

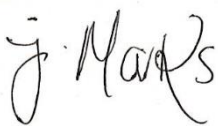


The King David High School, Manchester

Ecological Appraisal

December 2018

Control sheet

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1. Introduction

- 1.1 Bowland Ecology Ltd was commissioned by The King David High School to undertake an Extended Phase 1 habitat survey, building assessment for bat roost potential and ecological appraisal of a site, Yavneh Girls buildings, within The King David High School campus, Manchester (NGR: SD 83648 02208). This report is submitted in support of a planning application in relation to the demolition of the buildings and re-development of the site.
- 1.2 The site currently comprises three red brick buildings; one is single storey with a flat bitumen roof, the second is two storey with a pitched slate roof and the third a single storey sloped tile roof building. The habitats which may be affected by the works include the buildings, a mature tree and the surrounding hardstanding areas with ornamental and scrub species. Surrounding habitats are predominantly residential, comprising roads, houses with gardens and infrastructure associated with a large town.
- 1.3 The purpose of the survey was to: 1) identify and map all habitats occurring within the survey area, 2) identify the presence of (or potential for) wildlife interests with particular reference to the need for further surveys and legal requirements, and 3) provide an ecological appraisal, identify potential impacts and provide recommendations pertaining to the proposed development.
- 1.4 This report includes a description of survey methods and results; provides recommendations for further survey; and outlines proposals to provide protection, mitigation and enhancements for biodiversity and protected species.

2. Methodology

- 2.1 The desk study, extended Phase 1 habitat survey and ecological appraisal follow the Guidelines for Preliminary Ecological Appraisal (GPEA) (CIEEM, 2013) and are in line with the British Standard 'Biodiversity – Code of practice for planning and development' (BS42020:2013).

Desk Study

- 2.2 The aim of the desk study was to identify the presence of statutory and non-statutory wildlife sites within the area, as well as legally protected species, Habitats and Species of Principal Importance (HPIs and SPIs) and Natural Environment and Rural Communities (NERC Act 2006 Section 41).
- 2.3 The Multi-Agency Geographic Information for the Countryside (MAGIC) website (<http://magic.gov.uk>) was reviewed for information on locally, nationally and internationally designated sites of nature conservation importance (statutory sites only) on or within 1.5 km of the site boundary. NERC Act Section 41 lists Habitats and Species of Principal Importance for the Conservation of Biodiversity were also consulted.
- 2.4 Local records on and within 1.5 km of the site were obtained following a data search with the local records centre, Greater Manchester Local Record Centre (GMLRC).
- 2.5 Ordnance survey (OS) maps and aerial photographs (<http://maps.google.co.uk/maps>) were reviewed to help identify any waterbodies, continuous habitat and any other notable habitats within the surrounding area.

Extended Phase 1 Habitat Survey

- 2.6 An extended Phase 1 Habitat survey was undertaken, following standard methodology (JNCC, 2010, and CIEEM, 2013). Habitats and their locations were mapped on a colour coded plan (Appendix B). The survey was carried out by Jodie Marks MSc, BSc (Hons) and Jack Driver BSc (Hons) on the 7th December 2018. The weather was overcast, with a light breeze and occasional heavy rain showers.
- 2.7 The extended Phase 1 Habitat survey methodology records information on the habitats together with any evidence of and potential for legally protected and notable fauna, in particular:
- potential roosting sites for bats within buildings and trees (identification of suitable cracks and crevices – survey undertaken externally and from ground only). Assessment of building and tree suitability is assessed according to the BCT Good Practice Guidelines 3rd Edition (2016) (Appendix E);
 - assessing the suitability of habitats for notable and protected species such as nesting birds (including any active or disused nests), reptiles, water vole (*Arvicola amphibius*), otter (*Lutra lutra*), white-clawed crayfish (*Austropotamobius pallipes*), badger (*Meles meles*) and invertebrates;
 - checking for the most common invasive plant species subject to strict legal control including: Japanese knotweed (*Fallopia japonica*), giant knotweed (*Fallopia sachalinensis*), hybrid knotweed (*Fallopia x bohemica*), giant hogweed (*Heracleum mantegazzianum*), rhododendron (*Rhododendron ponticum*) and Himalayan balsam (*Impatiens glandulifera*); and,
 - assessing the suitability of the habitat for amphibians and for the protected great crested newts (*Triturus cristatus*). Ponds on site and within 0.25 km (access permitting) will be subject to a habitat suitability index (HSI) (Oldham *et al.* 2000)

assessment for great crested newt. A 0.25 km search radius was considered appropriate in this instance due to the small scale and localised nature of the effects of the scheme. An HSI is a numerical index, between 0 and 1. Values close to 0 indicate unsuitable habitat, 1 represents optimal habitat. The HSI for the great crested newt incorporates ten suitability indices, all of which are factors known to affect this species. The HSI for great crested newts is a measure of habitat suitability - it is not a substitute for newt surveys.

