




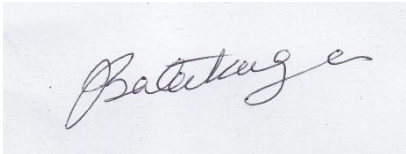

**Pennylands, Skelmersdale**

***Ecological Appraisal***

May 2019

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**Control sheet**

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## Executive Summary

An extended Phase 1 Habitat survey, daytime building inspection, desk study and ecological appraisal was completed in October and November 2018 to inform the proposed development of land at Pennylands, Skelmersdale (NGR: SD 46886 05909). Upon completion of the daytime building inspection survey a dusk emergence survey was completed in May 2019.

Key ecological features, potential impacts, further survey requirements and outline mitigation measures are summarised in the following table.

Ecological Feature	Potential Impact	Further surveys if affected	Outline Mitigation
Habitats of Principal Importance (HPI)	Indirect impacts through pollution	N	Adherence to pollution prevention measures.
Scattered trees	Direct impact	N	Retention of trees where possible and/or the replacement of trees at a ratio of 2:1.
Invasive species (cotoneaster)	Direct impact	N	Clearance of the plant to minimise its spread in the wild.
Roosting bats	Direct impact, through loss of potential roosting habitat	Y*	Hand removal of potential roosting features, if works completed during the bat active season (April - October inclusive*)
Foraging and commuting bats	Direct and indirect impact through habitat loss and increased lighting on site	N	Retention of scattered trees and/or replacement at a ratio of 1:2. Sensitive lighting schemes to be developed.
Birds	Direct impacts Loss of nesting habitat	Y	Vegetation clearance outside of nesting season (March – August inclusive) or pre-clearance nesting bird check to be undertaken*. Retain/replace lost habitats within landscaping areas.
Other mammals	Direct impacts through loss of habitat	N	Contractors to be made aware of the presence of small mammals and the creation of hedgehog habitats.

# **1. Introduction**

- 1.1 Bowland Ecology Ltd was commissioned by Aldi UK on behalf of Aldi Stores Limited to complete an ecological appraisal of a site off Westgate, Skelmersdale (NGR: SD 46886 05909), which is subject to proposals for redevelopment. Surveys undertaken at the site comprise an extended Phase 1 Habitat survey and building inspection in 2018 and a bat emergence survey in 2019.
- 1.2 The site lies to the western edge of the town of Skelmersdale and consists of an existing building with associated car parks and is bordered by Westgate to the west, High Street to the north, and residential properties to the south and east. Surrounding habitats are dominated by residential dwellings with associated gardens; industrial and retail units to the south alongside occasional parks, woodlands and treelines. Wider landscapes comprise pasture and agricultural land to the west, and wetland habitats and woodlands to the south and east respectively.
- 1.3 The purpose of the surveys 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 (Appendix A), and 3) provide an ecological assessment, identify potential impacts and provide recommendations pertaining to the proposal.
- 1.4 This report includes a description of survey methods, habitats and fauna and outlines recommendations to provide protection and enhancements for biodiversity and protected species.

## 2. Methodology

- 2.1 The desk study, extended Phase 1 habitat survey, building inspection survey and ecological appraisal followed the Guidelines for Preliminary Ecological Appraisal and the Guidelines for Ecological Report Writing (CIEEM, 2017 a, b), and are in line with the British Standard BS42020:2013 'Biodiversity – Code of practice for planning and development'.

### **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 and any legally protected species or Habitats and Species of Principal Importance for the conservation of biodiversity (Section 41 NERC Act, 2006).
- 2.3 The Multi-Agency Geographic Information for the Countryside (MAGIC) website ([www.magic.gov.uk](http://www.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 km of the site boundary.
- 2.4 Local records on and within 1 km of the site were obtained following a data search with the Lancashire Environment Record Network (LERN).
- 2.5 Ordnance Survey maps and aerial photographs (<http://maps.google.co.uk/maps>) were reviewed to help identify any continuous habitat and any other notable habitats within the surrounding area.
- 2.6 Natural England's great crested newt (*Triturus cristatus*) licensing method statement template (Form WML-A14-2 (version December 2015<sup>1</sup>)) advises that, for developments resulting in permanent or temporary habitat loss at distances over 0.25 km from the nearest pond, careful consideration should be given to whether a survey is appropriate. Although the species may use suitable terrestrial habitat up to 0.5 km from a breeding pond, in this instance a 0.25 km search radius was considered appropriate due to the relatively small scale of works and the urban nature of the proposed development site.

