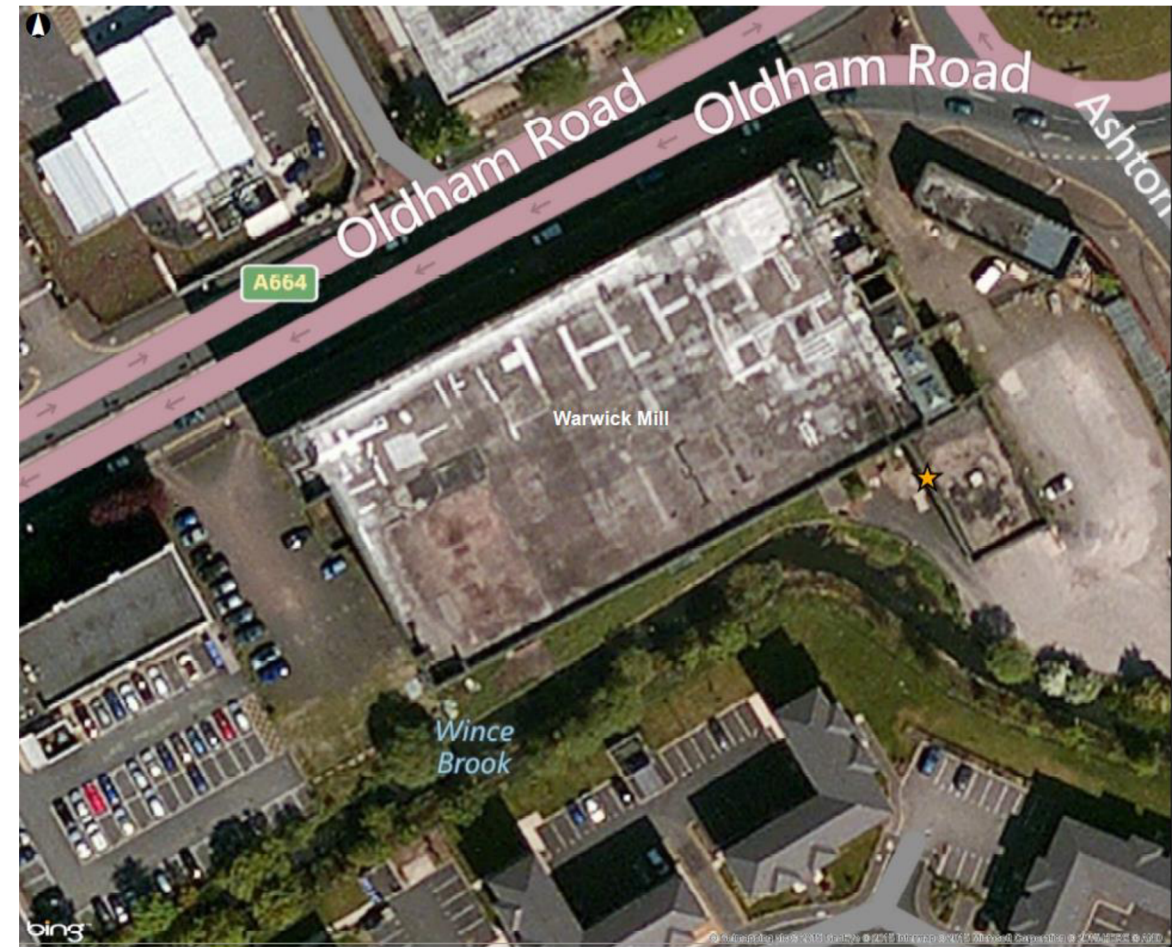


Figure 4: Location of common pipistrelle roost identified during 2015 activity surveys (Map data © 2015 Google).

Date	Dusk or Dawn	Location	Timings (sunset/sunrise and first/last bat)	Species recorded	Survey observations
29th June 2015	Dusk	Ancillary buildings A and B	Sunset: 21:41 First bat: 21:53	Common pipistrelle	Common pipistrelles observed foraging and commuting around buildings. No roosts identified.
30th June 2015	Dawn	Warwick Mill	Sunrise: 04:43 Last bat: 04:26	Common pipistrelle and Myotis sp.	Foraging and commuting activity largely associated with south side of Warwick Mill and Wince Brook. Common pipistrelle bat roost identified.
21st July 2015	Dawn	Warwick Mill	Sunrise: 05:05 Last bat: 04:51	Common pipistrelle	Foraging and commuting activity largely associated with south side of Warwick Mill and Wince Brook. Possible re-entry of common pipistrelle on roof above window of previously identified roof (Figure 3).
18th August 2015	Dusk	Warwick Mill	Sunset: 20:32 First bat: 20:44	Common pipistrelle	Constant foraging of common pipistrelle over Wince Brook and along upper part of mill building. No emergence identified.