Daytime Building Inspection

- 2.8 A daytime internal and external inspection of the buildings (shown in Appendix B) was undertaken on the 7th December 2018 by Jodie Marks MSc, BSc (Hons) and Jack Driver BSc (Hons). The survey followed the Bat Conservation Trust 'Good Practice Guidelines' (Collins, 2016). The weather during the inspection was overcast, with a light breeze and some heavy rain showers.
- 2.9 The internal inspection involved a search of the buildings for field signs, particularly within accessible roof spaces, such as; bats, bat droppings, urine stains, bat feeding remains (moth wings, insect cases), bat staining, a distinctive smell of bats, scratch marks and smoothing of surfaces, which would indicate a roosting site.
- 2.10 The external inspection involved checking for field signs of bats on external features of the buildings with particular attention being paid to windowsills, windowpanes and ledges, walls, doors and the ground around the buildings. An assessment of the potential of the building to support bats was also made during the survey i.e. searching for suitable roosting crevices. High power torches (LED Lenser T7.2 320 Lumens) were used to aid the survey.
- 2.11 Natural England's Bat Mitigation Guidelines (A.J. Mitchell-Jones 2004) states that a significant bat roost can normally be determined on a single visit at any time of the year, provided that the entire structure is accessible and that signs of bats have not been removed by others.
- 2.12 Using the information collected during the internal and external assessment, a 'roost potential' score was given to the building according to the criteria shown in Appendix E (Collins, 2016).
- 2.13 An assessment of the suitability of the site for bats was undertaken, including the identification of potential foraging and roosting areas, potential flight lines and important commuting corridors.

Survey Limitations

- 2.14 Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year. The weather conditions were suitable and the whole of the site was accessible, as a result, a valid assessment of the habitats present and their potential to support legally protected species was undertaken.
- 2.15 The list of invasive plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is extensive and these plants are found in a range of different habitats, including aquatic habitats. The extended Phase 1 habitat survey checked, in particular, for the presence of Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, rhododendron and Himalayan balsam. There may be other invasive plant species present on the site which were not recorded, but it is considered that this survey is sufficient to identify any significant constraints posed by invasive plants.
- 2.16 The internal inspection of B2, B2a, B2b and B3 was limited due to no keys being available from the client for locked access doors (B2a, B2b and B3) and areas of roof space could not be accessed (B2) due to unknown locations of loft hatches. Within B2, loft voids above

the original ceiling could not be accessed due to the presence of sealed loft hatches above a suspended ceiling. The client was only aware of one loft hatch which only revealed the void above the upstairs corridor. These limitations to the building inspection survey are considered further and addressed within the evaluation section of this report.

3. Results

Statutory and Non-Statutory Wildlife Sites

- 3.1 There are no statutory designated sites on or within 1.5 km of the site:
- 3.2 The site falls within one outer Impact Risk Zone for a statutory designated site. However, the proposed works do not fall into any of the categories that require consultation with Natural England. Therefore, no further consideration regarding the Impact Risk Zone is required.
- 3.3 There are five non-statutory designated sites within 1.5 km of the proposed area:
- Bowker Vale Reservoirs Site of Biological Importance (SBI) is located approximately 0.8 km north of the site. This is a 1.8 hectare amber (grade C) site comprising of two reservoirs, surrounded by woodland. A diverse array of aquatic plants, insects, birds and amphibians are recorded here.
 - Blackley Forest Site of Biological Importance (SBI) is located 1 km north of the site. The broadleaved and plantation woodlands encompasses Heaton Vale reservoirs which forms an important wildlife corridor for amphibians due to the close proximity of the urban fringe.
 - The Kersal Dale Site of Biological Importance (SBI) is located approximately 1.2 km south west of the site. The woodland which forms the site is connected to The Cliff, a local nature reserve. A diverse variety of habitats including marsh and semi-natural grassland are present along with protected fauna such as kingfisher.
 - Lakeland Woodland Site of Biological Importance (SBI) in Heaton Park, the largest park in Greater Manchester, is located approximately 1.37 km north of the site. This site contains parkland, woodland and a lake.
 - The River Irwell Site of Biological Importance (SBI) is located 1.37 km south west of the site. The river acts as a wildlife corridor and an extremely important habitat for many aquatic, mammal and bird species.
- 3.4 The search of the Multi Agency Geographical Information Centre (www.magic.gov.uk) identified two areas classified as Habitats of Principal Importance (HPI) under the 2006 NERC Act within 1.5 km of the site:
- More than 120 areas of deciduous woodland, the closest of which is located approximately 0.2 km south of the site boundary.
 - One area of lowland fen habitat is located approximately 1.45 km south west of the site boundary.

- 3.5 Based on a review of aerial photographs and OS maps there are no ponds on or within 250 m of the site.

Habitats

- 3.6 Target notes summarising key interest features for wildlife recorded during the extended Phase 1 Habitat survey are included in Appendix D. The Phase 1 Habitat plan of the site is presented in Appendix B and includes the locations of the target notes. Plant species nomenclature follows Stace (2010); scientific names are included in Appendix D.

Introduced shrubs (TN1)

- 3.7 There is a strip of introduced shrubs, adjacent to an access ramp, in front of the main door to the Yavneh Girls building. The area comprises of conifer sp., rose, Wilson's honeysuckle and butterfly bush. Ground flora includes herb Bennet, herb Robert, rosebay willow herb and dandelion. Small ornamental rocks border the area.