### **Field survey**

- 2.7 The extended Phase 1 habitat survey followed standard methodology (JNCC, 2010 and CIEEM, 2017). All features of ecological significance were target noted and a colour coded map of the habitats on site has been produced.
- 2.8 This 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 trees (identification of suitable cracks and crevices – survey undertaken from ground level only). An assessment of suitability was undertaken according to the Bat Conservation Trust' Good Practice Guidelines 3<sup>rd</sup> Edition (Collins, 2016) (Appendix B);

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<sup>1</sup> <https://www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence>

- assessing the suitability of habitats for other notable and protected species such as nesting birds (including any active or disused nests), reptiles, water vole, otter, badger and invertebrates; and
  - checking for the most common invasive plant species subject to strict legal control including: Japanese knotweed (*Fallopia japonica*), giant knotweed (*F. sachalinensis*), hybrid knotweed (*F. x bohemica*), giant hogweed (*Heracleum mantegazzianum*), rhododendron (*R. ponticum*, *R. ponticum x R. maximum* and *R. luteum*) and Indian balsam (*Impatiens glandulifera*);
- 2.9 The survey was carried out by Jo Bates-Keegan MSc, BSc (Hons), on the 12<sup>th</sup> October 2018. The weather was cool with a light breeze (Beaufort Scale 2), with occasional light rain and a temperature of approximately 16°C.
- 2.10 The timing of the Phase 1 Habitat survey was outside the optimum period for completing such a survey. However, given the low value habitats on site, it is considered that a valid assessment of the habitats present and their potential to support legally protected species was undertaken.

### ***Building Inspection Survey***

- 2.11 A daytime external inspection of the building on site was undertaken on the same day as the extended Phase 1 Habitat survey and completed by Jo Bates-Keegan and Jodie Marks MSc, BSc (Hons).
- 2.12 The external inspection involved checking for field signs of bats on external features of the building with particular attention being paid to ledges, walls, doors and the surrounding ground. An assessment of the potential of the building to support bats was also made during the survey i.e. searching for suitable roosting crevices.
- 2.13 Using the information collected during the external assessment, a 'roost potential' score was given to the building according to the criteria shown in Appendix B (Collins, 2016).
- 2.14 An assessment of the suitability of the surrounding habitats for bats was also undertaken, including the identification of potential foraging and roosting areas, potential flight lines and important commuting corridors.
- 2.15 Natural England's Bat Mitigation Guidelines (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.

### ***Dusk Emergence Survey***

- 2.16 A dusk emergence survey was undertaken on the 8<sup>th</sup> May 2019 by Jodie Marks MSc, BSc (Hons), Abigail Hamer BSc (Hons), Claire Wilson MSc, BSc (Hons), MCIEEM (Natural England Bat Licence No. 2018-38274-CLS-CLS) and Jack Taylor GradCIEEM. The survey methodology followed the guidelines as described in Collins, 2016.
- 2.17 The survey commenced at 20:35 and ended at 22:23, sunset was at 20:53. The weather during the survey was dry, with dense cloud cover and a light breeze (Beaufort Wind Scale 2). The temperature at the start of the survey was 12.2°C and 9.1°C at the end of the survey.

- 2.18 The surveyors positioned themselves to get the best coverage of the building, and focused in on those areas with the most potential as roosting habitat. The survey was aided by the use of the following bat detectors: Bat Box Duet and EM Touch.
- 2.19 The emergence survey was completed at an appropriate time of year and the weather conditions were suitable, therefore a full assessment of the potential of the building to support roosting bats was undertaken.

***Limitations***

- 2.20 Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. Therefore, the survey of the study area has not produced a complete list of plants and animals.
- 2.21 Internal access to the building was not possible due to a problem with the lock on the main door during the building inspection survey in 2018. However, emergence survey for bats was undertaken the following survey season, therefore the above is not considered to be a significant limitation.
- 2.22 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.



### 3. Results

#### ***Designated sites and Habitats of Principal Importance***

- 3.1 There are no statutory or non-statutory designated wildlife sites within 1 km of the site.
- 3.2 The site falls within the Ravenhead Brickworks Site of Special Scientific Interest (SSSI) Impact Risk Zone. 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 The search of the Multi Agency Geographical Information Centre ([www.magic.gov.uk](http://www.magic.gov.uk)) identified several areas of lowland raised bog and deciduous woodland Habitats of Principal Importance (HPI) within 1 km of the site. The closest areas of the aforementioned habitats are located approximately 0.4 km south of the site.
- 3.4 A review of the Ordnance Survey maps and aerial photographs indicates that there are no ponds on or within 0.25 km of the site. Surrounding habitats are dominated by residential dwellings with associated gardens and industrial and retail units.

#### ***Habitats***

- 3.5 Target notes summarising key interest features for wildlife recorded during the extended Phase 1 habitat survey are included in Appendix C. The Phase 1 habitat plan of the site presented in Appendix D includes the locations of the target notes. Plant species nomenclature follows Stace (2010).