Table 3.3: Warwick Mill bat survey results.

4 Discussion and Recommendations

No confirmed roosts were recorded within ancillary buildings A and B, which were identified to contain features of low bat roost potential. The surveys did confirm that the Warwick Mill building, identified as containing features of high bat roost potential, is being used as a common pipistrelle day roost. The majority of the bat foraging activity was recorded to the south of the site along Wince Brook. Foraging activity was also associated with the upper parts of the Warwick Mill building on the southern side.

As detailed within Appendix A, all species of bat found within the UK are fully protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act, 1981 (as amended) and in Schedule 2 of The Conservation of Habitats and Species Regulations, 2010 (as amended). Under the legislation, it is an offence to:

- capture, kill, disturb or injure bats (on purpose or by not taking enough care);
- damage or destroy a breeding or resting place (on purpose or by not taking enough care);
- obstruct access to their resting or sheltering places (on purpose or by not taking enough care); or to
- possess, sell, control or transport live or dead bats, or parts of them.

Therefore, a licence from Natural England must be obtained if works are to be undertaken which would otherwise lead to an offence under the Conservation of Habitats and Species Regulation 2010 (as amended).

4.1 Licence application

Depending on the nature of the required works to Warwick Mill (e.g. renovation / replacement of windows), a licence will likely involve excluding bats from roosts and potential roost features. Depending on the works required to the building, there may be an option of retaining the bat roost in-situ, although this would still require a licence for disturbance to a bat roost.

Bat exclusion works are typically undertaken in:

- Spring – March to mid-May (as long as the temperature is above 5°C).
- Autumn – Late September to early November (as long as the temperature is above 5°C).

This is to avoid the bat hibernation and maternity period, when bats would be sensitive to disturbance.

Natural England stipulates that for a bat licence application the bat activity surveys data must be obtained within the last bat active period (May-September) and completed in line with current guidelines. The bat surveys currently being undertaken are sufficient to support a licence application for works in spring / autumn 2016. Should works be required at a later date then it is likely that further bat survey work will be required to support the licence application.

A Natural England licence for this work would be held by the owner of the property/project and supported by a licenced ecologist. There is a legal responsibility for the licence holder to carry out the works as outlined in the licence. The licence application will present the work

programme, mitigation and all monitoring required. Natural England take at least 30 working days from receipt of a licence application to consider and process the application and provide a response.

4.2 Mitigation

A licence will only be granted to permit the disturbance or loss of a roost once appropriate mitigation has been put in place. This is likely to require the provision of bat roosting sites incorporated into the building, to provide long term mitigation plus bat boxes on the riparian trees along Wince Brook, to provide temporary roosting sites while the main building is being redeveloped.

4.3 Lighting

It is recommended that the river corridor along Wince Brook and, where possible, the southern section of Warwick Mill remains unlit. Where lighting is required it should be focused on the ground and should avoid lighting any ecologically sensitive areas (e.g. the vegetated riparian corridor along Wince Brook). Consideration should also be given to limiting the times that lighting is in use, where it is safe to do so.

4.4 Other site work

Until the bat roost has been appropriately mitigated under licence, works which may interfere with, disturb or disrupt the roosting and potential roosting locations could be considered an offence under the Conservation of Habitats and Species Regulations 2010 (as amended). It is therefore likely that the following activities will need to be avoided until mitigation works have been completed:

- Removal of the boards on the windows – this could affect roosting location.
- Lighting of the known roosting sites (other than that proposed in the licence).
- Loud persistent noise and dust generating activities around the roosts.

It may be possible for works to be undertaken in sections of the building which are not used by bats as a roosting site and would not lead to disturbance of bats roosting in an alternative part of the building. These works would need to occur under a Method Statement of Reasonable Avoidance Measures, drafted by the licensed ecologist.

This report is the result of survey work undertaken between June and August 2015. This report refers, within the limitations stated, to the condition or proposed development of the site at the time of the inspections. Changes in legislation, guidance, best practice, etc. may necessitate a re-assessment/survey. It is also advised that if there is a delay of over a year in undertaking the works, a re-survey may be required. No warranty is given as to the possibility of future changes in the condition of the site.

This report is produced solely for the benefit of LED Emporium (UK) Ltd and no liability is accepted for any reliance placed on it by any other party. This report is prepared for the proposed uses stated in the report and should not be used in a different context.

Appendix A

Legal Context

A1 Relevant Legislation and Policy

A1.1 Legislation

A1.1.1 Wildlife and Countryside Act 1981 (as amended)

This is the primary legislation covering endangered species in England and sets out the framework for the designation of Sites of Special Scientific Interest (SSSIs). It confers differing levels of protection on species themselves, their habitats, or both, depending on their conservation status. Species offered protection by the Act are listed in a series of schedules. These Schedules are subject to a rolling review on a five yearly basis. Protected species are listed under Section 1 (birds), Schedule 5 (includes bats and animals other than birds and invertebrates) and Schedule 8 (plants).