3.8 Small area of scrub (TN1)

A patch of very young beech and ash saplings also occur adjacent to the access ramp.

Mature tree

3.9 One mature common lime tree is situated on the south west boundary of the site.

Other habitat

3.10 The majority of the site is made up of hard standing with small brick walls and metal/timber fencing surrounding the buildings.

Species

Bats

3.11 The site comprises of three adjacent adjoining red brick buildings, B1, B2 and B3. The site itself has sub-optimal potential for foraging and commuting bats, as it has limited tree cover and is dominated by hard standing, buildings and roads, with high artificial lighting levels.

3.12 The data search returned numerous records for bats within 1.5 km of the site including for the following species: common pipistrelle (*Pipistrellus pipistrellus*); soprano pipistrelle (*Pipistrellus pygmaeus*); daubenton's bat (*Myotis daubentonii*); noctule bat (*Nyctalus noctula*); whiskered bat (*Myotis mystacinus*); brown long eared bat (*Plecotus auritus*); brandts bat (*Myotis brandti*) and natterers bat (*Myotis nattereri*); The closest record is for a single pipistrelle species located approximately 95 m north west of the site. The closest roost is of common pipistrelle located approximately 0.5 km north of the site boundary. This location is in close proximity, with connecting tree lines to the site boundary.

Building 1

3.13 B1 is a single storey, flat bitumen roofed red brick building with standard and bay windows, adjacent to B2 and B3. The building is used as functioning classrooms. The metal bordering external walls and above windows is well sealed. Mortar between the brick work is generally well sealed, with a few small gaps behind the drain pipe on the eastern elevation and above uPVC windows which do not appear to extend further into the building. A slight gap, with vegetation growing, is evident above the window on the northern elevation where the timber barge board has come away.



B1; flat roofed building



B1; gap behind bargeboard



B1; gaps in the mortar



B1; bitumen roof

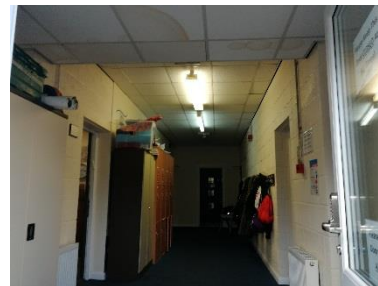


B1; gaps in the mortar

- 3.14 Internally, the building comprises of large classrooms and interlinked corridors with all rooms comprising a false ceiling with dampness present on a number of ceiling tiles. Above the false ceiling, a view of electrical wires and the plaster/bitumen roof can be seen with no loft void present. All rooms are heated and well-lit during the day, which is likely to deter roosting bats. The building does have bat roosting features but due to vegetation growing from the gap behind the bargeboard and very small gaps in the mortar, the features are deemed not suitable as a roosting cavity. Therefore, the building has **negligible** potential to support roosting bats



B2; Missing tile revealing roof



B2; Corridor with damp stained ceiling tiles

Building 2

- 3.15 B2 is an old, two storey single pitched red brick building. Mortar between the brick work is generally well sealed and looks to have been repaired in places. uPVC windows are also well sealed and airtight. The timber soffit box is very weathered with numerous large holes (approximately 5cm by 8cm) evident along the eastern elevation of the building providing potential interior access into the soffit. Felt above the soffit box is also degraded with visible gaps underneath. The roof is slated with three brick chimneys present. All three chimneys are in poor condition with several gaps from missing mortar between brickwork. There are numerous gaps underneath roof slates below the central chimney and a slipped roof slate on the north east elevation below the chimney, providing potential bat access to the loft void. The roof ridge tiles are generally well sealed with one lifted tile on the southern edge of the roof ridge.



B2; Yavneh Girls building



B2; Slipped roof slate



B2; Lifted ridge roof slate



B2; Large hole in soffit box



B2; Lifted felt above soffit box

- 3.16 Internally, the building has large functioning classrooms on both levels with a kitchen staff room on the first floor. A false ceiling is present in all upper rooms with a loft hatch present above the false ceiling at the south east end of the first floor corridor. Only the loft space above the corridor could be accessed due to the false ceiling. The space is approximately 1 - 1.25 m high with timber joists and beams. The roof is lined with felt, which is in good condition with thick brick supporting walls. The brick wall has collapsed in places and exposed more areas of the loft void. Electrical wires and water pipes were visible. A potential old squirrel drey was present on the loft floor, with evidence of chewing on the wall plate timber. The building has **moderate** potential to support roosting bats.



B2; Loft void above corridor



B2; Loft void and squirrel drey

B2a and B2b

- 3.17 Two red brick lean-to structures are present on the southern edge of B2. B2b is of more recent construction. Both roofs are sloped with corrugated tiles and air vents are present within the brick walls on both structures. B2b has an approximate 2 cm gap above the door providing access into the interior but also creating a draught. B1b has cracked brickwork where the structure joins Building 2, with lifted felts and lead flashing along the south western elevation. Mortar within the brick work is well sealed on both structures. No

internal access was available. The surrounding habitat is of an urban nature as described in paragraph 3.11 and therefore favourable for pipistrelle bats which are a crevice dwelling species. These structures will likely have no internal crevice roosting features, they are therefore considered to be of **negligible** potential to support roosting bats.