#### Hardstanding

- 3.6 The majority of the site is dominated by hardstanding, comprising walkways and car parking facilities and a small area of ornamental stone chippings (TN3) along part of the northern edge of the building.

#### Amenity grassland

- 3.7 Small areas of unmanaged amenity grassland are located to the north of the site (TN2) and adjacent to the building at TN5. Species present within the sward comprise Yorkshire fog (*Holcus lanatus*), red fescue (*Festuca rubera*), creeping buttercup (*Ranunculus repens*), cow parsley (*Anthriscus sylvestris*), dandelion (*Taraxacum agg.*), ribwort plantain (*Plantago lanceolata*), creeping bent (*Agrostis stolonifera*), common ragwort (*Senecio jacobaea*), common mouse ear (*Cerastium fontanum*), and creeping thistle (*Cirsium arvense*).
- 3.8 A larger area of managed amenity grassland (TN6) with scattered trees is located along the western boundary of the site.

#### Introduced shrubs

- 3.9 A number of ornamental introduced shrubs are located around the site including at the entrance to the site (TN1), along the western edge (TN4), along the southern edge of the building (TNs 7, 8 and 9) and at the south eastern corner of the site (TN11).

Ephemeral

- 3.10 Ephemeral vegetation comprising dandelion, willowherb (*Epilobium* sp.), chickweed (*Stellaria media*), common mouse ear, shepherd's purse (*Capsella bursa-pastoris*), annual meadow grass (*Poa annua*), perennial rye grass (*Lolium perenne*), Italian rye grass (*Lolium multiflorum*), cock's-foot (*Dactylis glomerata*), false oat grass and Yorkshire fog is located in very small patches throughout the hardstanding areas of the site.

Buildings

- 3.11 There is one building on site (TN12); a largely single storey, brick built building with a flat roof and PVC windows and doors.

Scattered trees

- 3.12 There are several scattered mature and semi-mature trees around the site. Semi-mature sycamore trees are present at the north-western corner of the site (T2-T7). Three semi mature rowans (*Sorbus aucuparia*), T8 – T10, and an ornamental maple (*Acer* sp.), T11 are also scattered throughout the amenity grassland.
- 3.13 Two copper beech (*Fagus sylvatica* f. *purpurea*) which are likely to be cultivated are present at TN7 and adjacent to the building. Three ornamental cherry trees (*Prunus* sp.) lie immediately to the east of the building (TN8).
- 3.14 A line of ivy-clad, mature Scot's pine trees (*Pinus sylvestris*) is situated to the south of the building at TN9. A line of mature sycamore trees is also located at TN11.
- 3.15 Along the south-eastern edge of the site boundary (TN11) is a line of trees with introduced ornamental species such as red oak (*Quercus rubra*) and sycamore. Dogwood (*Cornus sanguinea*), birch (*Betula* sp.) and holly (*Ilex aquifolium*) are also present.



Photo



Photo

**Species**

Plants (incl. invasive species)

- 3.16 Cotoneaster (*Cotoneaster* sp.) is located at TNs 3, 4 and 5.

Bats

- 3.17 The data search returned several records for bats within the search area;
- A bat roost located is approximately 0.45 km east of the site;

- A pipistrelle (*Pipistrellus* sp.) bat was located approximately 0.6 km to the north-west of the site; and
  - A common pipistrelle (*Pipistrellus pipistrellus*) bat was located approximately 0.75 km east of the site.
- 3.18 A cherry tree (T1) with a hole in the main trunk (Photographs 1a and 1b) is present to the north of the site, within amenity grassland. A line of ivy-clad, mature Scot's pine trees (*Pinus sylvestris*) are situated to the south of the building at TN9. These trees have **low** potential to support roosting bats.
- 3.19 The building at TN12 is a single storey brick building (a smaller, central section has an additional storey - Photo 6) with a flat, bitumastic felted roof, which from the ground appears in good condition. The building is not in current use and the windows and doors boarded over with plywood panels (Photo 2) to prevent access. The south facing elevations are also clad in PVC (Photo 3) and steel (Photo 4). The cladding appears well sealed but may offer potential access points for roosting bats.
- 3.20 The mortar between the brickwork is in relatively good condition throughout the entire building with only one very small gap in the brickwork on the southwestern aspect. This gap may potentially allow bats internal access to the building. Timber barge boards (Photo 2) around the building provide roosting habitat for crevice dwelling bat species<sup>2</sup> due to the frequent gaps, with only the northernmost aspect appearing to be well sealed.
- 3.21 No internal access was possible during the building inspection, however it is considered unlikely that there is a suitable loft space within the building which would support large numbers of bats, as the roof is flat. The building is however, considered to provide **low** potential to support small numbers of crevice dwelling bats due to the number of suitable roosting features noted during the external survey.
- 3.22 The habitats on site provide **low** value foraging and commuting habitat for bats. The habitats provide connectivity to treelines within the site and mature gardens of residential properties in the area providing links to the wider environment.