A1.1.2 Countryside and Rights of Way Act 2000

This Act affords a greater level of protection to Sites of Special Scientific Interest (SSSIs), provides enhanced management arrangements for Areas of Outstanding Natural Beauty (AONBs), and strengthens wildlife enforcement legislation. This Act has amended the Wildlife and Countryside Act by the addition of the term ‘recklessly’ to Section 1(5) and Section 9 (4) which has resulted in additional obligations with respect to protected species. As such, it is now an offence to intentionally or recklessly disturb protected species listed on the relevant Schedules of the Act.

A1.1.3 Natural Environment and Communities Act 2006

The Natural Environment and Rural Communities (NERC) Act 2006, is designed to help achieve a rich and diverse natural environment and thriving rural communities. Under Section 41 there is a Duty to conserve biodiversity; specifically Subsection (1) states “Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.”

A1.1.4 EC Directive Conservation of Natural Habitats & Flora (92/43/EEC)

The Conservation of Habitats and Species Regulations 2010 (as amended) are the British response to the Habitats & Species Directive 1992 issued by the European Community (EC). They offer protection to a number of plant and animal species throughout the EC via the designation of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). In the United Kingdom these regulations are implemented through the Wildlife and Countryside Act 1981 (as amended).

The Regulations for the protection of European Protected Species (EPS) have been amended and consolidated with key changes including the removal of most of the defences from regulation 40 and regulation 43 including the removal of the ‘incidental result of an otherwise lawful operation’ defence, and the increase in the threshold for the offence of deliberately disturbing an EPS. Proposals that will affect European protected species may require a

licence from Natural England to allow an otherwise unlawful act. In 2009 a new offence of ‘breaching condition of an EPS licence’ was added to the regulations. The licensing process is separate from the planning process. All UK species of bat are European protected species.

A1.1.5 Bats

All species of bat found within the UK are fully protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act, 1981 (as amended) and in Schedule 2 of The Conservation of Habitats and Species Regulations, 2010 (as amended) as a European protected species. Under the legislation, it is an offence to intentionally kill, injure or take a bat as well as intentionally or recklessly disturb, damage, destroy or obstruct access to any structure or place used for shelter or protection by a bat or disturb an animal while it is occupying a structure or place which it uses for that purpose.

A1.2 Policy

A1.2.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) was published in March 2012. The policies in the Framework took immediate effect and previous planning guidance in PPGs and PPSs has been revoked and replaced by NPPF. Therefore NPPF is a material consideration in all planning decisions from March 2012. NPPF refers the responsibilities of the local authorities to conserve the natural environment with respect to the use of the ‘Circular 6/2005: Biodiversity and Geological Conservation – Statutory Obligation and their Impact within the Planning System’ as guidance in this process. All public bodies including local planning authorities to consider habitats and species of Principal Importance listed in Section 41 of the NERC Act and Priority Species / Habitats within Biodiversity Action Plans when considering a planning application. Bats are included in the Section 41 list of priority species of the NERC Act.

The NPPF states that “*the planning system should contribute to and enhance the natural and local environment by...minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government’s commitment to halt the overall decline in biodiversity.*” The NPPF also promotes the application of the mitigation hierarchy to protect biodiversity whereby “*if significant harm resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.*”

A1.2.2 'UK Post-2010 Biodiversity Framework'

The ‘UK Post-2010 Biodiversity Framework’ (July 2012) succeeds the UK BAP and ‘Conserving Biodiversity – the UK Approach’, and is the result of a change in strategic thinking following the publication of the Convention on Biological Diversity’s (CBD), ‘Strategic Plan for Biodiversity 2011–2020’ and its 20 ‘Aichi targets’, at Nagoya, Japan in October 2010, and the launch of the new EU Biodiversity Strategy (EUBS) in May 2011. The framework demonstrates how the UK contributes to achieving the ‘Aichi targets’, and identifies the activities required to complement the country biodiversity strategies in achieving the targets.