B2a and B2b



B2a; Lifted roof felt

Building 3

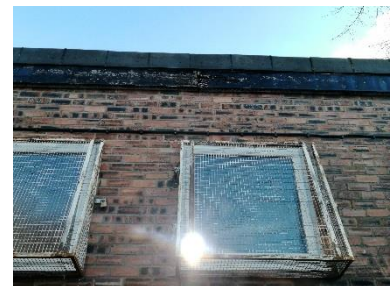
- 3.18 B3 is a single storey, red brick building with a sloped tiled roof. This building is a more recent extension of B1. UPVC windows on the western elevation of the building are covered with metal mesh. The roof is in good condition with no gaps between tiles or felt visible. The mortar between the brick work is well sealed. The barge board along the western elevation of the property is rotten with numerous holes evident. No internal access was available. The building has **low** potential to support roosting bats.



B3; sloping tiled roof



B3; Western elevation



B3; Gaps in bargeboard

- 3.19 The surrounding landscape is predominantly residential and urban with gardens and frequent tree lines between buildings and along road margins. The closest substantial area of suitable habitat are the fields and tree lines surrounding Cheetham Hill Cricket Club approximately 0.25 km to the north west and Broughton Park approximately 0.5 km to the south west. There is an individual mature tree and a small amount of introduced shrub within the survey area with a number of mature trees in the immediate surrounding habitat which foraging and commuting bats may use, although the site is very well-lit on all sides. The habitat including the individual mature tree, does not provide roosting opportunities for bats and is considered to provide sub-optimal foraging and commuting opportunities.

Birds

- 3.20 The data search returned records for lapwing (*Vanellus vanellus*), house sparrow (*Passer domesticus*), starling (*Sturnus vulgaris*), bullfinch (*Pyrrhula pyrrhula*), dunnock (*Prunella modularis*), grass hopper warbler (*Locustella naevia*), herring gull (*Larus argentatus*), lesser redpoll (*Acanthis cabaret*), linnet (*Linaria cannabina*), song thrush (*Turdus philomelos*) and yellow wagtail (*Motacilla flava*) in the search area. Four records of kingfisher (*Alcedo atthis*) and one record of a little ringed plover (*Charadrius dubius*) both birds listed under Schedule 1 of the Wildlife and Countryside Act (1981, as amended), were also returned. Common gulls (*Larus canus*) were recorded on site during the survey.

- 3.21 Introduced shrub and individual trees provide suitable nesting habitat for breeding birds. Buildings on site also offer opportunities for small nesting birds, such as wren (*Troglodytes troglodytes*), robin (*Erithacus rubecula*), pied wagtail (*Motacilla alba*), house sparrow, dunnoek and blackbird (*Turdus merula*). There is no suitable habitat within the site for Schedule 1 kingfisher and little ringed plover.

Other mammals

- 3.22 The introduced shrub on site provides habitat for small mammals, specifically hedgehog, which is a Species of Principal Importance (SPI). The data search returned two hedgehog records in the search area. It is likely that the species is common in the area due to the abundance of residential properties with gardens and tree lines, which provide ample foraging and nesting opportunities for the species. Grey squirrels are also likely to be in the area due to the drey in the loft void of B2.

Other species

- 3.23 No evidence of suitable habitat for any other protected species was identified at the time of survey.

4. Evaluation of Habitats and Assessment of Potential Impacts

- 4.1 An assessment of effects on ecological features has been made using the available design and survey information and the professional judgement of the ecologist. This includes a consideration of the relevant legislation and planning guidance (see Appendix A). If there are changes to the proposals, such as a change to the proposed development design or a change in the developmental footprint, the assessment would need to be reviewed.

Designated sites and Habitats of Principal Importance

- 4.2 The development site is within a SSSI outer impact risk zone, but the development does not fall into any of the risk categories and no impacts are expected.
- 4.3 There are five SBI sites within 1.5 km of the survey boundary. However, it is considered highly unlikely that there will be any adverse effects to these sites as a result of the development due to the small footprint of works.

Habitats

- 4.4 Due to the small footprint of the works and their distance from site, it is considered that there will be no impacts from the proposed development to any HPI's identified during the data search.
- 4.5 The development will result in the loss of two small areas of ornamental shrub and scrub. These habitats are locally common and of limited ecological value.
- 4.6 The development will result in the loss of one mature common lime tree, the tree has negligible potential to support roosting bats due to its lack of roosting features, but, the loss will result in a small scale, negative ecological impact.

Species

Bats

- 4.7 The introduced shrub and one mature tree on site are considered to provide very limited and sub-optimal foraging habitat for bats. It is considered that with careful design of the development, including the lighting scheme and new planting, the risk of impacts to foraging bats is negligible.
- 4.8 Buildings within the site were assessed as having varying levels of suitability for roosting bats (Appendix E), summarised below
- **Negligible suitability:** The flat roofed building at B1 and the small outbuildings at B2a and B2b support no roosting features that offer appropriate shelter for roosting bats.
 - **Low suitability:** The red bricked building B3 is considered to have low potential for roosting bats. A couple of roosting opportunities suitable for crevice dwelling bats typically include gaps/entrances behind bargeboards. B3 also couldn't be internally inspected during the survey.
 - **Moderate suitability:** The traditional red bricked building B2 is considered to have moderate potential for roosting bats. Abundant roosting opportunities suitable for crevice dwelling bats typically include lifted/shifted/broken roof slates, gaps along

the roof ridge and gaps into soffit boxes. B2 also has a sheltered loft void and could not be inspected thoroughly on survey.