#### *Dusk emergence survey*

- 3.23 No bats were recorded emerging from the building during the emergence survey, and bat activity throughout the duration of the survey was very low. A total of two common pipistrelle passes were recorded by the surveyors, the first at 20:48, along the northern section of the building; the bat was heard but not seen. The second pass was at 22:10, the call was faint and the bat was not seen.

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<sup>2</sup> Crevice dwelling bats refer to species which use small gaps for roosting and includes pipistrelles (*Pipistrellus pipistrellus* & *P. pygmaeus*) and some myotis bats (*Myotis nattereri*, *M. brandtii* & *M. mystacinus*).



Photo 2 northern aspect of building, flat roof, timber barge board and boarded windows.



Photo 3: PVC cladding and timber boarding on southern aspect of the western section of the building.



Photo 4: PVC cladding on the southern aspect.



Photo 5: gaps behind barge boarding on the southern aspect.



Photo 6: eastern aspect and second storey section of building.



Photo 7: timber boarding on the north-eastern aspect.

### Birds

3.24 The data search returned numerous bird records within search area, including starling (*Sturnus vulgaris*), dunnock (*Prunella modularis*), skylark (*Alauda arvensis*) and lesser redpoll (*Acanthus cabaret*).

3.25 The habitats on site are considered to be suitable for foraging birds. Introduced shrubs and scattered trees also provide nesting bird habitat. The flat roofs of the buildings could potentially be used by gulls, however, none were noted during the survey.

### Other mammals

- 3.26 Records of mammals within 1 km of the site include brown hare (*Lepus europaeus*) and hedgehog (*Erinaceus europaeus*), both SPI.
- 3.27 The habitats on site are considered unsuitable for brown hare and the nearest record is approximately 1 km to the west of the site. As such, they are not considered further within this report.
- 3.28 Hedgehog may use the amenity grassland on site for foraging. However, there is limited refuge habitat for the species due to the lack of ground covering vegetation. It is considered likely that they may pass through the site when foraging and moving through the gardens of residential properties.
- 3.29 No habitat for, or evidence of any other protected or notable mammals was recorded on site during the survey.

#### Reptiles

- 3.30 The desk study returned no records for reptiles within the search area and the site supports no suitable habitat for reptiles. Therefore, reptiles are not considered further within this report.

#### Amphibians

- 3.31 Records of amphibians returned by the desk study comprise common frog (*Rana temporaria*) and common toad (*Bufo bufo*).
- 3.32 There are no ponds on or within 0.25 km of the site. In addition, the habitats on site provide very low potential for amphibians as there are few areas offering suitable refuge habitat. Furthermore, the site is located within an urban setting surrounded by residential and commercial properties and busy roads which are considered to be barriers to the movement of amphibians. As such, amphibians are not considered further within this report.

#### Invertebrates

- 3.33 Records of invertebrates returned by the desk study comprise garden tiger moth (*Arctia caja*), cinnabar moth (*Tyria jacobaeae*), dark barred twin-spot carpet moth (*Xanthorhoe ferrugata*) and speckled wood butterfly (*Pararge aegeria*).
- 3.34 The habitats on site are limited in extent and botanically species poor providing limited food sources for the aforementioned invertebrates, as such they are not considered further within this report.

## 4. Evaluation 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 (see Legal Information below) and planning guidance. If there are changes to the proposals, such as a change to the proposed development design or to the construction method and programme, the assessment would need to be reviewed. Proposed works include redevelopment of the site into a new Aldi store.

### ***Habitats (including HPI)***

- 4.2 It is anticipated that there will be no direct impacts to the lowland raised bog and broadleaved woodland HPI from development of the site due to their distance from the site and the relatively small footprint of works. However, development of the site has the potential to indirectly impact the HPI during the construction period through an increase in dust pollution. This can result in reducing the availability of light for photosynthesis through smothering effects on leaves, and also alter the pH of soils which may affect the long term success of the HPIs.
- 4.3 The development will require the removal of scattered mature and semi-mature trees. The trees provide structure in the landscape and provide habitat for a variety of species (see below) therefore their loss will result in a negative ecological impact.
- 4.4 The development will also result in the loss of amenity grassland, hardstanding, ephemeral vegetation and introduced shrubs. These habitats are of little intrinsic ecological value, as such mitigation for their loss is not currently required.

### ***Species***

#### Plants (incl. invasive species)

- 4.5 Cotoneaster is present on site. Its location is shown on the Phase 1 habitat plan in Appendix D. Certain species of cotoneaster are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Identifying cotoneaster to species level is difficult, therefore as a precaution, it is advised that the species is treated as being listed on Schedule 9 and that it is disposed of appropriately to avoid causing it to grow or spread in the wild.