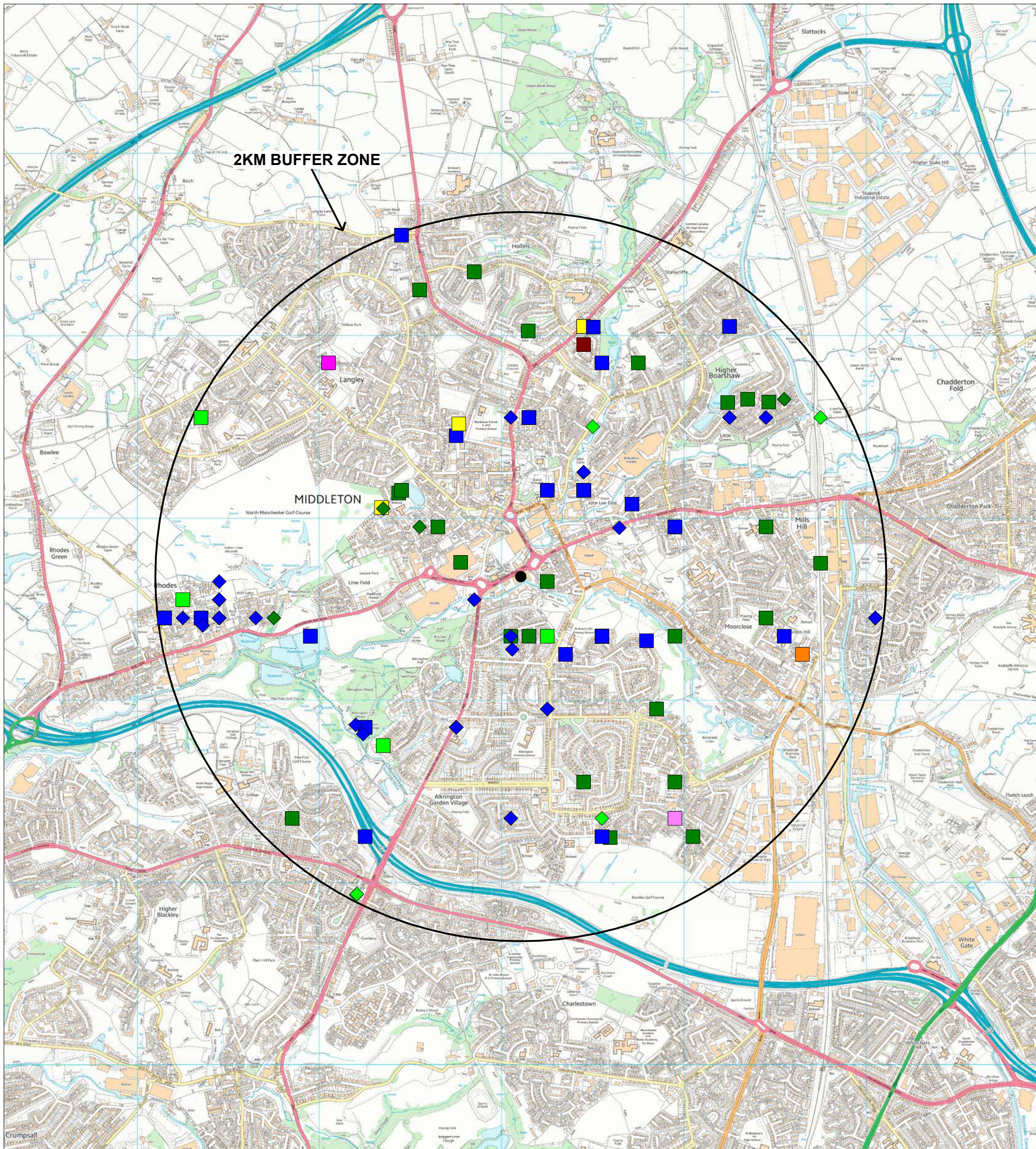
This framework supersedes the UK Biodiversity Action Plan (BAP), first published in 1994, which set out a list of Habitat Action Plans (HAPs) and Species Action Plans (SAPs). The UK BAP lists of priority species and habitats remain, and are an important and valuable reference sources to provide statutory list of species (e.g. S41 list) of local and nationally priority in England, Scotland, Wales and Northern Ireland. These nationwide plans are implemented on a local level through local biodiversity action plans, which are drawn up by individual Local Authorities.

A1.2.3 Greater Manchester BAP

The Greater Manchester BAP has been prepared in response to the national biodiversity initiatives set out in the UK Biodiversity Action Plan. It sets out habitats and species of local, regional, national and international importance within the district and sets targets for increasing habitats and populations of key species. Bats are included on the list of species for which action plans have been created under the Greater Manchester BAP

Appendix B

Biological Records



KEY **BAT ROOSTS**

- ◆ BAT SP
- ◆ COMMON PIPISTRELLE
- ◆ PIPISTRELLE SP

BATS OTHER SIGNS

- BAT SP
- BROWN LONG-EARED
- COMMON PIPISTRELLE
- DAUBENTON'S BAT
- NATTERER'S
- PIPISTRELLE SP
- SOPRANO PIPISTRELLE
- WHISKERED BAT

GREATER MANCHESTER ECOLOGY UNIT **ECOLOGICAL SEARCH - SD8710505677** **WARWICK MILL - MAP 3**

SCALE 1:20,000

BAT DATA COURTESY OF SOUTH LANCS BAT GROUP

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