- 4.9 With the exceptions of B1, B2a and B2b, any works to demolish or modify the other two buildings may potentially result in the disturbance or direct killing and injury of individual bats, resulting in an offence if bats were present at the time of works (Appendix A). Works affecting the buildings may also lead to the loss of potential bat roosting sites and/or access points, considered to represent a moderate, negative ecological impact at a site level, if roosting bats are present.

Birds

- 4.10 When the mature tree is removed/impacted as a result of the proposed works, impacts to nesting birds could occur if works are undertaken without due care and attention, which would constitute an offence (Appendix A). The removal of the individual tree will also result in the loss of bird nesting habitat.
- 4.11 Traditional red brick buildings within the site have potential to be used by opportunistic nesting birds, including house sparrow, recorded in the desk study and listed on Section 41 of the NERC Act (2006). Proposed demolition works undertaken within the breeding season would risk direct impacts upon nesting birds as listed above, together with the loss of nesting opportunities.

Other mammals

- 4.12 Unmitigated construction activities, such as the clearance of introduced shrub and ground works, risks causing harm or mortality to small mammals, including hedgehog, an SPI.

5. Recommendations

- 5.1 This section provides the required measures to mitigate the impacts of the proposed development. A key element of the National Planning Policy Framework is to minimise impacts to biodiversity and provide enhancements. Paragraph 170 states that ‘*Planning policies and decisions should contribute to and enhance the natural and local environment by ... minimising impacts on and providing net gains for biodiversity*’. Paragraph 175 also states that ‘*when determining planning applications, local planning authorities should ...*’ encourage ‘*opportunities to incorporate biodiversity improvements in and around developments*’. This section also therefore includes suggested enhancement measures. The following recommendations are designed to comply with legal requirements and national and local planning policy.

Designated Sites and Habitats of Principal Importance

- 5.2 No significant impacts are expected with regards to the designated sites and habitats of principle importance (HPI) therefore no mitigation is required.

Habitats

- 5.3 Suitable mitigation for the loss of the individual mature tree should be implemented within the proposed site. Specifically, the replanting of new trees that are native and of local provenance at a ratio of 2:1 to offset the loss of this ecological feature.

Species

Bats

- 5.4 Impacts to bats as a result of the loss of foraging habitat onsite is considered to be highly unlikely given the sub-optimal nature of the habitat. Therefore no specific mitigation measures in terms of bat foraging and commuting habitat are required.
- 5.5 Buildings within the site are considered to offer moderate (B2) and low (B3) potential to support roosting bats. No evidence of roosting bats was observed during the internal and external building inspections, however, the buildings provide numerous opportunities for crevice dwelling bats in particular, for which evidence of individuals/small roosts can be concealed from view. Furthermore, inspections within the loft voids or potential loft voids of B2 and B3 were limited as not all areas were accessible, meaning the potential presence of a larger bat roost cannot be ruled out. In line with the BCT emergence surveys are recommended.
- 5.6 With the exception of B1 (**flat roofed building with negligible roosting potential**) and B2a and B2b (**B2 outbuildings with negligible roosting potential**), all buildings to be demolished require additional surveys in order to further assess their use by roosting bats.
- 5.7 In accordance with Collins (2016) a minimum of **one dusk emergence or dawn re-entry survey** is required for low potential buildings (B3); and **two dusk emergence or dawn re-entry surveys** is required for moderate potential buildings (B2). An iterative approach to the surveys will be applied so that if the site is completely quiet in peak period, we may only survey once for a moderate bat potential building. Surveys will be undertaken within the bat active season, between May and September, using a number of ecologists to cover all potential roosting features (see Appendix C).
- 5.8 B2a and B2b can be demolished at any time. Due to the complex adjoining of B1 and B2, and the possibility of the demolition of B1 impacting the structure of B2, it is advised that B1 is to be left in situ until after additional surveys are conducted.

- 5.9 If bats are determined to be present, consideration will need to be given to the requirement for a Natural England Licence for the demolition/modification works to legally proceed. A method statement detailing mitigation and compensation measures, such as careful timing of the works, hand removal of potential bat roosting features and provision of alternative roosting opportunities, would also be required.
- 5.10 Any new lighting schemes should be designed in accordance with the appropriate guidance (BCT & ILE 2008) to minimise the impacts on foraging bats likely to be utilising the surrounding habitats. This document includes (but not limited to) measures such as:
- Use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps; and
 - Lighting should be directed to where it is needed and light spillage avoided in particular along the site boundaries.