#### Bats

- 4.6 It is likely that the cherry tree (T1) will be retained as part of the development. However, the mature ivy-clad Scot's pine trees at TN9 will be removed to accommodate the proposed Aldi Foodstore. These trees provide limited roosting habitat for bats during the active bat season (April - October). If tree removal is undertaken during the active season, works carry a low risk of causing injury and/or killing of any bats, if present.
- 4.7 No evidence of roosting bats was observed during the external building inspection survey. However, the building was noted to have features that could be used by bats as summer day roosts during the active season, including; gaps in mortar, behind timber barge boards and plywood panels on windows

and doors. During the dusk emergence survey in 2019 no bats were recorded to emerge from the building. Therefore the likelihood of bats using the building as roosting habitat is considered to be of **negligible risk**. However, as bats are mobile and frequently change roosting sites, occasional use of the building by individual opportunistic bats cannot be completely discounted. In the absence of appropriate mitigation, there is a **very low** risk of causing harm or disturbance to individual bats during demolition works.

- 4.8 Removal of the scattered trees and introduced shrubs has the potential to negatively impact foraging and commuting bats. However, due to the scattered nature of the habitats and the sites location in a busy urban environment, loss of these features is not considered to represent a significant impact to foraging and commuting bats in the area.

#### Birds

- 4.9 Where scattered trees and introduced shrubs are removed/affected, impacts to nesting birds could occur if works are undertaken within the nesting bird season (March to August inclusive) and/or without due care and attention, which would constitute an offence (see Appendix A).
- 4.10 The removal of the aforementioned habitats will also result in the loss of suitable bird nesting and foraging habitat.

#### Other mammals

- 4.11 The clearance of introduced shrubs and scattered trees has the potential to impact small mammals including hedgehog, which are potentially hibernating/sheltering in the aforementioned habitats on site. Therefore, removal of the habitats may cause disturbance and/or direct harm to the species if works are undertaken in the absence of due care and attention.

## 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 109 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*”. It also states in Paragraph 118 that “*when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by encouraging opportunities to incorporate biodiversity 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.

### **Habitats**

- 5.2 Appropriate dust control and prevention measures will be adhered to throughout the construction period to ensure that the lowland raised bog and broadleaved woodland HPI are not negatively affected during works. Currently there is no published guidance available in England, however the Scottish Environmental Protection Agency (SEPA) and Northern Ireland Environment Agency (NIEA) have recently published updated guidance (NetRegs, 2018). Therefore, all works on site will follow recognised good practice and updated guidance, which includes (but is not limited to);
- Maintaining high standards of housekeeping;
  - Dampening down working areas and haul roads in dry periods;
  - Using covered wagons and skips; and
  - Keeping roads clean with the use of road sweepers.
- 5.3 It is recommended that where possible scattered trees are retained as part of the development. Where this is not possible, suitable mitigation for their loss should be implemented within the proposed landscaping plans for the development. Specifically, the replanting of new trees at a 1:2 ratio. Species used for planting should be native, appropriate to the locality and should be sourced locally where possible. Planting should be undertaken at an appropriate time of year (usually in winter/early spring when there is no ground frost) and specimens protected from grazing by rabbits (see Appendix G for suitable species).

### **Species**

#### Invasive species

- 5.4 It is likely that the cotoneaster will be impacted by the works. Therefore, the species should be controlled appropriately prior to the commencement of works in order to avoid spreading the plant in the wild.

#### Bats

- 5.5 The proposals include the removal several ivy clad Scot's pine (TN9) assessed as having **low** potential to support roosting bats during the active season, due to the presence of ivy cladding. As bats are a mobile species, Reasonable Avoidance Measures (RAMs) described in Paragraph 5.7 below will be adhered to during felling of the trees.



- 5.6 Upon completion of the building inspection survey and emergence survey, during which no bats or evidence of bats was recorded, the presence of bats within the building is considered to be of **very low to negligible** risk.
- 5.7 However, as bats are a mobile species, a precautionary approach to demolition and tree removal is recommended. Contractors should be made aware of the procedure should bats be encountered and the following RAMs will be adhered to during the demolition/felling works.
- Before any works proceed all contractors should be made aware of the possible presence of bats, bat field signs to look for and procedure if bats are found or discovered (see Appendix F);
  - Works should be scheduled to occur between November and March (inclusive), when bats are highly unlikely to be present within the building/trees due to the lack of suitable hibernation features;
  - If careful timing of works is not possible and demolition/tree felling must proceed during the bat active season (April to October inclusive), features providing potential bat roosting habitat, including ivy cladding, plywood boarding (covering windows) timber barge boards, fascias and roof tiles should be carefully removed by hand;
  - A suitably qualified ecologist should be on call during the works and if a bat is found the ecologist will attend site, remove the bat, check the health of the bat and then place it in a suitable bat box; and
  - If a bat is in immediate danger it should only be picked up with gloved hands and placed in a secure container with air holes.
- 5.8 To minimise future impacts upon foraging and commuting bats the following is recommended;
- Lighting schemes to be designed in accordance with the appropriate guidance (ILP, 2018) to minimise the impacts on foraging bats. Lighting schemes could include;
    - Use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps;
    - Lighting should be directed to where it is needed and light spillage avoided in particular along the site boundaries.