Birds

- 5.11 Impacts to nesting birds as a result of the loss of nesting habitat on site is considered to be very minor. The replacement of any nesting habitat within landscaping areas with native tree/shrub planting to the site as suggested in paragraph 5.3 will ensure the continuation (and possible enhancement) of nesting opportunities for birds on site.
- 5.12 Any required vegetation removal works should take place outside the breeding bird season which runs from late February until September, in order to prevent any impacts upon breeding birds.
- 5.13 Any vegetation clearance work that must be carried out within the bird breeding season will be subject to a pre-clearance bird survey carried out by a suitably experienced ecologist. No vegetation clearance will be carried out within 5 m of an identified nest until the young have fledged and are no longer returning to the nest site. Vegetation will only be cleared once a scheme ecologist has declared the nest to be no longer in use.

Mammals

- 5.14 Construction works should be progressed slowly and methodically when clearing habitats. Any excavations associated with works should be covered overnight or fitted with egress boards to prevent animals becoming trapped. Any small mammals found within the works area during construction should be carefully relocated off-site to a sheltered and undisturbed location with plenty of vegetation cover

Enhancement measures

- 5.15 As designs for the site develop an ecologist can provide site specific advice on ways to enhance the wildlife value of the final development and contribute towards a net gain in biodiversity. Simple examples of enhancement measures which could be considered and designed into the proposals include (but are not limited to):
- Additional planting of scrub, hedgerows and trees carried out around the margins of the site will develop a mosaic and improve the diversity of habitats. New planting should comprise native species of local provenance. Planting of such additional native trees/hedgerows will enhance ecological connectivity within the wider landscape and benefit many species of wildlife including bats, birds and invertebrates;
 - Creation of log/brush piles from felled trees to attract invertebrates and fungi, which will also provide shelter and foraging resources for small mammals and
 - Provision of artificial or natural hedgehog boxes located in a quiet undisturbed area with ground covering vegetation, preferably against a bank, wall or fence. For example,

three or four logs may be arranged to leave an appropriate sized hole for a hedgehog to nest in, covered with abundant twigs and leaves

Re-survey of the Site

- 5.16 *If no works are undertaken on site within 12 months of this survey or if any changes to the proposals are made, a further ecological survey may be necessary (because of the mobility of animals and the potential for colonisation of the site).*

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JNCC, 1993 revised 2010. Handbook for Phase 1 Habitat Survey: A technique for environmental audit (reprint). Joint Nature Conservation Committee, Peterborough.

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10 (4), 143-155.

Mitchell-Jones, A. J., 2004, Bat Mitigation Guidelines, Natural England.

Appendix A Legal Information

This report provides guidance of potential offences as part of the impact assessment. This report does not provide detailed legal advice and for full details of potential offences against protected species the relevant acts should be consulted in their original forms i.e. The Wildlife and Countryside Act, 1981, as amended, The Countryside and Rights of Way Act 2000, The Natural Environment and Rural Communities Act, 2006 and The Conservation of Habitats and Species Regulations 2010.

Species	Legislation	Offences	Notes on licensing procedures and further advice
Species that are protected by European and national legislation			
Bats <i>European protected species</i>	Conservation of Habitats and Species Regulations 2010 Reg 41	Deliberately ¹ capture, injure or kill a bat; Deliberate disturbance ² of bats; Damage or destroy a breeding site or resting place used by a bat. The protection of bat roosts is considered to apply regardless of whether bats are present.	An NE licence in respect of development is required in England. https://www.gov.uk/bats-protection-surveys-and-licences <i>European Protected Species: Mitigation Licensing- How to get a licence</i> (NE 2010). <i>Bat Mitigation Guidelines</i> (English Nature 2004). <i>Bat Workers Manual</i> (JNCC 2004). <i>BS8596:2015 Surveying for bats in trees and woodland</i> (BSI, 2015)
	Wildlife and Countryside Act 1981 (as amended) ⁴ S.9	Intentionally or recklessly ³ obstruct access to any structure or place used for shelter or protection or disturb a bat in such a place.	Licence from NE is required for surveys (scientific purposes) that would involve disturbance of bats or entering a known or suspected roost site.
Birds	Conservation of Habitats and Species (Amendment) Regulations 2012	N/A	Authorities are required to take steps to ensure the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat. This includes activities in relation to town and country planning functions.
	Wildlife and Countryside Act 1981 (as amended) ⁴ S.1	Intentionally kill, injure or take any wild bird; Intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built; Intentionally take or destroy the nest or eggs of any wild bird. Schedule 1 species Special penalties are liable for these offences involving birds on Schedule 1 (e.g. most birds of prey, kingfisher, barn owl, black redstart, little ringed plover). Intentionally or recklessly ³ disturb a Schedule 1 species while it is building a nest or is in, on or near a nest containing eggs or young; intentionally or recklessly disturb dependent young of such a species.	No licences are available to disturb any birds in regard to development. Licences are available in certain circumstances to damage or destroy nests, but these only apply to the list of licensable activities in the Act and do not cover development. General licences are available in respect of 'pest species' but only for certain very specific purposes e.g. public health, public safety, air safety. https://www.gov.uk/wild-birds-protection-surveys-and-licences https://www.gov.uk/prevent-wild-birds-damaging-your-land-farm-or-business
Rabbits, foxes and other wild mammals For Species of Principal Importance, see below	Wild Mammals (Protection) Act 1996	Intentionally inflict unnecessary suffering to any wild mammal.	Natural England provides guidance in relation to rabbits (Technical Information note TIN003, Rabbits- management options for preventing damage, July 2007) and foxes (which are also protected under the Wildlife and Countryside Act 1981 from live baits and decoys, see Species Information notes SIN003 (2011), <i>Urban foxes</i> and SIN004 (2011) <i>The red fox in rural areas</i> as well as other wild mammals. Lawful and humane pest control of these species is permitted.