#### Birds

- 5.9 It is recommended that nesting bird habitat on site is retained where possible. Where this is not possible mitigation for the loss of breeding bird habitat should include the planting of native species (as described above in Paragraph 5.3). In addition, the provision of alternative nesting habitat in the form of six open fronted nest boxes with variable entrance hole sizes to accommodate a variety of bird species will be located on mature trees that are retained as part of the development proposals. It is advised that the following nest boxes are incorporated into the new development;
- Two Schwegler Nest Box 1B 26 mm;
  - Two Schwegler Nest Box 2M 32 mm; and
  - Two Schwegler Open Front Nest Box 2H
- 5.10 Tree and shrub clearance will be undertaken outside of the nesting period. Where this is not possible, clearance that must be carried out within the nesting bird season will be subject to a pre-clearance bird survey carried out by a suitably experienced ecologist.

- 5.11 No works 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. Works will only be undertaken once a scheme ecologist has declared the nest to be no longer in use.

Other mammals

- 5.12 It is recommended that contractors are made aware of the likely potential presence of small mammals, including hedgehog on site. Shrub clearance should be undertaken with care to avoid disturbance to sheltering/hibernating mammals. Any debris from works should not be left on site and any holes, trenches or trial pits 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 to a sheltered location with plenty of vegetation cover, in an area off site which will remain undisturbed.
- 5.13 In addition to the above, the following mitigation, in respect of hedgehog will also be undertaken;
- Provision of artificial or natural hedgehog boxes located in the north eastern corner of the site (that is to be retained) within ground covering vegetation, preferably against the broadleaved woodland. For example, three or four logs may be arranged to leave an appropriate sized hole for a hedgehog to nest in (big enough for the hedgehog and its nest) and covered with masses of twigs and leaves;
  - The creation of 'hedgehog highways' by leaving holes in boundary fencing to allow the movement of hedgehogs throughout the site; and
  - Retaining wood piles from felled trees to attract invertebrates and fungi, providing a good local food source for hedgehogs and possible nesting sites (materials from site works could be used for this purpose).

***Enhancement measures***

- 5.14 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):
- The installation of additional bat and bird boxes on the newly developed site;
  - Native species planting within any landscaped areas; and
  - The creation of wildflower areas as oppose to low value amenity grasslands.

***Re-survey of the Site***

- 5.15 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).

## References

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

British Standards Institution (2013) *BS 42020:2013 Biodiversity – Code of practice for planning and development*. British Standards Institution, London.

CIEEM (2017a) *Guidelines on Ecological Report Writing*. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2017b) *Guidelines for Preliminary Ecological Appraisal 2<sup>nd</sup> Edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3<sup>rd</sup> Edition). The Bat Conservation Trust, London.

Institute of Lighting Professionals (2018) *Bats and artificial lighting in the UK*. The Bat Conservation Trust, London.

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

Stace, C. (2010) *New Flora of the British Isles*. Third Edition. Cambridge University Press, Cambridge.

## 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 2017.

Species	Legislation	Offences	Notes on licensing procedures and further advice
<b>Species that are protected by European and national legislation</b>			
<b>Bats</b> <i>European protected species</i>	Conservation of Habitats and Species Regulations 2017 Reg 41	Deliberately <sup>1</sup> capture, injure or kill a bat; Deliberate disturbance <sup>2</sup> 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. <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)
	Wildlife and Countryside Act 1981 (as amended) <sup>4</sup> S.9	Intentionally or recklessly <sup>3</sup> 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.
<b>Birds</b>	Conservation of Habitats and Species (Amendment) Regulations 2017	• 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) <sup>4</sup> 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. <b>Schedule 1 species:</b> Special penalties are liable for these offences involving birds on Schedule 1.	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.
	Wildlife and Countryside Act 1981 (as amended) <sup>4</sup> S.9	Intentionally or recklessly <sup>3</sup> obstruct access to any structure or place used for shelter or protection or disturb a great crested newt in such a place.	Licences issued for science (survey), education and conservation by NE.