¹Deliberate capture or killing is taken to include “accepting the possibility” of such capture or killing. ²Deliberate disturbance of animals includes in particular any disturbance which is likely a) to impair their ability (I) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of hibernating or migratory species, to hibernate or migrate; or b) to affect significantly the local distribution or abundance of the species to which they belong.

Lower levels of disturbance not covered by the Conservation of Habitats and Species Regulations 2010 remain an offence under the Wildlife and Countryside Act 1981 although a defence is available where such actions are the incidental result of a lawful activity that could not reasonably be avoided. Thus deliberate disturbance that does not result in either (a) or (b) above would be classed as a lower level of disturbance. ³The term ‘reckless’ is defined by the case of Regina versus Caldwell 1982. The prosecution has to show that a person deliberately took an unacceptable risk, or failed to notice or consider an obvious risk. ⁴The Wildlife and Countryside Act (1981) has been updated by various amendments, including the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006. A full list of amendments can be found at <http://jncc.defra.gov.uk/page-1377>.

Habitats & Species	Legislation	Guidance
Species and Habitats of Principal Importance for the Conservation of Biodiversity	Natural Environment & Rural Communities Act 2006 S.40 (which superseded S.74 of the Countryside & Rights of Way Act 2000).	S.40 of the NERC Act 2006 sets out the duty for public authorities to conserve biodiversity in England. Habitats and species of principal importance for the conservation of biodiversity are identified by the Secretary of State in consultation with NE, are referred to in S.41 of the NERC Act for England. The list of habitats and species was updated in 2008: http://webarchive.nationalarchives.gov.uk/20140605090108/http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx The habitats and species listed are not necessarily of higher biodiversity value, but they may be in decline. Habitat Action Plans and Species Action Plans are written for them or are in preparation, to guide their conservation. Ecological impact assessments should include an assessment of the likely impacts to these habitats and species.

Appendix B – Phase 1 Habitat Plan



Appendix C – Information Sheet for Contractors on Bats

BATS



Information, legal responsibilities and best practice for the construction industry

Legal Protection

All UK Bat species are protected by European and UK law, in practical terms this means it is an offence to:

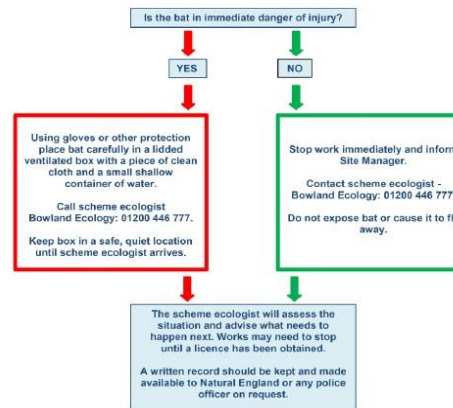
- Deliberately capture, injure or kill a bat;
- Deliberately disturb bats;
- Damage or destroy a breeding site or resting place (even if bats are not occupying the roost at the time);
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb a bat in such a place;
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat.

Penalties on conviction: the maximum fine is £5,000 per incident or per bat (some roosts contain several hundred bats), up to six months in prison, and forfeiture of items used to commit the offence, e.g. vehicles, plant, machinery.

Defences include:

1. Tending/caring for a bat solely for the purpose of restoring it to health and subsequent release.
2. Mercy killing where there is no reasonable hope of recovery (provided that person did not cause the injury in the first place – in which case the illegal act has already taken place).

Found a bat during unsupervised works?

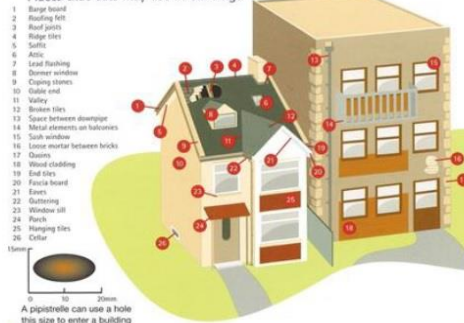


Field signs of bat presence:

- Live or dead bats: the smallest UK bat species, the pipistrelle is only 3.5-4.5cm long.
- Droppings: bat droppings look like mouse droppings but will crumble between your fingers (they are dry and made entirely of insects).
- Feeding remains: piles of butterfly/moth wings are often left below bat feeding perches.



Places that bats may use in buildings



Schematic from www.bats.org.uk

Bats can roost in the following places:

- The top of gable end or dividing wall;
- The top of chimney breasts;
- Ridge and hip beams and other roof beams;
- Mortise and tension joints;
- All beams/ceilings/pipework (free hanging bats);
- The junction of roof timbers, especially where ridge and hip beams meet;
- Behind purlins;
- Between tiles and the roof lining;
- Under flat felt roofs;
- In trees (cracks/holes/ivy cladding) ;
- Under barge boards;
- In cavity walls;
- In cracks in stone or concrete;
- Behind peeling paint/wall coverings;
- Gaps behind window and door frames;
- Between window panes and timber boarding.