Habitats & Species	Legislation (England & Wales)	Guidance
<b>Species and Habitats of Principal Importance for the Conservation of Biodiversity</b>	Natural Environment & Rural Communities Act 2006 S.40 (which superseded S.74 of the Countryside & Rights of Way Act 2000).	<p>S.40 of the NERC Act 2006 sets out the duty for public authorities to conserve biodiversity in England.</p> <p>Habitats and species of principal importance for the conservation of biodiversity are identified by the Secretaries of State for England and Wales, 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:</p> <p>England: <a href="http://www.ukbap-reporting.org.uk/news/details.asp?x=45">http://www.ukbap-reporting.org.uk/news/details.asp?x=45</a></p> <p>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.</p> <p>Ecological impact assessments should include an assessment of the likely impacts to these habitats and species.</p>
<b>Cotoneaster</b>	Wildlife and Countryside Act 1981 (as amended) S.14	It is illegal to plant or otherwise cause to grow or spread in the wild these species.

<sup>1</sup>Deliberate capture or killing is taken to include “accepting the possibility” of such capture or killing

<sup>2</sup>Deliberate 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 2017 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.

<sup>3</sup>The 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.





<sup>4</sup>The 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>.




## Appendix B - Bat Roost Potential and Habitat Suitability Categories

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
<b>Negligible</b>	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.
<b>Low</b>	<p>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).</p> <p>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.</p>	<p>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.</p> <p>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.</p>
<b>Moderate</b>	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.	<p>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.</p> <p>Habitat that is connected to the wider landscape that could be used by bats for foraging, such as trees, scrub, grassland or water.</p>
<b>High</b>	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.	<p>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.</p> <p>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.</p> <p>Site is close and connected to known roosts.</p>

## Appendix C - Target notes

Target Note	Description	Photograph
TN1	Area of introduced shrub/ornamental planting. The area provides nesting bird habitat.	No photograph
TN2	Unmanaged amenity grassland to the north of the site. Species present within the sward comprise Yorkshire fog, red fescue, creeping buttercup, cow parsley, dandelion, ribwort plantain, creeping bent, common ragwort, common mouse ear and creeping thistle.	
TN3	Area of ornamental stone chipping covered with ephemeral vegetation.	No photograph
TN4	Area of introduced shrubs with occasional native species. The area provides habitat for nesting birds and small mammals and bat foraging and commuting habitat.	
TN5	Area of unmanaged amenity grassland. Species present include Yorkshire fog, red fescue, creeping buttercup, cow parsley, dandelion, ribwort plantain, creeping bent, common ragwort, common mouse ear, and creeping thistle.	
TN6	Amenity grassland running along the western boundary of the site with scattered semi mature trees. Tree species include sycamore, rowan and an ornamental maple. The area provides nesting bird habitat and bat foraging and commuting habitat.	

TN7	Area of introduced shrub and ornamental planting. Species include copper beech, ivy, ash, sycamore, holly, elder, rowan, cotoneaster, sweet chestnut, sea buckthorn and introduced, ornamental species. The area provides habitat for nesting birds and small mammals and bat foraging and commuting habitat.	No photograph
TN8	As previous TN with the addition of cultivated cherry.	No photograph
TN9	A line of mature Scot's pine ( <i>Pinus sylvestris</i> ), ivy ( <i>Hedera helix</i> ) with introduced/ ornamental shrub and ground flora. The area provides habitat for nesting birds and small mammals and bat foraging, commuting and roosting habitat.	
TN10	Hard standing with ephemeral vegetation comprising Yorkshire fog, sheep's fescue, annual meadow grass, birch and ash seedlings, white clover, Italian rye grass, chickweed, common mouse ear, ragwort, shepherd's purse and creeping bent.	
TN11	Dogwood, red oak, sycamore, birch, holly and introduced shrub. The area provides nesting bird habitat and bat foraging and commuting habitat.	
TN12	Numerous features suitable for roosting bats were noted during the survey. The building provides low bat roost potential.	See bat survey results.



## Appendix D - Phase 1 Habitat Plan



### Appendix E - Proposed Site Plan



## Appendix F - 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:

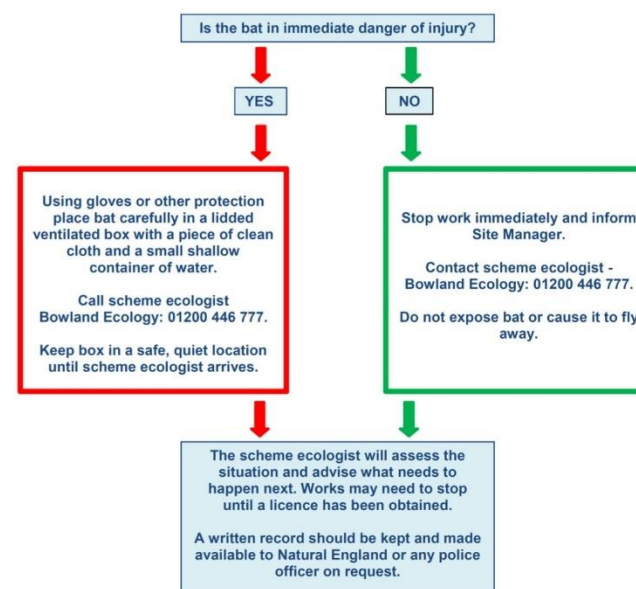
- Deliberately capture, injure or kill a bat;
- Deliberately disturb bats;
- Damage or destroy a breeding site or resting place (even if bats are not occupying the roost at the time);
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb a bat 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?

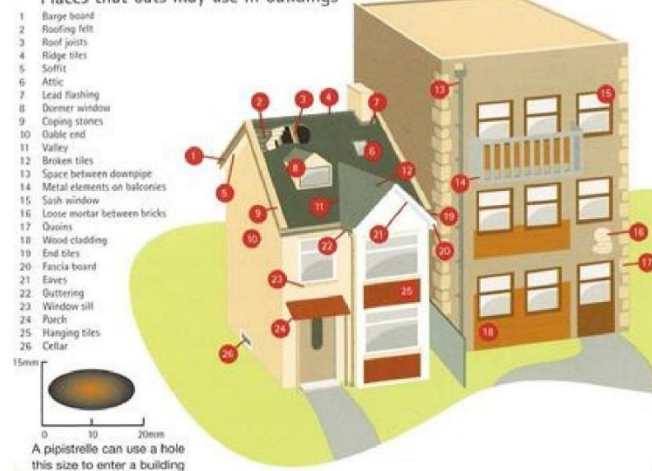


#### Field signs of bat presence:

- 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](http://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;
- 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.
- In trees (cracks/holes/ivy cladding).

#### 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, 3<sup>rd</sup> Edition, 2016

version 1 August 2017

## Appendix G - Suitable Species for use in Planting Scheme

Tree and shrub planting mix							
Scientific name	Common name	Location / Landscape Type		Local Conditions			
				Soil		Hydrology	
		County Wide	Lowlands Below 75m	Neutral	Alkaline	Damp	Dry
<i>Alnus glutinosa</i>	Alder		*	*		*	
<i>Betula pendula</i>	Silver Birch		*	*	*		*
<i>Betula pubescens</i>	Downy Birch		*	*	*	*	
<i>Calluna vulgaris</i>	Heather						*
<i>Corylus avellana</i>	Hazel		*	*	*		*
<i>Crataegus monogyna</i>	Hawthorn	*	*	*	*		*
<i>Cytisus scoparius</i>	Broom		*				*
<i>Fraxinus excelsior</i>	Ash		*	*	*		*
<i>Ilex aquifolium</i>	Holly	*	*	*			*
<i>Ligustrum vulgare</i>	Wild Privet		*	*	*		*
<i>Lonicera periclymenum</i>	Honeysuckle		*	*	*		*
<i>Malus sylvestris</i>	Crab Apple		*	*	*		*
<i>Populus tremula</i>	Aspen		*	*		*	
<i>Prunus avium</i>	Wild Cherry		*	*	*		*
<i>Prunus padus</i>	Bird Cherry			*			*
<i>Prunus spinosa</i>	Blackthorn		*	*	*		*
<i>Quercus petraea</i>	Sessile Oak						*
<i>Quercus robur</i>	Pedunculate Oak		*	*	*		*
<i>Rosa arvensis</i>	Field Rose		*	*	*		*
<i>Rosa canina agg.</i>	Dog Rose		*	*	*		*
<i>Salix caprea</i>	Goat Willow		*	*	*	*	
<i>Salix cinerea</i>	Grey Willow		*	*	*	*	
<i>Salix fragilis</i>	Crack Willow		*	*		*	
<i>Salix repens</i>	Creeping Willow			*	*	*	

Tree and shrub planting mix							
Scientific name	Common name	Location / Landscape Type		Local Conditions			
				Soil		Hydrology	
		County Wide	Lowlands Below 75m	Neutral	Alkaline	Damp	Dry
<i>Salix viminalis</i>	Osier					*	
<i>Sambucus nigra</i>	Elder		*	*	*		*
<i>Sorbus aucuparia</i>	Rowan	*	*	*	*		*
<i>Ulex europaeus</i>	Gorse			*			*
<i>Ulmus glabra</i>	Wych Elm		*		*		*
<i>Vaccinium myrtillus</i>	Bilberry	*					*
<i>Viburnum opulus</i>	Guelder-rose		*	*		*	