Why wear gloves?

There is a small risk that some bats carry a rabies virus – European Bat Lyssavirus. The purpose of wearing gloves is to reduce the chance of being bitten, as the virus is transmitted via bat saliva. Thick leather gloves are appropriate for removing a bat from imminent danger but these should be clean.

In the event that you are bitten, wash the wound, gently but thoroughly, with soap and water. Speak to a health professional immediately, advising them that you have been bitten by a bat.



References:
Bat Conservation Trust. August 2016. Why wear gloves when handling bats?
BCT Bat Surveys for Professional Ecologists, Good Practice Guidelines, 3rd Edition, 2016

version 1 August 2017

Appendix D – Phase 1 Habitat Survey Target Notes

TN/T	Description	Photograph
TN1	A small section of introduced shrub with young beech (<i>Fagus sylvatica</i>) and ash (<i>Fraxinus excelsior</i>) saplings (scrub) situated either side of the Yavneh Girls access ramp. Species include conifer sp. (<i>Pinophyta</i>), dog rose (<i>Rosa canina</i>), Wilsons honeysuckle (<i>Lonicera nitida</i>), and butterfly bush (<i>Buddleja davidii</i>). Ground flora includes herb Bennet (<i>Geum urbanum</i>), rosebay willow herb (<i>Chamerion angustifolium</i>), herb Robert (<i>Geranium robertianum</i>) and dandelion (<i>Taraxacum</i> agg.). The introduced shrub provides potential foraging and nesting opportunities for small mammals.	
B1	B1 is a single storey, flat bitumen roofed red brick building with protruding windows, adjacent to B2 and B3. The building is used as functioning classrooms. The metal bordering external walls and above windows is well sealed. Mortar between the brick work is generally well sealed, with a few small gaps behind the drain pipe on the eastern side and above uPVC windows which look to not extend further into the building. A slight gap, with vegetation growing, is evident above the window on the northern side where the timber barge board has come away. Internally, the building comprises of large classrooms and interlinked corridors with all rooms having a false ceiling with dampness present on some of the ceiling tiles. Above the false ceiling, a view of electrical wires and the plaster/ bitumen roof can be taken with no loft void present. All rooms are heated and well-lit during the day which is likely to deter roosting bats. The building has negligible potential to support roosting bats	

B2	B2 is an old, two storey single pitched red brick building. Mortar between the brick work is generally well sealed and looks to have been repaired in places. uPVC windows are also well sealed and airtight. The timber soffit box is degraded with numerous large holes (approximately 5cm by 8cm) evident along the eastern elevation of the building providing potential interior access into the soffit. Felt above the soffit box is also weathered with evident gaps underneath. The roof is slate with three brick chimneys present. All three chimneys are in poor condition with several gaps from missing mortar between brickwork. There are numerous gaps underneath roof slates below the central chimney and a slipped slate on the north east elevation below the chimney, thus providing potential bat access to the loft void. The roof ridge slates are generally well sealed with one lifted slate on the southern edge of the roof ridge. Internally, the building has large functioning classrooms on both levels with a kitchen staff room on the first floor. A false ceiling is present in all rooms with a loft hatch behind the false ceiling at the end of the first floor corridor. Only the loft space above the corridor could be accessed due to health and safety. The space is approximately 1 – 1.25 m high with timber joists and beams. The roof is lined with felt, which is in good condition with thick brick supporting walls. The brick wall has collapsed in places and exposed more areas of the loft void. Electrical wires and water pipes were visible. A potential old squirrel drey was present on the loft floor, with evidence of chewing on the wall plate timber. The building has moderate potential to support roosting bats.	
B2a B2b	Two red brick structures located on the southern side of B2. B2b is of more recent construction. Both rooves are sloped with corrugated tiles and air vents are present within the brick walls on both structures. B2b has an approximate 2 cm gap above the door providing access into the interior but also creating a draught. B1b has cracked brickwork where the structure joins Building 2, with lifted felts and lead flashing along the south western elevation. Mortar within the brick work is well sealed on both structures. No internal access was available. The building has negligible potential to support roosting bats.	
B3	B3 is a single storey, red brick building with a sloped tiled roof. This building is a more recent extension of B1. UPVC windows on the western rear of the building are covered with metal mesh. The roof is in good condition with no gaps between tiles or felt visible. The mortar between brick work is well sealed. The barge board along the western elevation of the property is rotten with numerous holes evident. No internal access was available. The building has low potential to support roosting bats.	

Appendix E – Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape (Collins, 2016).

Suitability	Description of Roosting Habitat	Commuting & Foraging Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitats to be used on a regular basis or by a larger number of bats (i.e. unlikely to be suitable maternity or hibernation). A tree of sufficient size and age to contain potential roosting features but with none seen from the ground, or feature seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status.	Continuous habitat connected to the wider landscape that could be used by bats for commuting, such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging, such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis, and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous high quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats, such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close and connected to known roosts.